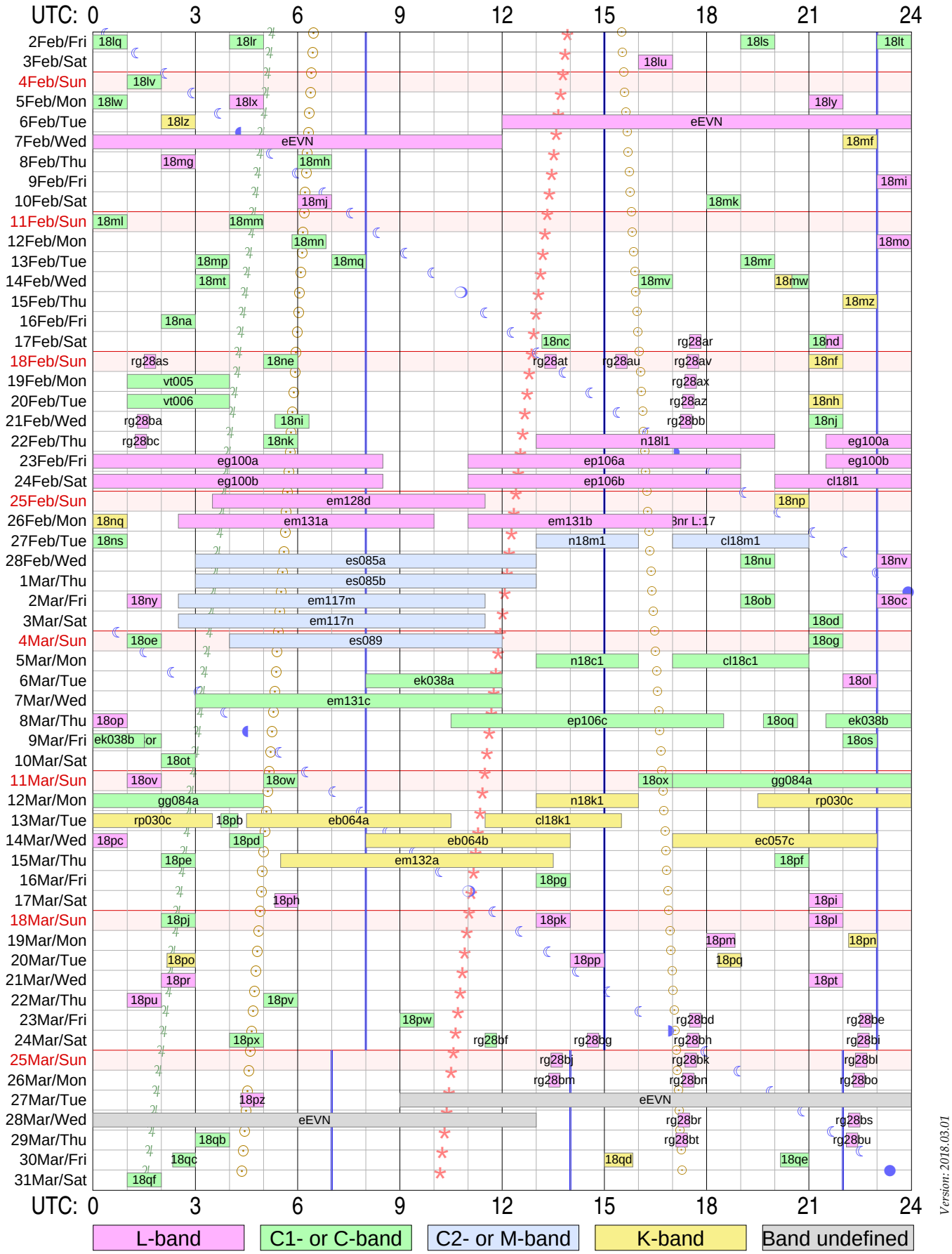
Tr VLBI plan for Feb/Mar 2018



Sky events at Tr: Sunrise & sunset Transit of Moon Transit of Jupiter Transit of Aries (0h ST)

Vertical lines in blue mark operator shift times at Tr

Total observing time: 357.3 hours in 145 experiments scheduled

Initial characters 'rk' are omitted from RA experiment names!

Version: 2018.03.01

Strona zostawiona celowo pusta

RadioAstron & EVN Experiments

Feb 2018

Uytkownik ftp dla logw i schedulw RA: `grt`
`ftp://webinet.asc.rssi.ru`
Przykad dla log files: `cd GRT_log_files/2014_09/2014_09_01_raks08ak`
Przykad dla sched files: `cd schedule/grtsched/RAKS/rk08ak`

```
Year = 2018, 2nd line is: Year  Date   UTstart UTstop Exper.  xxComment
Nr  D  M <=Dur Exper. name                      Comment
 1  2.02  1.0 |18lq                            |C
 2  2.02  1.0 |18lr                            |C
 3  2.02  1.0 |18ls                            |C
 4  2.02  1.0 |18lt                            |C
 5  3.02  1.0 |18lu                            |L
 6  4.02  1.0 |18lv                            |C
 7  5.02  1.0 |18lw                            |C
 8  5.02  1.0 |18lx                            |L
 9  5.02  1.0 |18ly                            |L
10  6.02  1.0 |18lz                            |K
11  7.02  1.0 |18mf                            |K
12  8.02  1.0 |18mg                            |L
13  8.02  1.0 |18mh                            |C
14  9.02  1.0 |18mi                            |L
15 10.02  1.0 |18mj                            |L
16 10.02  1.0 |18mk                            |C
17 11.02  1.0 |18ml                            |C
18 11.02  1.0 |18mm                            |C
19 12.02  1.0 |18mn                            |C
20 12.02  1.0 |18mo                            |L
21 13.02  1.0 |18mp                            |C
22 13.02  1.0 |18mq                            |C
23 13.02  1.0 |18mr                            |C
24 14.02  1.0 |18mt                            |C
25 14.02  1.0 |18mv                            |C
26 14.02  1.0 |18mw                            |K->C
27 15.02  1.0 |18mz                            |K
28 16.02  1.0 |18na                            |C
29 17.02  0.8 |18nc                            |C
30 17.02  0.3 |rg28ar                          |L
31 17.02  1.0 |18nd                            |C->L
32 18.02  0.3 |rg28as                          |L
33 18.02  1.0 |18ne                            |C
34 18.02  0.3 |rg28at                          |L
35 18.02  0.3 |rg28au                          |L
36 18.02  0.3 |rg28av                          |L
37 18.02  1.0 |18nf                            |K
38 19.02  0.3 |rg28aw                          |L
39 19.02  0.3 |rg28ax                          |L
```

```
40 20.02  0.3 |rg28ay                          |L
41 20.02  0.3 |rg28az                          |L
42 20.02  1.0 |18nh                            |K
43 21.02  0.3 |rg28ba                          |L
44 21.02  1.0 |18ni                            |C
45 21.02  0.3 |rg28bb                          |L
46 21.02  1.0 |18nj                            |C
47 22.02  0.3 |rg28bc                          |L
48 22.02  1.0 |18nk                            |C
49 25.02  1.0 |18np                            |K
50 26.02  1.0 |18nq                            |K
51 26.02  1.0 |18nr                            |L L:17
52 27.02  1.0 |18ns                            |K
53 28.02  1.0 |18nu                            |C
54 28.02  1.0 |18nv                            |L
55  6.02 24.0 |eEVN                            |L
Summer time (DST): Mar 25 to Oct 28, 2018
   Total observing time:  69.8 hours in  55 experiments
```

Plik pdf tego dokumentu jest dost/epny w sieci pod adresem:

`http://paulo.astro.uni.torun.pl/~pw/VLBI/schedules/feb18.pdf`

rk18lqtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   2 Feb 2018   Day  33 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1357+769     10 02 49  58.2  22.0 -3.9    -102.9     0        0   00 00 00
00 19 30  ---          10 22 22  59.3  21.5 -3.6    -108.2  1170       37   00 00 01

00 20 00  1357+769     10 22 52  59.3  21.4 -3.6    -108.3    25       37   00 20 00
00 39 30  ---          10 42 25  60.4  20.6 -3.3    -113.8  1170       75   00 20 01

00 40 00  1357+769     10 42 56  60.4  20.6 -3.3    -113.9    25       75   00 40 00
01 00 00  ---          11 02 59  61.4  19.5 -2.9    -119.7  1200      113   00 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    1         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.175035       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 45.99033        0.00
                    fake circumpolar target for a TS to look at

* 1357+769          13 57 42.117007   * 13 57 55.371538     13 58 00.147474       0.00
  J1357+7643        76 57 53.35418    * 76 43 21.05098      76 37 52.01012        0.00
                    ./rk18lq_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-AO4-07, RA-AO3-
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1357+769           110.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18lrtr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   2 Feb 2018   Day  33 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  0529+483     14 03 28  20.9 -34.5  8.5      30.8     0        0   04 00 00
04 19 30  ---          14 23 02  19.3 -31.5  8.8      28.2  1170       37   04 00 01

04 20 00  0529+483     14 23 32  19.3 -31.4  8.8      28.1    24       37   04 20 00
04 39 30  ---          14 43 05  17.8 -28.3  9.1      25.4  1170       75   04 20 01

04 40 00  0529+483     14 43 35  17.8 -28.3  9.1      25.4    24       75   04 40 00
05 00 00  ---          15 03 38  16.4 -25.1  9.5      22.5  1200      113   04 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    1         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   1  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   1

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.218115       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.02622        0.00
                    fake circumpolar target for a TS to look at

* 0529+483          05 29 27.565384   * 05 33 15.865793     05 34 38.978583       0.00
  J0533+4822        48 20 47.97038    * 48 22 52.80771      48 23 34.12032        0.00
                    ./rk18lr_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-AO4-07, RA-AO3-0
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 0529+483           127.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18lstr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   2 Feb 2018   Day  33 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 00 00  0430+052     05 05 56  41.8 190.6  0.5       6.4     0        0   19 00 00
19 19 30  ---          05 25 29  41.1 197.1  0.9      10.2  1170       37   19 00 01

19 20 00  0430+052     05 26 00  41.1 197.2  0.9      10.3    24       37   19 20 00
19 39 30  ---          05 45 33  40.1 203.5  1.2      13.9  1170       75   19 20 01

19 40 00  0430+052     05 46 03  40.1 203.7  1.2      14.0    24       75   19 40 00
20 00 00  ---          06 06 06  38.7 209.9  1.5      17.5  1200      113   19 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.363006       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.15630        0.00
                    fake circumpolar target for a TS to look at

* 0430+052          04 30 31.602064   * 04 33 11.095533     04 34 08.787425       0.00
  J0433+0521        05 14 59.61638    * 05 21 15.61916      05 23 17.39660        0.00
  3C120             ./rk18ls_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 0430+052           112.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18lttr

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   2 Feb 2018   Day  33 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  1357+769     09 06 36  55.0  22.6 -4.9     -88.7     0        0   23 00 00
23 19 30  ---          09 26 09  56.1  22.6 -4.5     -93.5  1170       37   23 00 01

23 20 00  1357+769     09 26 39  56.1  22.6 -4.5     -93.7    24       37   23 20 00
23 39 30  ---          09 46 12  57.3  22.4 -4.2     -98.6  1170       75   23 20 01

23 40 00  1357+769     09 46 42  57.3  22.4 -4.2     -98.7    25       75   23 40 00
23 59 59  ---          10 06 45  58.4  21.9 -3.9    -104.0  1199      113   23 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    1         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.397421       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.18939        0.00
                    fake circumpolar target for a TS to look at

* 1357+769          13 57 42.117007   * 13 57 55.371538     13 58 00.254136       0.00
  J1357+7643        76 57 53.35418    * 76 43 21.05098      76 37 52.02436        0.00
                    ./rk18lt_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-AO4-07, RA-AO3-
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1357+769           110.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18lutr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat   3 Feb 2018   Day  34 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

16 00 00  0954+658     02 09 23  37.7  27.7 -7.8     -42.2     0        0   16 00 00
16 19 30  ---          02 28 56  39.1  29.5 -7.5     -45.5  1170       37   16 00 01

16 20 00  0954+658     02 29 27  39.2  29.6 -7.5     -45.6    24       37   16 20 00
16 39 30  ---          02 49 00  40.6  31.4 -7.2     -48.9  1170       75   16 20 01

16 40 00  0954+658     02 49 30  40.7  31.4 -7.2     -49.0    24       75   16 40 00
17 00 00  ---          03 09 33  42.3  33.2 -6.8     -52.4  1200      113   16 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    4         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.550755       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.34721        0.00
                    fake circumpolar target for a TS to look at

* 0954+658          09 54 57.847936   * 09 58 47.245116     10 00 10.783948       0.00
  J0958+6533        65 48 15.53882    * 65 33 54.81801      65 28 33.65298        0.00
                    ./rk18lu_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 13350 observations, fringe-finder for M


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0954+658           130.2

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18lvtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun   4 Feb 2018   Day  35 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1253-055     11 10 52  26.9 150.1 -1.8     -17.5     0        0   01 00 00
01 19 30  ---          11 30 25  28.2 155.4 -1.4     -14.6  1170       37   01 00 01

01 20 00  1253-055     11 30 55  28.3 155.5 -1.4     -14.5    24       37   01 20 00
01 39 30  ---          11 50 28  29.4 160.9 -1.1     -11.4  1170       75   01 20 01

01 40 00  1253-055     11 50 59  29.4 161.0 -1.1     -11.3    24       75   01 40 00
02 00 00  ---          12 11 02  30.2 166.7 -0.8      -8.0  1200      113   01 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.630768       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.43621        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 07.403124       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 11.30301        0.00
  3C279             ./rk18lv_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1253-055           119.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18lwtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon   5 Feb 2018   Day  36 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1357+769     10 14 39  58.9  21.7 -3.7    -106.1     0        0   00 00 00
00 19 30  ---          10 34 12  59.9  21.0 -3.4    -111.4  1170       37   00 00 01

00 20 00  1357+769     10 34 42  60.0  21.0 -3.4    -111.6    25       37   00 20 00
00 39 30  ---          10 54 15  61.0  20.0 -3.1    -117.2  1170       75   00 20 01

00 40 00  1357+769     10 54 45  61.0  20.0 -3.1    -117.3    25       75   00 40 00
01 00 00  ---          11 14 48  62.0  18.8 -2.7    -123.3  1200      113   00 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    1         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.814074       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.65569        0.00
                    fake circumpolar target for a TS to look at

* 1357+769          13 57 42.117007   * 13 57 55.371538     13 58 00.465455       0.00
  J1357+7643        76 57 53.35418    * 76 43 21.05098      76 37 52.12646        0.00
                    ./rk18lw_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-AO4-07, RA-AO3-
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1357+769           109.9

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18lxtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon   5 Feb 2018   Day  36 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1253-055     14 15 18  28.7 202.3  1.3      13.2     0        0   04 00 00
04 19 30  ---          14 34 51  27.5 207.6  1.6      16.3  1170       37   04 00 01

04 20 00  1253-055     14 35 21  27.5 207.8  1.6      16.3    24       37   04 20 00
04 39 30  ---          14 54 55  26.0 213.0  2.0      19.2  1170       75   04 20 01

04 40 00  1253-055     14 55 25  25.9 213.1  2.0      19.2    24       75   04 40 00
05 00 00  ---          15 15 28  24.2 218.2  2.3      21.9  1200      113   04 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

```
POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.847506       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.69774        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 07.427222       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 11.45908        0.00
  3C279             ./rk18lx_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04
```

```
EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           120.9

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18lytr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon   5 Feb 2018   Day  36 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

21 00 00  0430+052     07 18 06  31.8 230.2  2.7      27.6     0        0   21 00 00
21 14 30  ---          07 32 38  30.0 233.9  3.0      29.2   870       28   21 00 01

21 15 00  0430+052     07 33 08  30.0 234.0  3.0      29.2    24       28   21 15 00
21 29 30  ---          07 47 40  28.2 237.6  3.2      30.6   870       56   21 15 01

21 30 00  0430+052     07 48 11  28.1 237.7  3.2      30.7    24       56   21 30 00
21 44 30  ---          08 02 43  26.2 241.2  3.5      31.9   870       84   21 30 01

21 45 00  0430+052     08 03 13  26.2 241.3  3.5      31.9    24       84   21 45 00
22 00 00  ---          08 18 15  24.2 244.8  3.7      33.1   900      112   21 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    8         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 59.973977       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.86091        0.00
                    fake circumpolar target for a TS to look at

* 0430+052          04 30 31.602064   * 04 33 11.095533     04 34 08.728465       0.00
  J0433+0521        05 14 59.61638    * 05 21 15.61916      05 23 17.21747        0.00
  3C120             ./rk18ly_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 0430+052           109.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18lztr

RadioAstron AGN Monitoring

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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue   6 Feb 2018   Day  37 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

02 00 00  1226+023     12 18 55  38.8 176.4 -0.2      -2.1     0        0   02 00 00
02 14 30  ---          12 33 27  38.9 181.1  0.1       0.7   870       28   02 00 01

02 15 00  1226+023     12 33 57  38.9 181.3  0.1       0.8    24       28   02 15 00
02 29 30  ---          12 48 30  38.7 185.9  0.3       3.5   870       56   02 15 01

02 30 00  1226+023     12 49 00  38.7 186.1  0.3       3.6    24       56   02 30 00
02 44 30  ---          13 03 32  38.4 190.7  0.6       6.4   870       84   02 30 01

02 45 00  1226+023     13 04 02  38.4 190.9  0.6       6.5    24       84   02 45 00
03 00 00  ---          13 19 05  37.9 195.6  0.8       9.3   900      112   02 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    4         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.010308       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 46.90866        0.00
                    fake circumpolar target for a TS to look at

* 1226+023          12 26 33.245835   * 12 29 06.699731     12 30 02.346568       0.00
  J1229+0203        02 19 43.30547    * 02 03 08.59797      01 57 07.54159        0.00
  3C273B            ./rk18lz_sources.radioastron
  3C273             AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-AO4-07, RA-AO3-0
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1226+023           131.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rsg09tr

e-EVN: Test, rsg09, es088b

PI: *Gabanyi, Schulz*

```
Address:  JIVE

Observing mode: realtime e-vlbi

Schedule for TORUN     (Code Tr )                                  Page   2
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Tue   6 Feb 2018   Day  37 ---

 ---------- TEST ----------

 Next scan frequencies:  1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
                         1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
 Next BBC frequencies:    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
                          625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
 Next scan bandwidths:     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
                           16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00

12 00 00  J0237+2848   22 20 33  37.7  90.8 -4.3     -43.3     0        0   12 00 00
12 14 00  =0234+285    22 34 36  39.8  93.6 -4.1     -43.2   840      108   12 00 01

12 15 00  J0237+2848   22 35 36  40.0  93.8 -4.1     -43.2    54      108   12 15 00
12 29 00  =0234+285    22 49 38  42.1  96.8 -3.8     -42.9   840      215   12 15 01

12 30 00  J0237+2848   22 50 38  42.2  97.0 -3.8     -42.9    54      215   12 30 00
12 44 00  =0234+285    23 04 41  44.3 100.1 -3.6     -42.5   840      323   12 30 01

12 45 00  J0237+2848   23 05 41  44.5 100.4 -3.6     -42.4    54      323   12 45 00
12 59 00  =0234+285    23 19 43  46.5 103.6 -3.3     -41.8   840      431   12 45 01

13 00 00  J0237+2848   23 20 43  46.7 103.8 -3.3     -41.7    54      431   13 00 00
13 14 00  =0234+285    23 34 46  48.7 107.3 -3.1     -40.9   840      538   13 00 01

13 15 00  J0237+2848   23 35 46  48.8 107.5 -3.1     -40.8    54      538   13 15 00
13 29 00  =0234+285    23 49 48  50.8 111.2 -2.8     -39.8   840      646   13 15 01

13 30 00  J0237+2848   23 50 48  51.0 111.4 -2.8     -39.7    54      646   13 30 00
13 44 00  =0234+285    00 04 51  52.9 115.3 -2.6     -38.3   840      754   13 30 01

13 45 00  J0237+2848   00 05 51  53.0 115.6 -2.6     -38.2    54      754   13 45 00
13 59 00  =0234+285    00 19 53  54.9 119.7 -2.3     -36.5   840      862   13 45 01

14 00 00  J0237+2848   00 20 53  55.0 120.0 -2.3     -36.4    54      862   14 00 00
14 14 00  =0234+285    00 34 55  56.8 124.5 -2.1     -34.4   840      969   14 00 01

14 15 00  J0237+2848   00 35 56  56.9 124.8 -2.1     -34.2    53      969   14 15 00
14 29 00  =0234+285    00 49 58  58.6 129.7 -1.8     -31.9   840     1077   14 15 01

14 30 00  J0237+2848   00 50 58  58.7 130.0 -1.8     -31.7    53     1077   14 30 00
14 44 00  =0234+285    01 05 00  60.3 135.3 -1.6     -28.9   840     1185   14 30 01
```

Schedule for TORUN (Code Tr) Page 3

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Feb 2018 Day 37 ---										
14 45 00	J0237+2848	01 06 01	60.4	135.7	-1.5		-28.6	53	1185	14 45 00
14 59 00	=0234+285	01 20 03	61.8	141.3	-1.3		-25.4	840	1292	14 45 01
15 00 00	J0237+2848	01 21 03	61.9	141.7	-1.3		-25.1	53	1292	15 00 00
15 14 00	=0234+285	01 35 05	63.1	147.9	-1.1		-21.4	840	1400	15 00 01
15 15 00	J0237+2848	01 36 05	63.2	148.3	-1.0		-21.1	53	1400	15 15 00
15 29 00	=0234+285	01 50 08	64.2	154.9	-0.8		-16.9	840	1508	15 15 01
15 30 00	J0237+2848	01 51 08	64.2	155.3	-0.8		-16.6	53	1508	15 30 00
15 44 00	=0234+285	02 05 10	65.0	162.3	-0.6		-12.0	840	1615	15 30 01
15 45 00	J0237+2848	02 06 10	65.0	162.8	-0.5		-11.7	53	1615	15 45 00
15 59 00	=0234+285	02 20 13	65.5	170.1	-0.3		-6.8	840	1723	15 45 01
---------- GAP ----------										
16 00 00	J0237+2848	02 21 13	65.6	170.6	-0.3		-6.4	53	1723	16 00 00
16 14 00	=0234+285	02 35 15	65.8	178.0	-0.1		-1.3	840	1831	16 00 01
16 15 00	J0237+2848	02 36 15	65.8	178.6	-0.0		-1.0	53	1831	16 15 00
16 29 00	=0234+285	02 50 18	65.7	186.1	0.2		4.1	840	1938	16 15 01
16 30 00	J0237+2848	02 51 18	65.7	186.6	0.2		4.5	53	1938	16 30 00
16 44 00	=0234+285	03 05 20	65.3	193.9	0.4		9.5	840	2046	16 30 01
16 45 00	J0237+2848	03 06 20	65.3	194.5	0.5		9.9	53	2046	16 45 00
16 59 00	=0234+285	03 20 23	64.6	201.6	0.7		14.6	840	2154	16 45 01
17 00 00	J0237+2848	03 21 23	64.6	202.0	0.7		14.9	53	2154	17 00 00
17 14 00	=0234+285	03 35 25	63.7	208.8	0.9		19.3	840	2262	17 00 01
17 19 00	J0815+3635	03 40 26	40.4	80.3	-4.6		-47.5	28	2262	17 19 00
17 29 00	=0812+367	03 50 28	41.9	82.2	-4.4		-47.8	600	2338	17 19 01
17 30 00	J0815+3635	03 51 28	42.1	82.3	-4.4		-47.8	54	2338	17 30 00
17 44 00	=0812+367	04 05 30	44.2	84.9	-4.2		-48.1	840	2446	17 30 01
17 45 00	J0815+3635	04 06 30	44.3	85.1	-4.2		-48.1	54	2446	17 45 00
17 59 00	=0812+367	04 20 32	46.4	87.8	-3.9		-48.3	840	2554	17 45 01
18 00 00	J0815+3635	04 21 33	46.6	88.0	-3.9		-48.3	54	2554	18 00 00
18 14 00	=0812+367	04 35 35	48.7	90.8	-3.7		-48.4	840	2662	18 00 01
18 15 00	J0815+3635	04 36 35	48.8	91.0	-3.7		-48.3	54	2662	18 15 00
18 23 00	=0812+367	04 44 36	50.0	92.6	-3.5		-48.3	480	2723	18 15 01

Schedule for TORUN (Code Tr) Page 4

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Feb 2018 Day 37 ---										
---------- RSG09 ----------										
18 30 00	J0815+3635	04 51 38	51.1	94.1	-3.4		-48.2	413	2723	18 30 00
18 34 00	=0812+367	04 55 38	51.7	94.9	-3.3		-48.1	240	2754	18 30 01
18 36 00	J0851+0845	04 57 39	25.4	110.7	-3.9		-34.6	7	2754	18 36 00
18 37 30	=0848+089	04 59 09	25.6	111.1	-3.9		-34.5	90	2765	18 36 01
18 37 30	J0849+1114	04 59 09	28.0	110.0	-3.8		-35.1	-23	2765	No stop
18 42 30	---	05 04 10	28.7	111.2	-3.8		-34.8	277	2804	18 37 31
18 43 10	J0851+0845	05 04 50	26.4	112.4	-3.8		-34.2	17	2804	18 43 10
18 44 40	=0848+089	05 06 20	26.6	112.7	-3.8		-34.1	90	2815	18 43 11
18 44 40	J0850+1108	05 06 20	28.7	111.4	-3.8		-34.7	-22	2815	No stop
18 46 40	---	05 08 20	29.0	111.8	-3.7		-34.6	98	2831	18 44 41
18 46 40	J0849+1114	05 08 20	29.3	112.1	-3.7		-34.5	-12	2831	No stop
18 50 10	---	05 11 51	29.8	113.0	-3.6		-34.3	198	2858	18 46 41
18 50 10	J0851+0845	05 11 51	27.4	114.0	-3.7		-33.7	-23	2858	No stop
18 51 40	=0848+089	05 13 21	27.6	114.3	-3.7		-33.6	67	2869	18 50 11
18 51 40	J0850+1108	05 13 21	29.7	113.0	-3.6		-34.3	-22	2869	No stop
18 53 40	---	05 15 21	29.9	113.4	-3.6		-34.1	98	2885	18 51 41
18 53 40	J0849+1114	05 15 21	30.3	113.8	-3.6		-34.1	-12	2885	No stop
18 57 10	---	05 18 52	30.7	114.6	-3.5		-33.8	198	2912	18 53 41
18 57 50	J0851+0845	05 19 32	28.4	115.8	-3.5		-33.2	17	2912	18 57 50
18 59 20	=0848+089	05 21 02	28.6	116.1	-3.5		-33.0	90	2923	18 57 51
18 59 20	J0849+1114	05 21 02	31.0	115.1	-3.5		-33.7	-23	2923	No stop
19 02 50	---	05 24 33	31.5	116.0	-3.4		-33.4	187	2950	18 59 21
19 02 50	J0851+0845	05 24 33	29.1	117.0	-3.5		-32.8	-23	2950	No stop
19 04 20	=0848+089	05 26 03	29.3	117.3	-3.4		-32.7	67	2962	19 02 51
19 04 20	J0849+1114	05 26 03	31.7	116.3	-3.4		-33.3	-23	2962	No stop
19 09 20	---	05 31 04	32.4	117.5	-3.3		-32.9	277	3000	19 04 21
19 10 00	J0851+0845	05 31 44	30.1	118.7	-3.3		-32.2	17	3000	19 10 00
19 11 30	=0848+089	05 33 14	30.3	119.1	-3.3		-32.1	90	3012	19 10 01

```
Schedule for TORUN     (Code Tr )                                  Page   5
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Tue   6 Feb 2018   Day  37 ---

19 11 30  J0850+1108   05 33 14  32.4 117.7 -3.3     -32.8   -22     3012   No stop
19 13 30  ---          05 35 15  32.6 118.2 -3.3     -32.6    98     3027   19 11 31

19 13 30  J0849+1114   05 35 15  32.9 118.6 -3.2     -32.5   -12     3027   No stop
19 17 00  ---          05 38 45  33.4 119.4 -3.2     -32.2   198     3054   19 13 31

19 17 00  J0851+0845   05 38 45  31.0 120.4 -3.2     -31.6   -23     3054   No stop
19 18 30  =0848+089    05 40 15  31.2 120.8 -3.2     -31.5    67     3065   19 17 01

19 18 30  J0850+1108   05 40 15  33.3 119.5 -3.2     -32.2   -22     3065   No stop
19 20 30  ---          05 42 16  33.6 120.0 -3.2     -32.0    98     3081   19 18 31

19 20 30  J0849+1114   05 42 16  33.9 120.3 -3.1     -31.9   -12     3081   No stop
19 24 00  ---          05 45 46  34.3 121.2 -3.1     -31.6   198     3108   19 20 31

19 24 40  J0851+0845   05 46 27  32.0 122.3 -3.1     -30.9    17     3108   19 24 40
19 26 10  =0848+089    05 47 57  32.1 122.7 -3.1     -30.7    90     3119   19 24 41

19 26 10  J0849+1114   05 47 57  34.6 121.7 -3.0     -31.4   -23     3119   No stop
19 29 40  ---          05 51 27  35.0 122.6 -3.0     -31.0   187     3146   19 26 11

19 29 40  J0851+0845   05 51 27  32.6 123.6 -3.0     -30.4   -23     3146   No stop
19 31 10  =0848+089    05 52 58  32.8 123.9 -3.0     -30.3    67     3158   19 29 41

19 31 10  J0849+1114   05 52 58  35.2 123.0 -3.0     -30.9   -23     3158   No stop
19 36 10  ---          05 57 58  35.8 124.3 -2.9     -30.4   277     3196   19 31 11

19 36 50  J0851+0845   05 58 39  33.5 125.4 -2.9     -29.7    17     3196   19 36 50
19 38 20  =0848+089    06 00 09  33.7 125.8 -2.9     -29.5    90     3208   19 36 51

19 38 20  J0850+1108   06 00 09  35.8 124.5 -2.9     -30.3   -22     3208   No stop
19 40 20  ---          06 02 09  36.1 125.0 -2.8     -30.1    98     3223   19 38 21

19 40 20  J0849+1114   06 02 09  36.4 125.4 -2.8     -29.9   -11     3223   No stop
19 43 50  ---          06 05 40  36.8 126.4 -2.7     -29.5   199     3250   19 40 21

19 43 50  J0851+0845   06 05 40  34.3 127.2 -2.8     -28.9   -23     3250   No stop
19 45 20  =0848+089    06 07 10  34.5 127.6 -2.8     -28.8    67     3262   19 43 51

19 45 20  J0850+1108   06 07 10  36.7 126.4 -2.7     -29.5   -22     3262   No stop
19 47 20  ---          06 09 10  36.9 126.9 -2.7     -29.3    98     3277   19 45 21

19 47 20  J0849+1114   06 09 10  37.2 127.3 -2.7     -29.1   -11     3277   No stop
19 50 50  ---          06 12 41  37.6 128.2 -2.6     -28.7   199     3304   19 47 21
```

Schedule for TORUN (Code Tr) Page 6

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 6 Feb 2018 Day 37 ---										
19 51 30	J0851+0845	06 13 21	35.2	129.3	-2.7		-28.1	17	3304	19 51 30
19 53 00	=0848+089	06 14 51	35.4	129.7	-2.6		-27.9	90	3315	19 51 31
19 53 00	J0849+1114	06 14 51	37.9	128.8	-2.6		-28.5	-23	3315	No stop
19 56 30	---	06 18 22	38.3	129.8	-2.5		-28.1	187	3342	19 53 01
19 56 30	J0851+0845	06 18 22	35.8	130.6	-2.6		-27.5	-23	3342	No stop
19 58 00	=0848+089	06 19 52	36.0	131.0	-2.5		-27.3	67	3354	19 56 31
19 58 00	J0849+1114	06 19 52	38.5	130.2	-2.5		-27.9	-23	3354	No stop
20 03 00	---	06 24 53	39.0	131.6	-2.4		-27.2	277	3392	19 58 01
20 03 40	J0851+0845	06 25 33	36.6	132.6	-2.4		-26.6	17	3392	20 03 40
20 05 10	=0848+089	06 27 03	36.8	133.0	-2.4		-26.4	90	3404	20 03 41
20 05 10	J0850+1108	06 27 03	39.0	131.8	-2.4		-27.1	-22	3404	No stop
20 07 10	---	06 29 03	39.2	132.4	-2.4		-26.9	98	3419	20 05 11
20 07 10	J0849+1114	06 29 03	39.5	132.8	-2.4		-26.7	-11	3419	No stop
20 10 40	---	06 32 34	39.9	133.8	-2.3		-26.2	199	3446	20 07 11
20 10 40	J0851+0845	06 32 34	37.4	134.5	-2.3		-25.7	-23	3446	No stop
20 12 10	=0848+089	06 34 04	37.5	134.9	-2.3		-25.5	67	3458	20 10 41
20 12 10	J0850+1108	06 34 04	39.8	133.8	-2.3		-26.2	-22	3458	No stop
20 14 10	---	06 36 05	40.0	134.4	-2.3		-25.9	98	3473	20 12 11
20 14 10	J0849+1114	06 36 05	40.3	134.8	-2.2		-25.7	-11	3473	No stop
20 17 40	---	06 39 35	40.6	135.8	-2.2		-25.2	199	3500	20 14 11
20 18 20	J0851+0845	06 40 15	38.2	136.7	-2.2		-24.6	17	3500	20 18 20
20 19 50	=0848+089	06 41 46	38.3	137.1	-2.2		-24.4	90	3512	20 18 21
20 19 50	J0849+1114	06 41 46	40.9	136.5	-2.1		-24.9	-23	3512	No stop
20 23 20	---	06 45 16	41.2	137.5	-2.1		-24.4	187	3538	20 19 51
20 23 20	J0851+0845	06 45 16	38.7	138.1	-2.1		-23.9	-23	3538	No stop
20 24 50	=0848+089	06 46 46	38.8	138.6	-2.1		-23.7	67	3550	20 23 21
20 24 50	J0849+1114	06 46 46	41.4	137.9	-2.1		-24.2	-23	3550	No stop
20 29 50	---	06 51 47	41.9	139.4	-2.0		-23.5	277	3588	20 24 51
20 30 30	J0851+0845	06 52 27	39.4	140.2	-2.0		-22.9	17	3588	20 30 30
20 32 00	=0848+089	06 53 58	39.5	140.7	-2.0		-22.6	90	3600	20 30 31

```
Schedule for TORUN     (Code Tr )                                  Page   7
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Tue   6 Feb 2018   Day  37 ---

20 32 00  J0850+1108   06 53 58  41.8 139.7 -2.0     -23.3   -22     3600   No stop
20 34 00  ---          06 55 58  42.0 140.3 -1.9     -23.0    98     3615   20 32 01

20 34 00  J0849+1114   06 55 58  42.3 140.7 -1.9     -22.8   -11     3615   No stop
20 37 30  ---          06 59 28  42.6 141.8 -1.8     -22.2   199     3642   20 34 01

20 37 30  J0851+0845   06 59 28  40.1 142.3 -1.9     -21.8   -23     3642   No stop
20 39 00  =0848+089    07 00 59  40.2 142.8 -1.9     -21.6    67     3654   20 37 31

20 39 00  J0850+1108   07 00 59  42.5 141.8 -1.8     -22.2   -23     3654   No stop
20 41 00  ---          07 02 59  42.7 142.4 -1.8     -21.9    97     3669   20 39 01

20 41 00  J0849+1114   07 02 59  42.9 142.9 -1.8     -21.7   -11     3669   No stop
20 44 30  ---          07 06 30  43.2 144.0 -1.7     -21.1   199     3696   20 41 01

20 45 10  J0851+0845   07 07 10  40.8 144.6 -1.8     -20.6    17     3696   20 45 10
20 46 40  =0848+089    07 08 40  40.9 145.1 -1.7     -20.3    90     3708   20 45 11

20 46 40  J0849+1114   07 08 40  43.4 144.7 -1.7     -20.7   -24     3708   No stop
20 50 10  ---          07 12 11  43.7 145.8 -1.6     -20.1   186     3735   20 46 41

20 50 10  J0851+0845   07 12 11  41.2 146.2 -1.7     -19.8   -23     3735   No stop
20 51 40  =0848+089    07 13 41  41.3 146.7 -1.6     -19.5    67     3746   20 50 11

20 51 40  J0849+1114   07 13 41  43.8 146.3 -1.6     -19.9   -24     3746   No stop
20 56 40  ---          07 18 42  44.3 147.9 -1.5     -19.0   276     3785   20 51 41

20 57 20  J0851+0845   07 19 22  41.8 148.4 -1.6     -18.5    17     3785   20 57 20
20 58 50  =0848+089    07 20 52  41.9 148.9 -1.5     -18.3    90     3796   20 57 21

20 58 50  J0850+1108   07 20 52  44.2 148.1 -1.5     -18.9   -23     3796   No stop
21 00 50  ---          07 22 52  44.4 148.7 -1.5     -18.5    97     3812   20 58 51

21 00 50  J0849+1114   07 22 52  44.6 149.2 -1.5     -18.2   -12     3812   No stop
21 04 20  ---          07 26 23  44.8 150.4 -1.4     -17.6   198     3838   21 00 51

21 04 20  J0851+0845   07 26 23  42.3 150.6 -1.4     -17.3   -23     3838   No stop
21 05 50  =0848+089    07 27 53  42.4 151.1 -1.4     -17.1    67     3850   21 04 21

21 05 50  J0850+1108   07 27 53  44.7 150.4 -1.4     -17.6   -23     3850   No stop
21 07 50  ---          07 29 53  44.9 151.0 -1.4     -17.2    97     3865   21 05 51

21 07 50  J0849+1114   07 29 53  45.1 151.5 -1.3     -17.0   -12     3865   No stop
21 11 20  ---          07 33 24  45.4 152.7 -1.3     -16.3   198     3892   21 07 51
```

Schedule for TORUN (Code Tr) Page 8

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Feb 2018 Day 37 ---										
21 12 00	J0851+0845	07 34 04	42.8	153.1	-1.3		-15.9	17	3892	21 12 00
21 13 30	=0848+089	07 35 34	42.9	153.6	-1.3		-15.7	90	3904	21 12 01
21 13 30	J0849+1114	07 35 34	45.5	153.4	-1.2		-15.9	-24	3904	No stop
21 17 00	---	07 39 05	45.7	154.6	-1.2		-15.2	186	3931	21 13 31
21 17 00	J0851+0845	07 39 05	43.2	154.8	-1.2		-15.0	-23	3931	No stop
21 18 30	=0848+089	07 40 35	43.3	155.2	-1.2		-14.7	67	3942	21 17 01
21 18 30	J0849+1114	07 40 35	45.8	155.1	-1.2		-14.9	-24	3942	No stop
21 22 00	---	07 44 06	46.0	156.3	-1.1		-14.2	186	3969	21 18 31
21 22 00	J0851+0845	07 44 06	43.5	156.4	-1.1		-14.1	-23	3969	No stop
21 23 30	=0848+089	07 45 36	43.6	156.9	-1.1		-13.8	67	3981	21 22 01
21 25 30	J0815+3635	07 47 36	72.7	160.1	-0.5		-14.7	-3	3981	21 25 30
21 30 00	=0812+367	07 52 07	72.9	163.1	-0.4		-12.6	267	4015	21 25 31
---------- GAP ----------										
21 31 00	J0815+3635	07 53 07	72.9	163.7	-0.4		-12.1	52	4015	21 31 00
21 45 00	=0812+367	08 07 10	73.4	173.4	-0.2		-5.0	840	4123	21 31 01
21 46 00	J0815+3635	08 08 10	73.4	174.1	-0.1		-4.4	52	4123	21 46 00
22 00 00	=0812+367	08 22 12	73.4	183.9	0.1		2.9	840	4231	21 46 01
22 01 00	J0815+3635	08 23 12	73.4	184.6	0.1		3.5	52	4231	22 01 00
22 15 00	=0812+367	08 37 14	73.0	194.3	0.3		10.7	840	4338	22 01 01
22 16 00	J0815+3635	08 38 15	73.0	195.0	0.4		11.2	52	4338	22 16 00
22 30 00	=0812+367	08 52 17	72.3	204.2	0.6		17.8	840	4446	22 16 01
22 36 00	J1333+1649	08 58 18	25.8	96.5	-4.6		-38.5	129	4446	22 36 00
22 50 00	=1331+170	09 12 20	27.9	99.4	-4.4		-38.2	840	4554	22 36 01
22 51 00	J1333+1649	09 13 20	28.1	99.6	-4.4		-38.2	54	4554	22 51 00
23 05 00	=1331+170	09 27 23	30.1	102.7	-4.1		-37.7	840	4662	22 51 01
23 06 00	J1333+1649	09 28 23	30.3	102.9	-4.1		-37.7	54	4662	23 06 00
23 20 00	=1331+170	09 42 25	32.3	106.0	-3.9		-37.1	840	4769	23 06 01
23 21 00	J1333+1649	09 43 25	32.5	106.2	-3.9		-37.0	54	4769	23 21 00
23 35 00	=1331+170	09 57 28	34.5	109.5	-3.6		-36.2	840	4877	23 21 01

```
Schedule for TORUN     (Code Tr )                                  Page   9
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue   6 Feb 2018   Day  37 ---

23 36 00  J1333+1649   09 58 28  34.6 109.7 -3.6     -36.2    54     4877   23 36 00
23 50 00  =1331+170    10 12 30  36.6 113.0 -3.4     -35.2   840     4985   23 36 01

23 51 00  J1333+1649   10 13 30  36.7 113.3 -3.3     -35.2    54     4985   23 51 00
23 59 00  =1331+170    10 21 32  37.8 115.3 -3.2     -34.5   480     5046   23 51 01

 --- Wed   7 Feb 2018   Day  38 ---

 ---------- ES088B ----------

00 00 00  J1333+1649   10 22 32  38.0 115.5 -3.2     -34.5    54     5046   00 00 00
00 01 00  =1331+170    10 23 32  38.1 115.8 -3.2     -34.4    60     5054   00 00 01

00 01 00  J1334+1344   10 23 32  35.4 117.6 -3.2     -33.2   -24     5054   No stop
00 07 20  ---          10 29 53  36.2 119.2 -3.1     -32.7   356     5103   00 01 01

00 07 50  J1333+1649   10 30 23  39.0 117.5 -3.1     -33.8     6     5103   00 07 50
00 09 30  =1331+170    10 32 03  39.2 117.9 -3.0     -33.6   100     5115   00 07 51

00 09 30  J1346+1424   10 32 03  35.5 116.3 -3.3     -33.8   -28     5115   No stop
00 15 50  ---          10 38 24  36.3 117.9 -3.2     -33.2   352     5164   00 09 31

00 15 50  J1333+1649   10 38 24  40.1 119.6 -2.9     -33.0   -28     5164   No stop
00 17 30  =1331+170    10 40 05  40.3 120.0 -2.9     -32.9    72     5177   00 15 51

00 18 40  J1350+3034   10 41 15  49.0 104.1 -3.2     -42.5    23     5177   00 18 40
00 19 40  =1348+308    10 42 15  49.1 104.3 -3.2     -42.5    60     5185   00 18 41

00 19 40  J1341+3022   10 42 15  50.4 107.0 -3.0     -41.7   -20     5185   No stop
00 26 00  ---          10 48 36  51.3 108.6 -2.9     -41.2   360     5233   00 19 41

00 26 00  J1350+3034   10 48 36  50.1 105.9 -3.1     -42.1   -19     5233   No stop
00 27 40  =1348+308    10 50 16  50.3 106.3 -3.0     -42.0    81     5246   00 26 01

00 28 50  J1411+2134   10 51 26  40.5 109.6 -3.4     -37.4    19     5246   00 28 50
00 29 50  =1409+218    10 52 27  40.7 109.8 -3.3     -37.4    60     5254   00 28 51

00 29 50  J1358+2140   10 52 27  42.7 113.2 -3.1     -36.4   -22     5254   No stop
00 36 10  ---          10 58 48  43.5 114.8 -3.0     -35.9   358     5303   00 29 51

00 36 10  J1411+2134   10 58 48  41.5 111.4 -3.2     -36.9   -21     5303   No stop
00 37 50  =1409+218    11 00 28  41.8 111.8 -3.2     -36.8    79     5315   00 36 11

00 40 00  J1439+4958   11 02 38  56.8  73.1 -3.6     -63.1    37     5315   00 40 00
00 41 00  =1438+501    11 03 38  56.9  73.2 -3.6     -63.2    60     5323   00 40 01
```

Schedule for TORUN (Code Tr) Page 10

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Feb 2018 Day 38 ---										
00 41 00	J1435+5051	11 03 38	57.9	72.3	-3.5		-64.8	-17	5323	No stop
00 47 20	---	11 10 00	58.9	73.1	-3.4		-65.3	363	5372	00 41 01
00 47 20	J1439+4958	11 10 00	57.8	74.0	-3.5		-63.7	-16	5372	No stop
00 49 00	=1438+501	11 11 40	58.1	74.3	-3.5		-63.8	84	5385	00 47 21
00 50 10	J1506+3730	11 12 50	47.3	87.2	-3.9		-49.1	16	5385	00 50 10
00 51 10	=1504+377	11 13 50	47.5	87.4	-3.9		-49.1	60	5392	00 50 11
00 51 10	J1500+3648	11 13 50	47.8	89.2	-3.8		-48.5	-17	5392	No stop
00 57 30	---	11 20 11	48.8	90.5	-3.7		-48.5	363	5441	00 51 11
00 57 30	J1506+3730	11 20 11	48.4	88.6	-3.8		-49.1	-17	5441	No stop
00 59 10	=1504+377	11 21 51	48.7	88.9	-3.7		-49.1	83	5454	00 57 31
01 00 00	J1530+3758	11 22 42	45.5	84.0	-4.1		-49.2	24	5454	01 00 00
01 01 00	=1528+381	11 23 42	45.7	84.2	-4.1		-49.2	60	5462	01 00 01
01 01 00	J1529+3621	11 23 42	44.7	86.1	-4.1		-48.0	-17	5462	No stop
01 07 20	---	11 30 03	45.7	87.3	-4.0		-48.1	363	5510	01 01 01
01 07 20	J1530+3758	11 30 03	46.6	85.4	-4.0		-49.3	-17	5510	No stop
01 09 00	=1528+381	11 31 43	46.9	85.7	-4.0		-49.4	83	5523	01 07 21
01 11 30	J1333+1649	11 34 13	46.7	135.6	-2.0		-26.0	36	5523	01 11 30
01 12 30	=1331+170	11 35 14	46.8	135.9	-2.0		-25.9	60	5531	01 11 31
01 12 30	J1334+1344	11 35 14	43.9	137.4	-2.0		-24.7	-25	5531	No stop
01 18 50	---	11 41 35	44.5	139.3	-1.9		-23.7	355	5579	01 12 31
01 19 20	J1333+1649	11 42 05	47.5	138.1	-1.9		-24.8	5	5579	01 19 20
01 21 00	=1331+170	11 43 45	47.7	138.6	-1.8		-24.5	100	5592	01 19 21
01 21 00	J1346+1424	11 43 45	44.1	136.0	-2.1		-25.5	-27	5592	No stop
01 27 20	---	11 50 06	44.8	137.9	-2.0		-24.5	353	5641	01 21 01
01 27 20	J1333+1649	11 50 06	48.3	140.7	-1.7		-23.4	-27	5641	No stop
01 29 00	=1331+170	11 51 46	48.5	141.3	-1.7		-23.1	73	5654	01 27 21
01 30 20	J1350+3034	11 53 07	58.8	124.6	-2.0		-35.0	28	5654	01 30 20
01 31 20	=1348+308	11 54 07	58.9	125.0	-2.0		-34.8	60	5662	01 30 21
01 31 20	J1341+3022	11 54 07	59.9	128.6	-1.8		-32.9	-22	5662	No stop
01 37 40	---	12 00 28	60.7	130.9	-1.7		-31.7	358	5710	01 31 21

Schedule for TORUN (Code Tr) Page 11

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Feb 2018 Day 38 ---										
01 37 40	J1350+3034	12 00 28	59.7	127.2	-1.9		-33.7	-22	5710	No stop
01 39 20	=1348+308	12 02 08	59.9	127.8	-1.8		-33.4	78	5723	01 37 41
01 40 20	J1411+2134	12 03 08	49.9	129.3	-2.2		-30.0	8	5723	01 40 20
01 41 20	=1409+218	12 04 08	50.0	129.6	-2.1		-29.8	60	5731	01 40 21
01 41 20	J1358+2140	12 04 08	51.6	134.0	-1.9		-27.7	-24	5731	No stop
01 47 40	---	12 10 29	52.3	136.1	-1.8		-26.6	356	5779	01 41 21
01 47 40	J1411+2134	12 10 29	50.7	131.6	-2.0		-28.8	-24	5779	No stop
01 49 20	=1409+218	12 12 10	50.9	132.2	-2.0		-28.6	76	5792	01 47 41
01 51 40	J1439+4958	12 14 30	67.3	83.3	-2.4		-67.8	27	5792	01 51 40
01 52 40	=1438+501	12 15 30	67.5	83.5	-2.4		-67.8	60	5800	01 51 41
01 52 40	J1435+5051	12 15 30	68.4	81.9	-2.3		-70.1	-17	5800	No stop
01 59 00	---	12 21 51	69.4	82.9	-2.2		-70.4	363	5849	01 52 41
01 59 00	J1439+4958	12 21 51	68.4	84.5	-2.3		-68.1	-16	5849	No stop
02 00 40	=1438+501	12 23 32	68.7	84.8	-2.3		-68.1	84	5862	01 59 01
02 01 50	J1506+3730	12 24 42	58.0	102.8	-2.7		-47.5	16	5862	02 01 50
02 02 50	=1504+377	12 25 42	58.2	103.1	-2.7		-47.5	60	5869	02 01 51
02 02 50	J1500+3648	12 25 42	58.5	105.5	-2.6		-46.2	-19	5869	No stop
02 09 10	---	12 32 03	59.4	107.2	-2.5		-45.7	361	5918	02 02 51
02 09 10	J1506+3730	12 32 03	59.1	104.7	-2.6		-47.0	-19	5918	No stop
02 10 50	=1504+377	12 33 43	59.4	105.2	-2.6		-46.9	81	5931	02 09 11
02 12 30	3C345	12 35 24	46.7	81.9	-4.1		-50.7	38	5931	02 12 30
02 15 30	---	12 38 24	47.2	82.5	-4.1		-50.8	180	5954	02 12 31
02 16 50	J1530+3758	12 39 44	57.0	99.9	-2.9		-48.6	29	5954	02 16 50
02 17 50	=1528+381	12 40 44	57.2	100.2	-2.8		-48.5	60	5962	02 16 51
02 17 50	J1529+3621	12 40 44	56.2	102.6	-2.8		-46.7	-19	5962	No stop
02 24 10	---	12 47 05	57.1	104.2	-2.7		-46.3	361	6010	02 17 51
02 24 10	J1530+3758	12 47 05	58.1	101.7	-2.7		-48.2	-19	6010	No stop
02 25 50	=1528+381	12 48 46	58.4	102.2	-2.7		-48.1	81	6023	02 24 11
02 27 00	J1532+2344	12 49 56	47.5	117.5	-2.7		-35.6	15	6023	02 27 00
02 28 00	=1530+239	12 50 56	47.6	117.8	-2.7		-35.5	60	6031	02 27 01

Schedule for TORUN (Code Tr) Page 12

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Feb 2018 Day 38 ---										
02 28 00	J1534+2513	12 50 56	48.5	116.0	-2.7		-36.6	-17	6031	No stop
02 34 20	---	12 57 17	49.4	117.7	-2.6		-36.0	363	6079	02 28 01
02 34 20	J1532+2344	12 57 17	48.4	119.6	-2.6		-34.8	-17	6079	No stop
02 36 00	=1530+239	12 58 57	48.6	120.0	-2.6		-34.6	83	6092	02 34 21
02 36 50	J1610+2414	12 59 48	44.0	109.7	-3.2		-38.3	14	6092	02 36 50
02 37 50	=1608+243	13 00 48	44.2	110.0	-3.2		-38.2	60	6100	02 36 51
02 37 50	J1612+2825	13 00 48	47.2	105.8	-3.2		-41.1	-25	6100	No stop
02 44 10	---	13 07 09	48.1	107.3	-3.1		-40.7	355	6149	02 37 51
02 44 10	J1610+2414	13 07 09	45.1	111.6	-3.1		-37.7	-25	6149	No stop
02 45 50	=1608+243	13 08 49	45.3	112.0	-3.0		-37.6	75	6162	02 44 11
02 46 40	J1642+2523	13 09 39	41.7	103.4	-3.6		-40.3	18	6162	02 46 40
02 47 40	=1640+254	13 10 39	41.9	103.7	-3.5		-40.2	60	6169	02 46 41
02 47 40	J1638+2643	13 10 39	43.6	103.6	-3.5		-40.8	-20	6169	No stop
02 54 00	---	13 17 00	44.5	105.1	-3.4		-40.5	360	6218	02 47 41
02 54 30	J1642+2523	13 17 30	42.9	105.3	-3.4		-39.9	10	6218	02 54 30
02 56 10	=1640+254	13 19 11	43.1	105.7	-3.4		-39.8	100	6231	02 54 31
02 56 10	J1638+2754	13 19 11	45.6	104.3	-3.3		-41.2	-23	6231	No stop
03 02 30	---	13 25 32	46.5	105.8	-3.2		-40.8	357	6279	02 56 11
03 02 30	J1642+2523	13 25 32	44.0	107.2	-3.3		-39.4	-23	6279	No stop
03 04 10	=1640+254	13 27 12	44.3	107.6	-3.3		-39.3	77	6292	03 02 31
03 05 30	J1607+1551	13 28 32	41.4	124.7	-2.7		-30.9	31	6292	03 05 30
03 06 30	=1604+159	13 29 32	41.5	125.0	-2.6		-30.7	60	6300	03 05 31
03 06 30	J1609+1331	13 29 32	39.2	125.8	-2.7		-30.1	-23	6300	No stop
03 12 50	---	13 35 53	40.0	127.5	-2.6		-29.3	357	6349	03 06 31
03 13 20	J1607+1551	13 36 23	42.4	126.9	-2.5		-29.9	7	6349	03 13 20
03 15 00	=1604+159	13 38 04	42.6	127.4	-2.5		-29.7	100	6362	03 13 21
03 15 00	J1603+1711	13 38 04	44.2	127.5	-2.4		-29.9	-20	6362	No stop
03 21 20	---	13 44 25	44.9	129.3	-2.3		-29.1	360	6410	03 15 01
03 21 20	J1607+1551	13 44 25	43.3	129.2	-2.4		-28.9	-19	6410	No stop
03 23 00	=1604+159	13 46 05	43.5	129.7	-2.4		-28.7	81	6423	03 21 21

```
Schedule for TORUN     (Code Tr )                                  Page  13
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed   7 Feb 2018   Day  38 ---

03 24 20  J1507+1236   13 47 25  46.4 150.8 -1.3     -17.5    23     6423   03 24 20
03 25 20  =1504+127    13 48 25  46.4 151.1 -1.3     -17.3    60     6431   03 24 21

03 25 20  J1507+1018   13 48 25  44.2 152.1 -1.3     -16.6   -22     6431   No stop
03 31 40  ---          13 54 47  44.7 154.2 -1.2     -15.4   358     6479   03 25 21

03 31 40  J1507+1236   13 54 47  46.9 153.3 -1.2     -16.1   -22     6479   No stop
03 33 20  =1504+127    13 56 27  47.0 153.8 -1.2     -15.7    78     6492   03 31 41

03 35 10  J1333+1649   13 58 17  53.3 189.6  0.4       6.0    24     6492   03 35 10
03 36 10  =1331+170    13 59 17  53.3 190.0  0.4       6.2    60     6500   03 35 11

03 36 10  J1334+1344   13 59 17  50.3 188.9  0.4       5.5   -25     6500   No stop
03 42 30  ---          14 05 38  50.1 191.3  0.5       7.0   355     6549   03 36 11

03 43 00  J1333+1649   14 06 08  53.1 192.7  0.5       7.9     5     6549   03 43 00
03 44 40  =1331+170    14 07 49  53.0 193.4  0.6       8.3   100     6562   03 43 01

03 44 40  J1346+1424   14 07 49  51.0 187.8  0.3       4.8   -26     6562   No stop
03 51 00  ---          14 14 10  50.9 190.2  0.4       6.3   354     6610   03 44 41

03 51 00  J1333+1649   14 14 10  52.8 195.8  0.7       9.9   -27     6610   No stop
03 52 40  =1331+170    14 15 50  52.7 196.5  0.7      10.3    73     6623   03 51 01

03 54 00  J1350+3034   14 17 10  66.9 194.1  0.4       9.8    13     6623   03 54 00
03 55 00  =1348+308    14 18 10  66.9 194.7  0.4      10.2    60     6631   03 54 01

03 55 00  J1341+3022   14 18 10  66.3 199.7  0.6      13.6   -25     6631   No stop
04 01 20  ---          14 24 31  65.9 203.0  0.7      15.7   355     6679   03 55 01

04 01 20  J1350+3034   14 24 31  66.6 198.1  0.5      12.5   -24     6679   No stop
04 03 00  =1348+308    14 26 12  66.5 198.9  0.6      13.1    76     6692   04 01 21

04 04 10  J1411+2134   14 27 22  58.3 186.5  0.2       4.2    25     6692   04 04 10
04 05 10  =1409+218    14 28 22  58.3 186.9  0.3       4.5    60     6700   04 04 11

04 05 10  J1358+2140   14 28 22  58.0 193.0  0.5       8.3   -27     6700   No stop
04 11 30  ---          14 34 43  57.8 195.7  0.6      10.1   353     6749   04 05 11

04 11 30  J1411+2134   14 34 43  58.1 189.7  0.4       6.2   -27     6749   No stop
04 13 10  =1409+218    14 36 23  58.1 190.4  0.4       6.7    73     6762   04 11 31

04 16 40  J1439+4958   14 39 54  86.8 178.6 -0.0      -1.3    88     6762   04 16 40
04 17 40  =1438+501    14 40 54  86.8 181.5  0.0       1.4    60     6769   04 16 41
```

Schedule for TORUN (Code Tr) Page 14

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Feb 2018 Day 38 ---										
04 17 40	J1435+5051	14 40 54	87.6	198.6	0.1		17.7	-54	6769	No stop
04 24 00	---	14 47 15	87.1	218.0	0.2		35.7	326	6818	04 17 41
04 24 00	J1439+4958	14 47 15	86.6	199.1	0.1		17.7	-49	6818	No stop
04 25 40	=1438+501	14 48 55	86.5	203.3	0.1		21.7	51	6831	04 24 01
04 27 40	J1506+3730	14 50 56	74.1	168.4	-0.3		-8.8	34	6831	04 27 40
04 28 40	=1504+377	14 51 56	74.1	169.1	-0.2		-8.2	60	6838	04 27 41
04 28 40	J1500+3648	14 51 56	73.6	173.4	-0.2		-5.0	-24	6838	No stop
04 35 00	---	14 58 17	73.6	177.9	-0.0		-1.6	356	6887	04 28 41
04 35 00	J1506+3730	14 58 17	74.3	173.7	-0.1		-4.7	-23	6887	No stop
04 36 40	=1504+377	14 59 57	74.3	174.9	-0.1		-3.8	77	6900	04 35 01
04 37 40	J1530+3758	15 00 57	74.0	158.1	-0.5		-16.5	11	6900	04 37 40
04 38 40	=1528+381	15 01 58	74.0	158.8	-0.5		-16.0	60	6908	04 37 41
04 38 40	J1529+3621	15 01 58	72.5	160.9	-0.5		-14.1	-19	6908	No stop
04 45 00	---	15 08 19	72.8	165.1	-0.4		-11.1	361	6956	04 38 41
04 45 00	J1530+3758	15 08 19	74.3	163.3	-0.4		-12.6	-19	6956	No stop
04 46 40	=1528+381	15 09 59	74.4	164.5	-0.3		-11.8	81	6969	04 45 01
04 47 50	J1532+2344	15 11 09	60.3	169.6	-0.4		-6.8	3	6969	04 47 50
04 48 50	=1530+239	15 12 09	60.3	170.1	-0.4		-6.5	60	6977	04 47 51
04 48 50	J1534+2513	15 12 09	61.7	168.9	-0.4		-7.4	-19	6977	No stop
04 55 10	---	15 18 30	61.9	171.9	-0.3		-5.4	361	7026	04 48 51
04 55 10	J1532+2344	15 18 30	60.4	173.0	-0.3		-4.6	-19	7026	No stop
04 56 50	=1530+239	15 20 11	60.5	173.8	-0.2		-4.1	81	7038	04 55 11
04 58 00	J1610+2414	15 21 21	59.6	157.0	-0.8		-14.9	21	7038	04 58 00
04 59 00	=1608+243	15 22 21	59.7	157.4	-0.8		-14.6	60	7046	04 58 01
04 59 00	J1612+2825	15 22 21	63.6	154.3	-0.8		-17.2	-29	7046	No stop
05 05 20	---	15 28 42	64.0	157.3	-0.7		-15.2	351	7095	04 59 01
05 05 20	J1610+2414	15 28 42	60.0	160.2	-0.7		-12.9	-29	7095	No stop
05 07 00	=1608+243	15 30 22	60.1	161.0	-0.7		-12.4	71	7108	05 05 21
05 08 00	J1642+2523	15 31 22	59.1	147.0	-1.2		-21.2	17	7108	05 08 00
05 09 00	=1640+254	15 32 23	59.2	147.4	-1.2		-21.0	60	7115	05 08 01

```
Schedule for TORUN     (Code Tr )                                  Page  15
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed   7 Feb 2018   Day  38 ---

05 09 00  J1638+2643   15 32 23  60.8 148.4 -1.1     -20.6   -20     7115   No stop
05 15 20  ---          15 38 44  61.3 151.2 -1.0     -18.9   360     7164   05 09 01

05 15 50  J1642+2523   15 39 14  59.8 150.3 -1.1     -19.2    10     7164   05 15 50
05 17 30  =1640+254    15 40 54  59.9 151.0 -1.0     -18.8   100     7177   05 15 51

05 17 30  J1638+2754   15 40 54  62.6 151.0 -1.0     -19.2   -24     7177   No stop
05 23 50  ---          15 47 15  63.0 153.9 -0.9     -17.4   356     7226   05 17 31

05 23 50  J1642+2523   15 47 15  60.3 153.7 -0.9     -17.1   -24     7226   No stop
05 25 30  =1640+254    15 48 55  60.4 154.5 -0.9     -16.7    76     7238   05 23 51

05 27 00  J1607+1551   15 50 25  52.6 173.1 -0.3      -4.3    38     7238   05 27 00
05 28 00  =1604+159    15 51 26  52.6 173.5 -0.3      -4.1    60     7246   05 27 01

05 28 00  J1609+1331   15 51 26  50.2 172.7 -0.3      -4.5   -23     7246   No stop
05 34 20  ---          15 57 47  50.3 175.1 -0.2      -3.0   357     7295   05 28 01

05 34 50  J1607+1551   15 58 17  52.7 176.2 -0.2      -2.4     7     7295   05 34 50
05 36 30  =1604+159    15 59 57  52.7 176.8 -0.1      -2.0   100     7308   05 34 51

05 36 30  J1603+1711   15 59 57  54.0 178.2 -0.1      -1.1   -18     7308   No stop
05 42 50  ---          16 06 18  54.1 180.8  0.0       0.5   362     7356   05 36 31

05 42 50  J1607+1551   16 06 18  52.7 179.4 -0.0      -0.4   -18     7356   No stop
05 44 30  =1604+159    16 07 58  52.7 180.0  0.0       0.0    82     7369   05 42 51

05 46 00  J1507+1236   16 09 29  47.6 202.5  1.0      13.6    30     7369   05 46 00
05 47 00  =1504+127    16 10 29  47.6 202.9  1.0      13.8    60     7377   05 46 01

05 47 00  J1507+1018   16 10 29  45.4 202.1  1.0      13.3   -22     7377   No stop
05 53 20  ---          16 16 50  45.0 204.2  1.1      14.5   358     7426   05 47 01

05 53 20  J1507+1236   16 16 50  47.2 205.1  1.1      15.1   -22     7426   No stop
05 55 00  =1504+127    16 18 30  47.1 205.6  1.2      15.4    78     7438   05 53 21

05 58 20  3C345        16 21 51  76.2 162.3 -0.4     -13.8    77     7438   05 58 20
06 01 20  ---          16 24 51  76.3 164.6 -0.3     -11.9   180     7462   05 58 21

06 06 40  J1333+1649   16 30 12  40.1 240.3  2.9      33.0   155     7462   06 06 40
06 07 40  =1331+170    16 31 12  40.0 240.6  2.9      33.1    60     7469   06 06 41

06 07 40  J1334+1344   16 31 12  37.6 238.1  2.9      31.6   -23     7469   No stop
06 14 00  ---          16 37 33  36.7 239.8  3.0      32.3   357     7518   06 07 41
```

Schedule for TORUN (Code Tr) Page 16

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Feb 2018 Day 38 ---										
06 14 30	J1333+1649	16 38 03	39.1	242.4	3.1		33.7	7	7518	06 14 30
06 16 10	=1331+170	16 39 44	38.9	242.8	3.1		33.9	100	7531	06 14 31
06 16 10	J1346+1424	16 39 44	38.5	237.7	2.9		31.6	-25	7531	No stop
06 22 30	---	16 46 05	37.7	239.3	3.0		32.2	355	7579	06 16 11
06 22 30	J1333+1649	16 46 05	38.0	244.4	3.2		34.4	-25	7579	No stop
06 24 10	=1331+170	16 47 45	37.8	244.8	3.2		34.6	75	7592	06 22 31
06 25 30	J1350+3034	16 49 05	50.9	252.7	3.0		41.7	17	7592	06 25 30
06 26 30	=1348+308	16 50 05	50.7	252.9	3.0		41.8	60	7600	06 25 31
06 26 30	J1341+3022	16 50 05	49.2	255.1	3.1		42.2	-20	7600	No stop
06 32 50	---	16 56 26	48.3	256.6	3.2		42.6	360	7649	06 26 31
06 32 50	J1350+3034	16 56 26	49.8	254.5	3.1		42.2	-19	7649	No stop
06 34 30	=1348+308	16 58 07	49.6	254.9	3.1		42.3	81	7662	06 32 51
06 35 40	J1411+2134	16 59 17	45.3	241.5	2.8		34.5	28	7662	06 35 40
06 36 40	=1409+218	17 00 17	45.1	241.7	2.8		34.6	60	7669	06 35 41
06 36 40	J1358+2140	17 00 17	43.4	245.5	3.0		36.0	-22	7669	No stop
06 43 00	---	17 06 38	42.5	247.1	3.1		36.5	358	7718	06 36 41
06 43 00	J1411+2134	17 06 38	44.3	243.4	2.9		35.3	-22	7718	No stop
06 44 40	=1409+218	17 08 18	44.1	243.9	2.9		35.4	78	7731	06 43 01
06 47 10	J1439+4958	17 10 49	66.6	277.4	2.5		67.6	51	7731	06 47 10
06 48 10	=1438+501	17 11 49	66.5	277.6	2.5		67.5	60	7738	06 47 11
06 48 10	J1435+5051	17 11 49	66.2	280.3	2.6		69.1	-20	7738	No stop
06 54 30	---	17 18 10	65.2	281.1	2.7		68.7	360	7787	06 48 11
06 54 30	J1439+4958	17 18 10	65.5	278.5	2.6		67.2	-19	7787	No stop
06 56 10	=1438+501	17 19 50	65.3	278.8	2.7		67.1	81	7800	06 54 31
06 59 10	J1506+3730	17 22 51	61.8	250.0	2.3		45.3	106	7800	06 59 10
07 00 10	=1504+377	17 23 51	61.7	250.3	2.3		45.4	60	7808	06 59 11
07 00 10	J1500+3648	17 23 51	60.4	250.9	2.4		45.1	-18	7808	No stop
07 06 30	---	17 30 12	59.5	252.7	2.5		45.7	362	7856	07 00 11
07 06 30	J1506+3730	17 30 12	60.8	252.2	2.4		46.0	-18	7856	No stop
07 08 10	=1504+377	17 31 52	60.5	252.6	2.4		46.2	82	7869	07 06 31

Schedule for TORUN (Code Tr) Page 17

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Feb 2018 Day 38 ---										
07 09 20	J1530+3758	17 33 02	64.1	246.5	2.0		44.3	42	7869	07 09 20
07 10 20	=1528+381	17 34 02	63.9	246.8	2.1		44.4	60	7877	07 09 21
07 10 20	J1529+3621	17 34 02	62.7	244.6	2.1		42.3	-18	7877	No stop
07 16 40	---	17 40 23	61.8	246.6	2.2		43.2	362	7926	07 10 21
07 16 40	J1530+3758	17 40 23	63.1	248.8	2.2		45.2	-18	7926	No stop
07 18 20	=1528+381	17 42 04	62.8	249.3	2.2		45.4	82	7938	07 16 41
07 19 40	J1532+2344	17 43 24	51.7	232.5	2.2		31.4	25	7938	07 19 40
07 20 40	=1530+239	17 44 24	51.6	232.8	2.2		31.5	60	7946	07 19 41
07 20 40	J1534+2513	17 44 24	53.1	233.5	2.2		32.3	-19	7946	No stop
07 27 00	---	17 50 45	52.3	235.5	2.3		33.2	361	7995	07 20 41
07 27 00	J1532+2344	17 50 45	50.8	234.8	2.3		32.4	-19	7995	No stop
07 28 40	=1530+239	17 52 25	50.6	235.3	2.3		32.6	81	8008	07 27 01
07 30 00	J1610+2414	17 53 46	55.3	223.7	1.7		27.1	41	8008	07 30 00
07 31 00	=1608+243	17 54 46	55.2	224.1	1.7		27.3	60	8015	07 30 01
07 31 00	J1612+2825	17 54 46	59.0	227.2	1.7		30.1	-28	8015	No stop
07 37 20	---	18 01 07	58.3	229.5	1.8		31.3	352	8064	07 31 01
07 37 20	J1610+2414	18 01 07	54.5	226.3	1.8		28.4	-28	8064	No stop
07 39 00	=1608+243	18 02 47	54.3	226.9	1.9		28.7	72	8077	07 37 21
07 40 10	J1642+2523	18 03 57	58.4	216.4	1.3		23.2	34	8077	07 40 10
07 41 10	=1640+254	18 04 57	58.3	216.8	1.4		23.5	60	8085	07 40 11
07 41 10	J1638+2643	18 04 57	59.1	219.7	1.4		25.4	-20	8085	No stop
07 47 30	---	18 11 19	58.5	222.2	1.5		26.8	360	8133	07 41 11
07 48 00	J1642+2523	18 11 49	57.7	219.5	1.5		25.0	10	8133	07 48 00
07 49 40	=1640+254	18 13 29	57.5	220.1	1.5		25.4	100	8146	07 48 01
07 49 40	J1638+2754	18 13 29	59.4	223.8	1.6		28.1	-22	8146	No stop
07 56 00	---	18 19 50	58.7	226.2	1.7		29.4	358	8195	07 49 41
07 56 00	J1642+2523	18 19 50	56.9	222.5	1.6		26.7	-22	8195	No stop
07 57 40	=1640+254	18 21 30	56.7	223.1	1.6		27.0	78	8208	07 56 01
07 58 50	J1607+1551	18 22 40	44.3	228.2	2.2		27.7	10	8208	07 58 50
07 59 50	=1604+159	18 23 41	44.2	228.5	2.3		27.9	60	8215	07 58 51

```
Schedule for TORUN     (Code Tr )                                  Page  18
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed   7 Feb 2018   Day  38 ---

07 59 50  J1609+1331   18 23 41  42.4 226.2  2.2      26.5   -20     8215   No stop
08 06 10  ---          18 30 02  41.7 228.1  2.3      27.4   360     8264   07 59 51

08 06 40  J1607+1551   18 30 32  43.4 230.5  2.4      28.8    10     8264   08 06 40
08 08 20  =1604+159    18 32 12  43.2 231.0  2.4      29.0   100     8277   08 06 41

08 08 20  J1603+1711   18 32 12  44.0 233.0  2.5      30.1   -18     8277   No stop
08 14 40  ---          18 38 33  43.2 234.8  2.6      30.9   362     8326   08 08 21

08 14 40  J1607+1551   18 38 33  42.5 232.8  2.5      29.8   -17     8326   No stop
08 16 20  =1604+159    18 40 13  42.3 233.3  2.5      30.0    83     8338   08 14 41

08 17 50  J1507+1236   18 41 44  31.6 246.8  3.6      34.4    36     8338   08 17 50
08 18 50  =1504+127    18 42 44  31.4 247.1  3.6      34.5    60     8346   08 17 51

08 18 50  J1507+1018   18 42 44  29.5 245.6  3.6      33.8   -21     8346   No stop
08 25 10  ---          18 49 05  28.6 247.1  3.7      34.2   359     8395   08 18 51

08 25 10  J1507+1236   18 49 05  30.5 248.6  3.7      34.9   -21     8395   No stop
08 26 50  =1504+127    18 50 45  30.3 248.9  3.7      35.0    79     8408   08 25 11

08 28 20  J1607+1551   18 52 15  40.8 236.6  2.7      31.4    36     8408   08 28 20
08 29 20  =1604+159    18 53 15  40.7 236.9  2.8      31.5    60     8415   08 28 21

08 29 20  J1609+1331   18 53 15  39.0 234.6  2.7      30.2   -20     8415   No stop
08 35 40  ---          18 59 36  38.2 236.3  2.8      30.9   360     8464   08 29 21

08 36 10  J1607+1551   19 00 07  39.8 238.7  2.9      32.2    10     8464   08 36 10
08 37 50  =1604+159    19 01 47  39.6 239.2  2.9      32.4   100     8477   08 36 11

08 37 50  J1603+1711   19 01 47  40.2 241.1  3.0      33.4   -17     8477   No stop
08 44 10  ---          19 08 08  39.4 242.7  3.1      34.0   363     8526   08 37 51

08 44 10  J1607+1551   19 08 08  38.8 240.8  3.0      33.0   -17     8526   No stop
08 45 50  =1604+159    19 09 48  38.5 241.3  3.0      33.2    83     8538   08 44 11

08 47 10  J1507+1236   19 11 08  27.4 253.6  4.0      36.2    25     8538   08 47 10
08 48 10  =1504+127    19 12 09  27.3 253.8  4.1      36.2    60     8546   08 47 11

08 48 10  J1507+1018   19 12 09  25.4 252.3  4.1      35.5   -21     8546   No stop
08 54 30  ---          19 18 30  24.5 253.7  4.2      35.8   359     8595   08 48 11

08 54 30  J1507+1236   19 18 30  26.3 255.2  4.2      36.5   -21     8595   No stop
08 56 10  =1504+127    19 20 10  26.1 255.5  4.2      36.6    79     8608   08 54 31
```

```
Schedule for TORUN     (Code Tr )                                  Page  19
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed   7 Feb 2018   Day  38 ---

08 58 00  J1333+1649   19 22 00  15.2 277.8  5.8      38.4    51     8608   08 58 00
08 59 00  =1331+170    19 23 00  15.0 278.0  5.8      38.4    60     8615   08 58 01

08 59 00  J1334+1344   19 23 00  12.8 275.8  5.8      37.9   -22     8615   No stop
09 05 20  ---          19 29 21  11.8 277.0  5.9      37.8   358     8664   08 59 01

09 05 50  J1333+1649   19 29 51  14.0 279.3  5.9      38.2     8     8664   09 05 50
09 07 30  =1331+170    19 31 32  13.7 279.7  6.0      38.2   100     8677   09 05 51

09 07 30  J1346+1424   19 31 32  13.8 275.5  5.7      38.1   -23     8677   No stop
09 13 50  ---          19 37 53  12.9 276.8  5.8      38.0   357     8726   09 07 31

09 13 50  J1333+1649   19 37 53  12.8 280.9  6.1      38.0   -23     8726   No stop
09 15 30  =1331+170    19 39 33  12.6 281.2  6.1      38.0    77     8738   09 13 51

09 16 50  J1350+3034   19 40 53  25.5 287.5  5.8      41.6    17     8738   09 16 50
09 17 50  =1348+308    19 41 53  25.3 287.7  5.8      41.6    60     8746   09 16 51

09 17 50  J1341+3022   19 41 53  23.8 289.3  6.0      41.0   -19     8746   No stop
09 24 10  ---          19 48 14  22.9 290.4  6.1      40.7   361     8795   09 17 51

09 24 10  J1350+3034   19 48 14  24.4 288.9  5.9      41.3   -19     8795   No stop
09 25 50  =1348+308    19 49 55  24.2 289.2  6.0      41.2    81     8808   09 24 11

09 26 50  J1411+2134   19 50 55  20.2 279.1  5.6      39.6    25     8808   09 26 50
09 27 50  =1409+218    19 51 55  20.1 279.3  5.7      39.6    60     8815   09 26 51

09 27 50  J1358+2140   19 51 55  18.1 282.0  5.9      39.2   -21     8815   No stop
09 34 10  ---          19 58 16  17.2 283.2  6.0      38.9   359     8864   09 27 51

09 34 10  J1411+2134   19 58 16  19.2 280.6  5.8      39.4   -21     8864   No stop
09 35 50  =1409+218    19 59 56  18.9 280.9  5.8      39.3    79     8877   09 34 11

09 38 00  J1439+4958   20 02 07  42.5 300.5  5.4      53.5    27     8877   09 38 00
09 39 00  =1438+501    20 03 07  42.4 300.6  5.4      53.4    60     8885   09 38 01

09 39 00  J1435+5051   20 03 07  42.4 302.1  5.5      53.5   -16     8885   No stop
09 45 20  ---          20 09 28  41.5 302.9  5.6      52.8   364     8933   09 39 01

09 45 20  J1439+4958   20 09 28  41.6 301.4  5.5      52.7   -16     8933   No stop
09 47 00  =1438+501    20 11 08  41.4 301.6  5.5      52.5    84     8946   09 45 21

09 48 40  J1506+3730   20 12 48  36.7 285.7  5.1      46.7    53     8946   09 48 40
09 49 40  =1504+377    20 13 49  36.5 285.9  5.1      46.7    60     8954   09 48 41
```

Schedule for TORUN (Code Tr) Page 20

e-EVN: Test, rsg09, es088b

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Feb 2018 Day 38 ---										
09 49 40	J1500+3648	20 13 49	35.3	286.2	5.2		46.0	-18	8954	No stop
09 56 00	---	20 20 10	34.3	287.3	5.3		45.7	362	9003	09 49 41
09 56 00	J1506+3730	20 20 10	35.6	286.9	5.2		46.3	-18	9003	No stop
09 57 40	=1504+377	20 21 50	35.4	287.2	5.2		46.3	82	9015	09 56 01
09 59 10	J1530+3758	20 23 20	39.0	283.8	4.9		47.7	62	9015	09 59 10
10 00 10	=1528+381	20 24 20	38.8	284.0	4.9		47.6	60	9023	09 59 11
10 00 10	J1529+3621	20 24 20	37.6	282.6	4.9		46.6	-18	9023	No stop
10 06 30	---	20 30 41	36.7	283.7	5.0		46.4	362	9072	10 00 11
10 06 30	J1530+3758	20 30 41	37.9	285.1	5.0		47.3	-18	9072	No stop
10 08 10	=1528+381	20 32 22	37.7	285.3	5.0		47.2	82	9085	10 06 31
10 09 20	J1532+2344	20 33 32	27.6	273.3	5.0		40.9	19	9085	10 09 20
10 10 20	=1530+239	20 34 32	27.5	273.5	5.0		40.9	60	9092	10 09 21
10 10 20	J1534+2513	20 34 32	28.9	274.3	5.0		41.4	-18	9092	No stop
10 16 40	---	20 40 53	27.9	275.5	5.1		41.3	362	9141	10 10 21
10 16 40	J1532+2344	20 40 53	26.5	274.8	5.1		40.8	-19	9141	No stop
10 18 20	=1530+239	20 42 33	26.3	275.1	5.2		40.8	81	9154	10 16 41
10 19 40	J1507+1236	20 43 54	13.6	272.8	5.6		37.9	19	9154	10 19 40
10 20 40	=1504+127	20 44 54	13.5	273.0	5.6		37.9	60	9162	10 19 41
10 20 40	J1507+1018	20 44 54	11.7	271.6	5.6		37.6	-21	9162	No stop
10 27 00	---	20 51 15	10.7	272.8	5.7		37.6	359	9210	10 20 41
10 27 00	J1507+1236	20 51 15	12.5	274.3	5.7		37.8	-20	9210	No stop
10 28 40	=1504+127	20 52 55	12.3	274.6	5.7		37.8	80	9223	10 27 01
10 30 20	J1610+2414	20 54 35	30.5	270.4	4.7		41.2	17	9223	10 30 20
10 31 20	=1608+243	20 55 35	30.4	270.6	4.7		41.2	60	9231	10 30 21
10 31 20	J1612+2825	20 55 35	33.7	273.6	4.7		42.9	-26	9231	No stop
10 37 40	---	21 01 56	32.8	274.8	4.8		42.9	354	9279	10 31 21
10 37 40	J1610+2414	21 01 56	29.4	271.9	4.8		41.1	-27	9279	No stop
10 39 20	=1608+243	21 03 37	29.2	272.2	4.9		41.1	73	9292	10 37 41
10 40 20	J1642+2523	21 04 37	34.7	266.9	4.4		41.6	25	9292	10 40 20
10 41 20	=1640+254	21 05 37	34.5	267.1	4.4		41.6	60	9300	10 40 21

```
Schedule for TORUN     (Code Tr )                                  Page  21
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed   7 Feb 2018   Day  38 ---

10 41 20  J1638+2643   21 05 37  34.8 269.1  4.4      42.2   -18     9300   No stop
10 47 40  ---          21 11 58  33.9 270.4  4.6      42.2   362     9349   10 41 21

10 48 10  J1642+2523   21 12 28  33.5 268.5  4.5      41.6    12     9349   10 48 10
10 49 50  =1640+254    21 14 08  33.3 268.8  4.5      41.6   100     9362   10 48 11

10 49 50  J1638+2754   21 14 08  34.5 271.6  4.6      42.8   -20     9362   No stop
10 56 10  ---          21 20 30  33.6 272.9  4.7      42.7   360     9410   10 49 51

10 56 10  J1642+2523   21 20 30  32.3 270.1  4.6      41.6   -20     9410   No stop
10 57 50  =1640+254    21 22 10  32.1 270.4  4.6      41.6    80     9423   10 56 11

10 59 10  J1607+1551   21 23 30  19.2 270.9  5.3      38.6    18     9423   10 59 10
11 00 10  =1604+159    21 24 30  19.1 271.1  5.3      38.6    60     9431   10 59 11

11 00 10  J1609+1331   21 24 30  17.7 269.1  5.2      38.1   -19     9431   No stop
11 06 30  ---          21 30 51  16.7 270.3  5.3      38.1   361     9479   11 00 11

11 07 00  J1607+1551   21 31 21  18.0 272.5  5.4      38.6    11     9479   11 07 00
11 08 40  =1604+159    21 33 02  17.8 272.8  5.4      38.6   100     9492   11 07 01

11 08 40  J1603+1711   21 33 02  18.3 274.4  5.5      38.8   -16     9492   No stop
11 15 00  ---          21 39 23  17.3 275.7  5.6      38.7   364     9541   11 08 41

11 15 00  J1607+1551   21 39 23  16.8 274.1  5.5      38.5   -16     9541   No stop
11 16 40  =1604+159    21 41 03  16.6 274.4  5.6      38.5    84     9554   11 15 01

11 17 50  J1532+2344   21 42 13  17.5 286.4  6.1      39.0    31     9554   11 17 50
11 18 50  =1530+239    21 43 13  17.3 286.6  6.2      38.9    60     9562   11 17 51

11 18 50  J1534+2513   21 43 13  18.7 287.2  6.1      39.3   -19     9562   No stop
11 25 10  ---          21 49 34  17.8 288.4  6.2      39.0   361     9610   11 18 51

11 25 10  J1532+2344   21 49 34  16.4 287.7  6.3      38.6   -19     9610   No stop
11 26 50  =1530+239    21 51 15  16.2 288.1  6.3      38.6    81     9623   11 25 11

11 28 20  J1610+2414   21 52 45  21.9 281.6  5.7      40.2    54     9623   11 28 20
11 29 20  =1608+243    21 53 45  21.7 281.8  5.7      40.1    60     9631   11 28 21

11 29 20  J1612+2825   21 53 45  25.1 284.5  5.7      41.4   -26     9631   No stop
11 35 40  ---          22 00 06  24.2 285.6  5.8      41.1   354     9679   11 29 21

11 35 40  J1610+2414   22 00 06  20.8 283.0  5.8      39.9   -27     9679   No stop
11 37 20  =1608+243    22 01 46  20.5 283.3  5.8      39.8    73     9692   11 35 41
```

```
Schedule for TORUN     (Code Tr )                                Page  22
               e-EVN: Test, rsg09, es088b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed   7 Feb 2018   Day  38 ---

11 38 20  J1642+2523   22 02 46  26.0 278.3  5.3      41.1    25     9692   11 38 20
11 39 20  =1640+254    22 03 47  25.8 278.5  5.3      41.1    60     9700   11 38 21

11 39 20  J1638+2643   22 03 47  26.2 280.3  5.4      41.4   -17     9700   No stop
11 45 40  ---          22 10 08  25.2 281.5  5.5      41.2   363     9749   11 39 21

11 46 10  J1642+2523   22 10 38  24.8 279.8  5.5      40.9    13     9749   11 46 10
11 47 50  =1640+254    22 12 18  24.6 280.1  5.5      40.9   100     9762   11 46 11

11 47 50  J1638+2754   22 12 18  25.9 282.7  5.5      41.5   -19     9762   No stop
11 54 10  ---          22 18 39  25.0 283.8  5.7      41.3   361     9810   11 47 51

11 54 10  J1642+2523   22 18 39  23.6 281.3  5.6      40.7   -19     9810   No stop
11 55 50  =1640+254    22 20 19  23.4 281.6  5.6      40.6    81     9823   11 54 11

11 57 00  3C345        22 21 30  33.8 293.0  5.6      46.0    17     9823   11 57 00
12 00 00  ---          22 24 30  33.4 293.5  5.7      45.8   180     9846   11 57 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.L1024e

   Setup group:    8         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 32.000
   Number of channels: 16    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
            2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U         L         L         U         U
                  L         L         U         U         L         L         U         U
  IF SB =         L         L         L         L         L         L         L         L
                  L         L         L         L         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
                RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         2         6         2         6
                  3         7         3         7         4         8         4         8
  BBC SB=         U         U         L         L         U         U         L         L
                  U         U         L         L         U         U         L         L
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1
                 A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   7  Setup file default.  Used with PCAL = off
  LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
            1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
  BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
             625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
  Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
              16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
   Matching frequency sets:   7

  Track assignments are:
   track1=   2, 10, 18, 26,  4, 12, 20, 28,  6, 14, 22, 30,  8, 16, 24, 32
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* J0849+1114        08 46 21.792528   * 08 49 05.505000     08 50 05.273279       0.00
                    11 25 57.62754    * 11 14 48.02000      11 10 35.90596        0.00

* J0850+1108        08 48 02.184915   * 08 50 45.741100     08 51 45.453429       0.00
                    11 19 55.54119    * 11 08 40.51300      11 04 26.47739        0.00

* J1334+1344        13 32 28.748303   * 13 34 55.960000     13 35 48.970750       0.00
                    13 59 51.25811    * 13 44 31.84000      13 38 56.41870        0.00

* J1341+3022        13 38 54.007471   * 13 41 11.138000     13 42 00.397863       0.00
                    30 37 49.20664    * 30 22 41.24000      30 17 05.60095        0.00

* J1346+1424        13 44 23.389456   * 13 46 49.464066     13 47 42.002173       1.58
                    14 38 59.00741    * 14 24 01.51143      14 18 34.06624        3.85
                    rfc_2015a Petrov, 2015, unpublished.  6 observations

* J1358+2140        13 55 45.326418   * 13 58 06.053686     13 58 56.567586       0.19
                    21 54 55.65456    * 21 40 21.29320      21 35 00.29965        0.28
                    rfc_2015a Petrov, 2015, unpublished.  89 observations

* J1435+5051        14 33 39.331848   * 14 35 21.676000     14 35 58.040936       0.00
                    51 04 25.44786    * 50 51 22.81000      50 46 28.88302        0.00

* J1500+3648        14 58 36.224353   * 15 00 34.585000     15 01 16.640739       0.00
```

```
                    37 00 34.78691    * 36 48 45.10000      36 44 20.56437        0.00

* J1507+1018        15 04 57.008421   * 15 07 21.879663     15 08 13.581748       7.49
                    10 30 14.26270    * 10 18 45.01893      10 14 35.60519        7.87
                    rfc_2015a Petrov, 2015, unpublished.  5 observations

* J1529+3621        15 27 27.619577   * 15 29 22.467000     15 30 03.103272       0.00
                    36 31 57.58844    * 36 21 42.23000      36 17 52.28854        0.00

* J1534+2513        15 32 29.192856   * 15 34 37.622000     15 35 23.184721       0.00
                    25 23 08.86337    * 25 13 11.35000      25 09 30.82930        0.00

* J1603+1711        16 01 16.392182   * 16 03 32.083297     16 04 20.147529       0.32
                    17 20 07.15250    * 17 11 55.31078      17 08 55.70733        0.60
                    rfc_2015a Petrov, 2015, unpublished.  159 observations

* J1609+1331        16 07 33.908857   * 16 09 53.403000     16 10 42.817660       0.00
                    13 39 35.23243    * 13 31 47.65000      13 28 58.01370        0.00

* J1612+2825        16 10 16.101065   * 16 12 17.627000     16 13 00.490487       0.00
                    28 33 24.15065    * 28 25 46.52000      28 22 56.19676        0.00

* J1638+2643        16 36 01.391874   * 16 38 03.653000     16 38 46.661885       0.00
                    26 49 25.25728    * 26 43 30.49000      26 41 18.13640        0.00

* J1638+2754        16 36 44.220857   * 16 38 44.805000     16 39 27.199869       0.00
                    28 00 31.17115    * 27 54 39.27000      27 52 27.65921        0.00

  0234+285          02 34 55.589590   * 02 37 52.405677     02 38 55.821822       0.00
* J0237+2848        28 35 11.40776    * 28 48 08.99001      28 52 45.26425        0.00
  J0237+28          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished  54650 observations.

  0812+367          08 12 10.710943   * 08 15 25.944861     08 16 37.053214       0.02
* J0815+3635        36 44 27.45306    * 36 35 15.14871      36 31 46.74207        0.02
  J0815+36          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   2338 observations.

  0848+089          08 48 47.015737   * 08 51 28.425238     08 52 27.378984       0.16
* J0851+0845        08 56 32.69945    * 08 45 15.31111      08 41 00.40504        0.35
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished     88 observations.

  1331+170          13 31 09.997619   * 13 33 35.782633     13 34 28.266871       0.10
* J1333+1649        17 04 25.70299    * 16 49 04.01485      16 43 26.85119        0.15
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    280 observations.

  1348+308          13 48 37.245633   * 13 50 52.736222     13 51 41.356456       0.03
* J1350+3034        30 49 42.80411    * 30 34 53.59071      30 29 24.79970        0.04
  J1350+30          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   1145 observations.

  1409+218          14 09 35.439439   * 14 11 54.862222     14 12 44.836771       0.06
* J1411+2134        21 48 26.70958    * 21 34 23.43755      21 29 13.93314        0.10
  J1411+21          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    389 observations.

  1438+501          14 38 04.222334   * 14 39 46.976230     14 40 23.465138       0.21
* J1439+4958        50 10 55.89377    * 49 58 05.45575      49 53 16.11731        0.18
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    146 observations.

  1504+377          15 04 12.956679   * 15 06 09.529968     15 06 50.907674       0.02
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```
* J1506+3730        37 42 23.33442    * 37 30 51.13252      37 26 32.82735        0.02
  J1506+37          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   2154 observations.

  1504+127          15 04 58.911832   * 15 07 21.758103     15 08 12.719719       0.15
* J1507+1236        12 47 58.26226    * 12 36 29.07633      12 32 18.92107        0.29
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    140 observations.

  1528+381          15 28 23.875806   * 15 30 16.252177     15 30 55.983424       0.36
* J1530+3758        38 08 43.35114    * 37 58 31.16651      37 54 42.01053        0.38
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    114 observations.

  1530+239          15 30 36.092767   * 15 32 46.345222     15 33 32.581896       0.10
* J1532+2344        23 54 09.32921    * 23 44 05.26804      23 40 22.78030        0.17
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished     90 observations.

  1604+159          16 04 49.399217   * 16 07 06.430439     16 07 54.964009       0.25
* J1607+1551        15 59 32.70695    * 15 51 34.48497      15 48 40.25148        0.47
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    139 observations.

  1608+243          16 08 34.991467   * 16 10 42.026773     16 11 26.904964       0.03
* J1610+2414        24 22 33.01902    * 24 14 49.01169      24 11 57.49184        0.04
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   1238 observations.

  1640+254          16 40 36.555189   * 16 42 40.411831     16 43 23.980051       0.07
* J1642+2523        25 28 43.57721    * 25 23 07.68216      25 21 02.55403        0.13
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    163 observations.

* 3C345             16 41 17.606228   * 16 42 58.809966     16 43 34.113266       0.76
  J1642+3948        39 54 10.81496    * 39 48 36.99402      39 46 29.26976        0.52
  1641+399          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1642+39          GSFC 2015a astro solution, unpublished  53430 observations.
```

rk18mftr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed   7 Feb 2018   Day  38 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

22 00 00  0430+052     08 26 09  23.1 246.6  3.9      33.6     0        0   22 00 00
22 19 30  ---          08 45 42  20.3 250.9  4.2      34.8  1170       37   22 00 01

22 20 00  0430+052     08 46 12  20.3 251.0  4.2      34.8    24       37   22 20 00
22 39 30  ---          09 05 45  17.5 255.2  4.5      35.7  1170       75   22 20 01

22 40 00  0430+052     09 06 15  17.4 255.3  4.5      35.7    24       75   22 40 00
23 00 00  ---          09 26 18  14.4 259.5  4.9      36.4  1200      113   22 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.316842       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.31285        0.00
                    fake circumpolar target for a TS to look at

* 0430+052          04 30 31.602064   * 04 33 11.095533     04 34 08.694746       0.00
  J0433+0521        05 14 59.61638    * 05 21 15.61916      05 23 17.05662        0.00
  3C120             ./rk18mf_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 0430+052           107.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18mgtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu   8 Feb 2018   Day  39 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

02 00 00  1803+784     12 26 48  52.9  19.2 -5.5     -81.4     0        0   02 00 00
02 19 30  ---          12 46 21  53.9  19.4 -5.2     -86.0  1170       37   02 00 01

02 20 00  1803+784     12 46 51  53.9  19.4 -5.2     -86.1    25       37   02 20 00
02 39 30  ---          13 06 24  54.9  19.4 -4.9     -90.9  1170       75   02 20 01

02 40 00  1803+784     13 06 55  54.9  19.4 -4.9     -91.0    25       75   02 40 00
03 00 00  ---          13 26 58  55.9  19.3 -4.5     -96.0  1200      113   02 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    9         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

 Frequency Set:   9  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   9

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.346685       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.35135        0.00
                    fake circumpolar target for a TS to look at

* 1803+784          18 03 39.193524   * 18 00 45.683902     17 59 38.997239       0.00
  J1800+7828        78 27 54.29744    * 78 28 04.01838      78 27 55.53662        0.00
                    ./rk18mg_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 217073 observations, RA-AO3-04, RA-AO2-


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1803+784            97.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mhtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu   8 Feb 2018   Day  39 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

06 00 00  1357+769     16 27 27  62.7 -17.8  2.5     127.5     0        0   06 00 00
06 19 30  ---          16 47 01  61.7 -19.2  2.8     121.5  1170       37   06 00 01

06 20 00  1357+769     16 47 31  61.7 -19.2  2.8     121.4    25       37   06 20 00
06 39 30  ---          17 07 04  60.7 -20.3  3.2     115.6  1170       75   06 20 01

06 40 00  1357+769     17 07 34  60.7 -20.3  3.2     115.5    25       75   06 40 00
07 00 00  ---          17 27 37  59.6 -21.2  3.5     109.8  1200      113   06 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.374307       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.38675        0.00
                    fake circumpolar target for a TS to look at

* 1357+769          13 57 42.117007   * 13 57 55.371538     13 58 00.772127       0.00
  J1357+7643        76 57 53.35418    * 76 43 21.05098      76 37 52.35305        0.00
                    ./rk18mh_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-AO4-07, RA-AO3-
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1357+769           109.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mitr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   9 Feb 2018   Day  40 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  1642+690     09 34 12  43.1  28.1 -7.1     -51.8     0        0   23 00 00
23 19 30  ---          09 53 45  44.5  29.6 -6.8     -55.4  1170       37   23 00 01

23 20 00  1642+690     09 54 15  44.5  29.6 -6.8     -55.5    24       37   23 20 00
23 39 30  ---          10 13 48  46.0  30.9 -6.5     -59.1  1170       75   23 20 01

23 40 00  1642+690     10 14 18  46.1  31.0 -6.5     -59.2    24       75   23 40 00
23 59 59  ---          10 34 20  47.6  32.3 -6.1     -62.9  1199      113   23 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    5         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

```
POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.659859       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.73741        0.00
                    fake circumpolar target for a TS to look at

* 1642+690          16 42 18.064877   * 16 42 07.848507     16 42 02.604845       0.00
  J1642+6856        69 02 13.21708    * 68 56 39.75636      68 54 26.94621        0.00
                    ./rk18mi_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18956 observations, RA-AO4-07, RA-AO3-0
```

```
EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1642+690            97.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mjtr

RadioAstron AGN Monitoring

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Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Sat  10 Feb 2018   Day  41 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

06 00 00  1642+690     16 35 21  74.2   2.2 -0.1    -176.3     0        0   06 00 00
06 19 30  ---          16 54 54  74.1  -4.2  0.2     172.9  1170       37   06 00 01

06 20 00  1642+690     16 55 24  74.1  -4.4  0.2     172.7    24       37   06 20 00
06 39 30  ---          17 14 57  73.7 -10.6  0.5     162.1  1170       75   06 20 01

06 40 00  1642+690     17 15 27  73.7 -10.7  0.6     161.9    24       75   06 40 00
07 00 00  ---          17 35 30  73.0 -16.5  0.9     151.7  1200      113   06 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.712749       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.79947        0.00
                    fake circumpolar target for a TS to look at

* 1642+690          16 42 18.064877   * 16 42 07.848507     16 42 02.623757       0.00
  J1642+6856        69 02 13.21708    * 68 56 39.75636      68 54 26.89788        0.00
                    ./rk18mj_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18956 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1642+690            97.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mktr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                  Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat  10 Feb 2018   Day  41 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

18 00 00  0430+052     04 37 19  42.3 181.1  0.1       0.6     0        0   18 00 00
18 19 30  ---          04 56 52  42.1 187.6  0.4       4.6  1170       37   18 00 01

18 20 00  0430+052     04 57 22  42.1 187.8  0.4       4.7    24       37   18 20 00
18 39 30  ---          05 16 55  41.5 194.3  0.7       8.6  1170       75   18 20 01

18 40 00  0430+052     05 17 25  41.5 194.4  0.7       8.7    24       75   18 40 00
19 00 00  ---          05 37 29  40.6 200.9  1.1      12.5  1200      113   18 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.800635       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.90108        0.00
                    fake circumpolar target for a TS to look at

* 0430+052          04 30 31.602064   * 04 33 11.095533     04 34 08.658541       0.00
  J0433+0521        05 14 59.61638    * 05 21 15.61916      05 23 16.88655        0.00
  3C120             ./rk18mk_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0430+052           105.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mltr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  11 Feb 2018   Day  42 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1642+690     10 38 18  47.9  32.5 -6.1     -63.7     0        0   00 00 00
00 19 30  ---          10 57 51  49.5  33.6 -5.7     -67.4  1170       37   00 00 01

00 20 00  1642+690     10 58 21  49.6  33.6 -5.7     -67.5    24       37   00 20 00
00 39 30  ---          11 17 54  51.2  34.6 -5.4     -71.3  1170       75   00 20 01

00 40 00  1642+690     11 18 25  51.3  34.6 -5.4     -71.4    24       75   00 40 00
01 00 00  ---          11 38 28  53.0  35.5 -5.1     -75.4  1200      113   00 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.845178       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.95200        0.00
                    fake circumpolar target for a TS to look at

* 1642+690          16 42 18.064877   * 16 42 07.848507     16 42 02.670668       0.00
  J1642+6856        69 02 13.21708    * 68 56 39.75636      68 54 26.77648        0.00
                    ./rk18ml_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18956 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1642+690            97.6

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mmtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  11 Feb 2018   Day  42 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1144+402     14 38 57  58.3 262.8  2.9      50.9     0        0   04 00 00
04 19 30  ---          14 58 31  55.4 267.1  3.2      51.4  1170       37   04 00 01

04 20 00  1144+402     14 59 01  55.3 267.2  3.2      51.4    24       37   04 20 00
04 39 30  ---          15 18 34  52.4 271.2  3.5      51.5  1170       75   04 20 01

04 40 00  1144+402     15 19 04  52.3 271.3  3.5      51.5    24       75   04 40 00
05 00 00  ---          15 39 07  49.3 275.1  3.9      51.2  1200      113   04 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 00.875099       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 47.98604        0.00
                    fake circumpolar target for a TS to look at

* 1144+402          11 44 21.020905   * 11 46 58.297917     11 47 55.412473       0.00
  J1146+3958        40 15 14.23942    * 39 58 34.30433      39 52 23.20769        0.00
                    ./rk18mm_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18887 observations, RA-AO3-04, RA-AO2-1
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1144+402           141.8

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mntr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  12 Feb 2018   Day  43 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 50 00  1156+295     16 33 12  35.8 272.3  4.5      43.4     0        0   05 50 00
06 09 30  ---          16 52 45  32.8 276.1  4.9      43.1  1170       37   05 50 01

06 10 00  1156+295     16 53 15  32.8 276.2  4.9      43.1    24       37   06 10 00
06 29 30  ---          17 12 49  29.8 279.8  5.2      42.6  1170       75   06 10 01

06 30 00  1156+295     17 13 19  29.8 279.9  5.2      42.6    24       75   06 30 00
06 50 00  ---          17 33 22  26.8 283.6  5.5      41.9  1200      113   06 30 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.072525       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.20915        0.00
                    fake circumpolar target for a TS to look at

* 1156+295          11 56 57.786212   * 11 59 31.833913     12 00 27.784113       0.00
  J1159+2914        29 31 25.73868    * 29 14 43.82678      29 08 33.29708        0.00
                    ./rk18mn_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 70591 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1156+295           144.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18motr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  12 Feb 2018   Day  43 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  1642+690     09 46 01  43.9  29.0 -6.9     -54.0     0        0   23 00 00
23 19 30  ---          10 05 34  45.4  30.4 -6.6     -57.6  1170       37   23 00 01

23 20 00  1642+690     10 06 05  45.4  30.4 -6.6     -57.7    24       37   23 20 00
23 39 30  ---          10 25 38  46.9  31.7 -6.3     -61.3  1170       75   23 20 01

23 40 00  1642+690     10 26 08  47.0  31.7 -6.3     -61.4    24       75   23 40 00
23 59 59  ---          10 46 10  48.6  33.0 -5.9     -65.2  1199      113   23 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    8         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   7  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   7

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.204645       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.35958        0.00
                    fake circumpolar target for a TS to look at

* 1642+690          16 42 18.064877   * 16 42 07.848507     16 42 02.795407       0.00
  J1642+6856        69 02 13.21708    * 68 56 39.75636      68 54 26.44600        0.00
                    ./rk18mo_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18956 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1642+690            97.6

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mptr

RadioAstron AGN Monitoring

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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  13 Feb 2018   Day  44 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

03 00 00  1124-186     13 46 41  11.9 213.3  2.3      20.4     0        0   03 00 00
03 19 30  ---          14 06 14  10.2 217.7  2.6      22.9  1170       37   03 00 01

03 20 00  1124-186     14 06 44  10.1 217.8  2.6      22.9    24       37   03 20 00
03 39 30  ---          14 26 17   8.2 222.1  3.0      25.2  1170       75   03 20 01

03 40 00  1124-186     14 26 47   8.2 222.2  3.0      25.3    24       75   03 40 00
04 00 00  ---          14 46 50   6.1 226.5  3.3      27.4  1200      113   03 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    5         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.238907       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.39907        0.00
                    fake circumpolar target for a TS to look at

* 1124-186          11 24 34.018124   * 11 27 04.392449     11 27 59.605722       0.00
  J1127-1857       -18 40 46.35977    *-18 57 17.44185     -19 03 16.47344        0.00
                    ./rk18mp_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 41937 observations, RA-AO3-04, RA-AO2-1


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1124-186           139.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mqtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  13 Feb 2018   Day  44 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

07 00 00  1502+106     17 47 20  36.4 232.6  2.7      29.0     0        0   07 00 00
07 19 30  ---          18 06 53  34.0 237.7  3.0      31.1  1170       37   07 00 01

07 20 00  1502+106     18 07 23  33.9 237.8  3.0      31.1    24       37   07 20 00
07 39 30  ---          18 26 57  31.4 242.6  3.4      32.8  1170       75   07 20 01

07 40 00  1502+106     18 27 27  31.3 242.7  3.4      32.9    24       75   07 40 00
08 00 00  ---          18 47 30  28.6 247.5  3.7      34.3  1200      113   07 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    5         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.270687       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.43596        0.00
                    fake circumpolar target for a TS to look at

* 1502+106          15 02 00.157714   * 15 04 24.979783     15 05 16.899543       0.00
  J1504+1029        10 41 17.73982    * 10 29 39.19840      10 25 25.43231        0.00
                    ./rk18mq_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 15421 observations, RA-AO3-04, RA-AO2-1
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1502+106           102.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mrtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  13 Feb 2018   Day  44 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 00 00  0823+033     05 49 18  30.4 132.7 -2.6     -26.2     0        0   19 00 00
19 14 30  ---          06 03 51  32.0 136.6 -2.4     -24.4   870       28   19 00 01

19 15 00  0823+033     06 04 21  32.0 136.7 -2.4     -24.4    24       28   19 15 00
19 29 30  ---          06 18 53  33.5 140.6 -2.1     -22.4   870       56   19 15 01

19 30 00  0823+033     06 19 23  33.5 140.8 -2.1     -22.3    24       56   19 30 00
19 44 30  ---          06 33 56  34.9 144.9 -1.9     -20.2   870       84   19 30 01

19 45 00  0823+033     06 34 26  34.9 145.0 -1.9     -20.2    24       84   19 45 00
20 00 00  ---          06 49 28  36.1 149.4 -1.6     -17.8   900      112   19 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.365749       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.54809        0.00
                    fake circumpolar target for a TS to look at

* 0823+033          08 23 13.540326   * 08 25 50.338355     08 26 47.684464       0.00
  J0825+0309        03 19 15.40169    * 03 09 24.51995      03 05 39.25144        0.00
                    ./rk18mr_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 57025 observations, RA-AO4-07, R
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 0823+033           157.3

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18mttr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  14 Feb 2018   Day  45 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

03 00 00  1226+023     13 50 37  36.2 205.2  1.3      14.8     0        0   03 00 00
03 14 30  ---          14 05 10  35.2 209.5  1.6      17.2   870       28   03 00 01

03 15 00  1226+023     14 05 40  35.2 209.7  1.6      17.3    24       28   03 15 00
03 29 30  ---          14 20 12  34.0 213.9  1.8      19.6   870       56   03 15 01

03 30 00  1226+023     14 20 42  34.0 214.0  1.8      19.6    24       56   03 30 00
03 44 30  ---          14 35 15  32.7 218.1  2.1      21.8   870       84   03 30 01

03 45 00  1226+023     14 35 45  32.6 218.2  2.1      21.8    24       84   03 45 00
04 00 00  ---          14 50 47  31.2 222.3  2.3      23.9   900      112   03 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.429725       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.62540        0.00
                    fake circumpolar target for a TS to look at

* 1226+023          12 26 33.245835   * 12 29 06.699731     12 30 02.549544       0.00
  J1229+0203        02 19 43.30547    * 02 03 08.59797      01 57 06.40467        0.00
  3C273B            ./rk18mt_sources.radioastron
  3C273             AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-AO4-07, RA-AO3-0
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1226+023           139.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mvtr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  14 Feb 2018   Day  45 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

16 00 00  1044+719     02 52 45  41.8  21.6 -8.0     -44.6     0        0   16 00 00
16 19 30  ---          03 12 19  42.9  23.1 -7.6     -48.3  1170       37   16 00 01

16 20 00  1044+719     03 12 49  42.9  23.1 -7.6     -48.4    24       37   16 20 00
16 39 30  ---          03 32 22  44.1  24.5 -7.3     -52.1  1170       75   16 20 01

16 40 00  1044+719     03 32 52  44.2  24.5 -7.3     -52.2    24       75   16 40 00
17 00 00  ---          03 52 55  45.4  25.8 -6.9     -56.0  1200      113   16 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    1         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.534192       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.75568        0.00
                    fake circumpolar target for a TS to look at

* 1044+719          10 44 49.735111   * 10 48 27.619927     10 49 47.378418       0.00
  J1048+7143        71 59 26.88535    * 71 43 35.93838      71 37 43.90136        0.00
                    ./rk18mv_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 141793 observations, RA-AO4-07,
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1044+719           120.6

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mwtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                 Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  14 Feb 2018   Day  45 ---

 ---------- K-band VLBI scans ----------

 Next scan frequencies:  22236.00  22236.00  22236.00  22236.00
 Next BBC frequencies:     736.00    736.00    736.00    736.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

20 00 00  0727-115     06 53 25  24.7 169.8 -0.6      -6.2     0        0   20 00 00
20 14 30  ---          07 07 57  25.0 173.7 -0.4      -3.8   870       28   20 00 01

20 15 00  0727-115     07 08 27  25.0 173.9 -0.4      -3.8    24       28   20 15 00
20 25 00  ---          07 18 29  25.1 176.6 -0.2      -2.1   600       47   20 15 01

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00

20 30 00  0727-115     07 23 30  25.2 177.9 -0.1      -1.3   293       47   20 30 00
20 44 30  ---          07 38 02  25.2 181.9  0.1       1.1   870       75   20 30 01

20 45 00  0727-115     07 38 32  25.2 182.0  0.1       1.2    24       75   20 45 00
21 00 00  ---          07 53 35  25.0 186.1  0.4       3.7   900      104   20 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra1cm2.set
   Matching groups in ./rk18mw_freq.dat:
     tr1cm

   Setup group:    7         Station: TORUN             Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2         Sample rate: 32.000
   Number of channels:  4    DBE type:                  Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U
  IF SB =         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         L         L         U         U
  IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

  Frequency Set:   6  Setup file default.  Used with PCAL = 1MHz
  LO sum=   22236.00  22236.00  22236.00  22236.00
  BBC fr=     736.00    736.00    736.00    736.00
  Bandwd=      16.00     16.00     16.00     16.00
   Matching frequency sets:   6

  Track assignments are:
   track1=   2, 18,  3, 19
   barrel=roll_off


======== Setup file: ra6cm2.set

  Setup group:    4         Station: TORUN            Total bit rate:   256
  Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
  Number of channels:  4    DBE type:                 Speedup factor:   1.00

  Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   9  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   9

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.565341       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 48.79567        0.00
                    fake circumpolar target for a TS to look at

* 0727-115          07 27 58.097813   * 07 30 19.112473     07 31 10.779550       0.00
  J0730-1141       -11 34 52.58107    *-11 41 12.60063     -11 43 45.41117        0.00
                    ./rk18mw_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 155894 observations, RA-AO4-07, RA-AO3-


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0727-115           137.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18mztr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu  15 Feb 2018   Day  46 ---

 ---------- K-band VLBI scans ----------

 Next scan frequencies:  22236.00  22236.00  22236.00  22236.00
 Next BBC frequencies:     736.00    736.00    736.00    736.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

22 00 00  0648-165     08 57 41  15.1 211.3  2.1      19.0     0        0   22 00 00
22 19 30  ---          09 17 14  13.5 215.9  2.4      21.6  1170       37   22 00 01

22 20 00  0648-165     09 17 44  13.4 216.0  2.4      21.6    24       37   22 20 00
22 39 30  ---          09 37 18  11.6 220.4  2.8      24.0  1170       75   22 20 01

22 40 00  0648-165     09 37 48  11.6 220.5  2.8      24.0    24       75   22 40 00
23 00 00  ---          09 57 51   9.5 225.0  3.1      26.3  1200      113   22 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra1cm2.set
   Matching groups in ./rk18mz_freq.dat:
     tr1cm

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=  21500.00  21500.00  21500.00  21500.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   22236.00  22236.00  22236.00  22236.00
 BBC fr=     736.00    736.00    736.00    736.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.766677       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.06998        0.00
                    fake circumpolar target for a TS to look at

* 0648-165          06 48 10.295571   * 06 50 24.581861     06 51 13.716517       0.00
  J0650-1637       -16 34 05.88130    *-16 37 39.72548     -16 39 14.97013        0.00
                    ./rk18mz_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 10699 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0607-157           117.2
  0648-165           125.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18natr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri  16 Feb 2018   Day  47 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

02 00 00  1226+023     12 58 20  38.5 189.1  0.5       5.4     0        0   02 00 00
02 19 30  ---          13 17 54  37.9 195.2  0.8       9.1  1170       37   02 00 01

02 20 00  1226+023     13 18 24  37.9 195.4  0.8       9.2    24       37   02 20 00
02 39 30  ---          13 37 57  37.0 201.4  1.1      12.7  1170       75   02 20 01

02 40 00  1226+023     13 38 27  36.9 201.6  1.1      12.8    24       75   02 40 00
03 00 00  ---          13 58 30  35.7 207.6  1.5      16.2  1200      113   02 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 01.799975       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.11848        0.00
                    fake circumpolar target for a TS to look at

* 1226+023          12 26 33.245835   * 12 29 06.699731     12 30 02.591353       0.00
  J1229+0203        02 19 43.30547    * 02 03 08.59797      01 57 06.17078        0.00
  3C273B            ./rk18na_sources.radioastron
  3C273             AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-AO4-07, RA-AO3-0
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1226+023           141.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18nctr

RadioAstron AGN Monitoring

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat  17 Feb 2018   Day  48 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

13 10 00  1144+402     00 14 07   3.1   5.0-11.6      -3.9     0        0   13 10 00
13 34 30  ---          00 38 41   3.6   9.7-11.2      -7.6  1470       47   13 10 01

13 35 00  1144+402     00 39 11   3.6   9.8-11.1      -7.7    24       47   13 35 00
14 00 00  ---          01 04 15   4.4  14.6-10.7     -11.4  1500       95   13 35 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.055677       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.53052        0.00
                    fake circumpolar target for a TS to look at

* 1144+402          11 44 21.020905   * 11 46 58.297917     11 47 55.572641       0.00
  J1146+3958        40 15 14.23942    * 39 58 34.30433      39 52 23.78255        0.00
                    ./rk18nc_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18887 observations, RA-AO3-04, RA-AO2-1
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1144+402           143.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rg28artr

RadioAstron Scattering probes

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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat  17 Feb 2018   Day  48 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

17 30 00  0657+172     04 34 50  44.1 127.5 -2.4     -29.9     0        0   17 30 00
17 50 00  ---          04 54 53  46.4 133.5 -2.1     -27.1  1200       38   17 30 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    7         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.084580       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.58237        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.712748       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.15835        0.00
                    ./rg28ar_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           135.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18ndtr

RadioAstron AGN Monitoring

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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat  17 Feb 2018   Day  48 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

21 00 00  1156+295     08 05 24  41.4  95.3 -3.9     -43.2     0        0   21 00 00
21 14 30  ---          08 19 57  43.6  98.5 -3.7     -42.8   870       28   21 00 01

21 15 00  1156+295     08 20 27  43.6  98.6 -3.7     -42.8    24       28   21 15 00
21 25 00  ---          08 30 28  45.1 100.8 -3.5     -42.5   600       47   21 15 01

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00

21 30 00  1156+295     08 35 29  45.9 102.0 -3.4     -42.3   293       47   21 30 00
21 44 30  ---          08 50 02  48.0 105.5 -3.2     -41.5   870       75   21 30 01

21 45 00  1156+295     08 50 32  48.1 105.6 -3.2     -41.5    24       75   21 45 00
22 00 00  ---          09 05 34  50.2 109.4 -2.9     -40.4   900      104   21 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   4100.00   4100.00   4100.00   4100.00
  Net SB=         L         L         U         U
  IF SB =         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         L         L         U         U
  IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

  Frequency Set:   6  Setup file default.  Used with PCAL = 1MHz
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    736.00   736.00   736.00   736.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   6

  Track assignments are:
   track1=   2, 18,  3, 19
   barrel=roll_off


======== Setup file: ra18cm2.set

  Setup group:    9         Station: TORUN            Total bit rate:   256
  Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
  Number of channels:  4    DBE type:                 Speedup factor:   1.00

  Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   8  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   8

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

```
POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.107361       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.62413        0.00
                    fake circumpolar target for a TS to look at

* 1156+295          11 56 57.786212   * 11 59 31.833913     12 00 27.909842       0.00
  J1159+2914        29 31 25.73868    * 29 14 43.82678      29 08 33.49792        0.00
                    ./rk18nd_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 70591 observations, RA-AO3-04, R
```

```
EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1156+295           148.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28astr

RadioAstron Scattering probes

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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  18 Feb 2018   Day  49 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 30 00  0657+172     12 36 09  17.3 275.6  5.6      38.7     0        0   01 30 00
01 50 00  ---          12 56 12  14.3 279.5  5.9      38.3  1200       38   01 30 01




SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    5         Station: TORUN             Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2         Sample rate: 32.000
   Number of channels:  4    DBE type:                  Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.135371       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.67660        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.707551       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.17043        0.00
                    ./rg28as_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           135.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18netr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  18 Feb 2018   Day  49 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 00 00  1226+023     16 06 43  22.2 241.1  3.6      31.7     0        0   05 00 00
05 19 30  ---          16 26 16  19.6 245.5  3.9      33.1  1170       37   05 00 01

05 20 00  1226+023     16 26 46  19.6 245.6  3.9      33.2    24       37   05 20 00
05 39 30  ---          16 46 20  16.8 249.9  4.3      34.3  1170       75   05 20 01

05 40 00  1226+023     16 46 50  16.8 250.0  4.3      34.4    24       75   05 40 00
06 00 00  ---          17 06 53  13.9 254.3  4.6      35.3  1200      113   05 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.160095       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.72398        0.00
                    fake circumpolar target for a TS to look at

* 1226+023          12 26 33.245835   * 12 29 06.699731     12 30 02.626744       0.00
  J1229+0203        02 19 43.30547    * 02 03 08.59797      01 57 05.98519        0.00
  3C273B            ./rk18ne_sources.radioastron
  3C273             AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-AO4-07, RA-AO3-0
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1226+023           143.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rg28attr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  18 Feb 2018   Day  49 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

13 15 00  0657+172     00 23 04   8.1  72.2 -6.6     -36.7     0        0   13 15 00
13 35 00  ---          00 43 08  11.0  76.1 -6.3     -37.6  1200       38   13 15 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    7         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   6  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   6

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.212035       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.82698        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.699078       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.18692        0.00
                    ./rg28at_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           134.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28autr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  18 Feb 2018   Day  49 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

15 20 00  0657+172     02 28 25  26.7  96.9 -4.5     -38.6     0        0   15 20 00
15 40 00  ---          02 48 28  29.6 101.2 -4.2     -38.1  1200       38   15 20 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    9         Station: TORUN             Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2         Sample rate: 32.000
   Number of channels:  4    DBE type:                  Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   7  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   7

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.224823       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.85309        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.697591       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.18941        0.00
                    ./rg28au_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           134.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28avtr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  18 Feb 2018   Day  49 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

17 26 00  0657+172     04 34 46  44.1 127.5 -2.4     -29.9     0        0   17 26 00
17 46 00  ---          04 54 49  46.4 133.5 -2.1     -27.1  1200       38   17 26 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    7         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.237584       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.87945        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.696086       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.19180        0.00
                    ./rg28av_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           134.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18nftr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  18 Feb 2018   Day  49 ---

 ---------- K-band VLBI scans ----------

 Next scan frequencies:  22236.00  22236.00  22236.00  22236.00
 Next BBC frequencies:     736.00    736.00    736.00    736.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

21 00 00  1156+295     08 09 21  42.0  96.2 -3.9     -43.1     0        0   21 00 00
21 14 30  ---          08 23 53  44.2  99.4 -3.6     -42.7   870       28   21 00 01

21 15 00  1156+295     08 24 23  44.2  99.5 -3.6     -42.7    24       28   21 15 00
21 25 00  ---          08 34 25  45.7 101.8 -3.4     -42.3   600       47   21 15 01

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00

21 30 00  1156+295     08 39 26  46.4 102.9 -3.4     -42.1   293       47   21 30 00
21 44 30  ---          08 53 58  48.6 106.4 -3.1     -41.3   870       75   21 30 01

21 45 00  1156+295     08 54 28  48.6 106.6 -3.1     -41.2    24       75   21 45 00
22 00 00  ---          09 09 31  50.8 110.4 -2.8     -40.1   900      104   21 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra1cm2.set
   Matching groups in ./rk18nf_freq.dat:
     tr1cm

   Setup group:    7         Station: TORUN             Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2         Sample rate: 32.000
   Number of channels:  4    DBE type:                  Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U
  IF SB =         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         L         L         U         U
  IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

  Frequency Set:   7  Setup file default.  Used with PCAL = 1MHz
  LO sum=   22236.00  22236.00  22236.00  22236.00
  BBC fr=     736.00    736.00    736.00    736.00
  Bandwd=      16.00     16.00     16.00     16.00
   Matching frequency sets:   7

  Track assignments are:
   track1=   2, 18,  3, 19
   barrel=roll_off


======== Setup file: ra6cm2.set

  Setup group:    4         Station: TORUN            Total bit rate:   256
  Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
  Number of channels:  4    DBE type:                 Speedup factor:   1.00

  Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   9  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   9

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

```
POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.258414       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.92314        0.00
                    fake circumpolar target for a TS to look at

* 1156+295          11 56 57.786212   * 11 59 31.833913     12 00 27.924695       0.00
  J1159+2914        29 31 25.73868    * 29 14 43.82678      29 08 33.58114        0.00
                    ./rk18nf_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 70591 observations, RA-AO3-04, R
```

```
EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1156+295           148.6

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28awtr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  19 Feb 2018   Day  50 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 26 00  0657+172     12 36 05  17.3 275.6  5.6      38.7     0        0   01 26 00
01 46 00  ---          12 56 08  14.4 279.5  5.9      38.3  1200       38   01 26 01




SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    4         Station: TORUN             Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2         Sample rate: 32.000
   Number of channels:  4    DBE type:                  Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.285003       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 49.98016        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.690315       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.19986        0.00
                    ./rg28aw_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           134.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28axtr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  19 Feb 2018   Day  50 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

17 22 00  0657+172     04 34 42  44.1 127.5 -2.4     -29.9     0        0   17 22 00
17 42 00  ---          04 54 45  46.4 133.5 -2.1     -27.1  1200       38   17 22 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    4         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.373881       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.18122        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.678793       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.21052        0.00
                    ./rg28ax_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           133.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28aytr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  20 Feb 2018   Day  51 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 22 00  0657+172     12 36 00  17.3 275.6  5.6      38.7     0        0   01 22 00
01 42 00  ---          12 56 04  14.4 279.5  5.9      38.3  1200       38   01 22 01




SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    2         Station: TORUN             Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2         Sample rate: 32.000
   Number of channels:  4    DBE type:                  Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.415825       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.28185        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.673091       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.21307        0.00
                    ./rg28ay_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           133.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28aztr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  20 Feb 2018   Day  51 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

17 18 00  0657+172     04 34 37  44.1 127.4 -2.4     -29.9     0        0   17 18 00
17 38 00  ---          04 54 41  46.4 133.4 -2.1     -27.1  1200       38   17 18 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.494545       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.48024        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.662140       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.21262        0.00
                    ./rg28az_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           132.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18nhtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Fax:      +7-495-3332378                 Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  20 Feb 2018   Day  51 ---

 ---------- K-band VLBI scans ----------

 Next scan frequencies:  22236.00  22236.00  22236.00  22236.00
 Next BBC frequencies:     736.00    736.00    736.00    736.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

21 00 00  0829+046     08 17 14  41.2 174.8 -0.3      -3.1     0        0   21 00 00
21 14 30  ---          08 31 46  41.3 179.7 -0.0      -0.2   870       28   21 00 01

21 15 00  0829+046     08 32 16  41.3 179.8 -0.0      -0.1    24       28   21 15 00
21 29 30  ---          08 46 49  41.2 184.7  0.2       2.8   870       56   21 15 01

21 30 00  0829+046     08 47 19  41.2 184.8  0.2       2.9    24       56   21 30 00
21 44 30  ---          09 01 51  41.0 189.6  0.5       5.8   870       84   21 30 01

21 45 00  0829+046     09 02 21  41.0 189.8  0.5       5.9    24       84   21 45 00
22 00 00  ---          09 17 24  40.5 194.7  0.7       8.8   900      112   21 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra1cm2.set
   Matching groups in ./rk18nh_freq.dat:
     tr1cm

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=  21500.00  21500.00  21500.00  21500.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   22236.00  22236.00  22236.00  22236.00
 BBC fr=     736.00    736.00    736.00    736.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.511576       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.52462        0.00
                    fake circumpolar target for a TS to look at

* 0829+046          08 29 10.894139   * 08 31 48.876958     08 32 46.607836       0.00
  J0831+0429        04 39 50.82946    * 04 29 39.08580      04 25 46.33001        0.00
                    ./rk18nh_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 1604 observations, RA-AO3-04


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0829+046           153.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28batr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  21 Feb 2018   Day  52 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 18 00  0657+172     12 35 56  17.4 275.6  5.6      38.7     0        0   01 18 00
01 38 00  ---          12 56 00  14.4 279.5  5.9      38.3  1200       38   01 18 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    7         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   6  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   6

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.530423       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.57425        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.657148       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.20994        0.00
                    ./rg28ba_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           132.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18nitr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed  21 Feb 2018   Day  52 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 20 00  1156+295     16 38 36  34.9 273.4  4.6      43.3     0        0   05 20 00
05 34 30  ---          16 53 08  32.8 276.2  4.9      43.1   870       28   05 20 01

05 35 00  1156+295     16 53 39  32.7 276.3  4.9      43.1    24       28   05 35 00
05 49 30  ---          17 08 11  30.5 279.0  5.1      42.8   870       56   05 35 01

05 50 00  1156+295     17 08 41  30.5 279.1  5.1      42.8    24       56   05 50 00
06 04 30  ---          17 23 13  28.3 281.8  5.4      42.3   870       84   05 50 01

06 05 00  1156+295     17 23 43  28.2 281.9  5.4      42.3    24       84   06 05 00
06 20 00  ---          17 38 46  26.0 284.6  5.6      41.7   900      112   06 05 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.549950       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.62615        0.00
                    fake circumpolar target for a TS to look at

* 1156+295          11 56 57.786212   * 11 59 31.833913     12 00 27.957259       0.00
  J1159+2914        29 31 25.73868    * 29 14 43.82678      29 08 33.77890        0.00
                    ./rk18ni_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 70591 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1156+295           149.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28bbtr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  21 Feb 2018   Day  52 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

17 14 00  0657+172     04 34 33  44.1 127.4 -2.4     -29.9     0        0   17 14 00
17 34 00  ---          04 54 37  46.4 133.4 -2.1     -27.2  1200       38   17 14 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.603228       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.76944        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.647349       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.19971        0.00
                    ./rg28bb_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           131.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18njtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  21 Feb 2018   Day  52 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

21 00 00  0851+202     08 21 11  56.3 165.2 -0.6      -9.4     0        0   21 00 00
21 19 30  ---          08 40 44  56.8 173.5 -0.3      -4.1  1170       37   21 00 01

21 20 00  0851+202     08 41 14  56.8 173.7 -0.2      -4.0    23       37   21 20 00
21 39 30  ---          09 00 47  56.9 182.1  0.1       1.4  1170       75   21 20 01

21 40 00  0851+202     09 01 17  56.9 182.3  0.1       1.5    23       75   21 40 00
22 00 00  ---          09 21 20  56.6 190.9  0.4       6.9  1200      113   21 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.619563       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.81359        0.00
                    fake circumpolar target for a TS to look at

* 0851+202          08 51 57.250618   * 08 54 48.874930     08 55 51.473398       0.00
  J0854+2006        20 17 58.41733    * 20 06 30.64078      20 02 12.70810        0.00
  OJ287             ./rk18nj_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 213710 observations, RA-AO4-06, RA-AO3-
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0851+202           157.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rg28bctr

RadioAstron Scattering probes

PI: *Mikhail Lisakov*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron Scattering probes
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu  22 Feb 2018   Day  53 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 14 00  0657+172     12 35 52  17.4 275.6  5.6      38.7     0        0   01 14 00
01 34 00  ---          12 55 56  14.4 279.5  5.9      38.3  1200       38   01 14 01




SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.636414       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.85908        0.00
                    fake circumpolar target for a TS to look at

* 0657+172          06 57 07.785943   * 07 00 01.525541     07 01 04.643165       0.00
  J0700+1709        17 13 35.02503    * 17 09 21.70122      17 07 39.19316        0.00
                    ./rg28bc_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 14255 observations, RA-AO3-04, R


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0657+172           131.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18nktr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu  22 Feb 2018   Day  53 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 00 00  1546+027     16 22 29  39.0 190.3  0.5       6.2     0        0   05 00 00
05 19 30  ---          16 42 03  38.4 196.5  0.9       9.9  1170       37   05 00 01

05 20 00  1546+027     16 42 33  38.3 196.7  0.9       9.9    24       37   05 20 00
05 39 30  ---          17 02 06  37.3 202.8  1.2      13.4  1170       75   05 20 01

05 40 00  1546+027     17 02 36  37.3 202.9  1.2      13.5    24       75   05 40 00
06 00 00  ---          17 22 39  36.0 208.9  1.5      16.9  1200      113   05 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    1         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 02.653939       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 50.90625        0.00
                    fake circumpolar target for a TS to look at

* 1546+027          15 46 58.292171   * 15 49 29.436845     15 50 23.659821       0.00
  J1549+0237        02 46 06.07581    * 02 37 01.16316      02 33 45.14894        0.00
                    ./rk18nk_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 15857 observations, RA-AO3-04, RA-AO2-1
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1546+027            98.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

n18l1tr

Network Monitoring Experiment

PI: *Benito Marcote*

```
Address:  JIVE

Observing mode:
Schedule for TORUN     (Code Tr )                                  Page   2
               Network Monitoring Experiment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu  22 Feb 2018   Day  53 ---

 ---------- N18L1 ----------

 Next scan frequencies:  1642.49  1642.49  1642.49  1642.49  1674.49  1674.49  1674.49  1674.49
 Next BBC frequencies:    657.51   657.51   657.51   657.51   625.51   625.51   625.51   625.51
 Next scan bandwidths:     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00

13 00 00  J0237+2848   00 23 48  55.4 121.0 -2.3     -36.0     0        0   13 00 00
13 10 00  =0234+285    00 33 50  56.7 124.2 -2.1     -34.6   600       38   13 00 01

13 13 00  J0237+2848   00 36 50  57.0 125.2 -2.0     -34.1   173       38   13 13 00
13 25 00  =0234+285    00 48 52  58.5 129.3 -1.8     -32.1   720       85   13 13 01

13 28 00  J0237+2848   00 51 53  58.8 130.4 -1.8     -31.5   173       85   13 28 00
13 40 00  =0234+285    01 03 55  60.2 134.9 -1.6     -29.1   720      131   13 28 01

13 43 00  J0237+2848   01 06 55  60.5 136.0 -1.5     -28.4   173      131   13 43 00
13 55 00  =0234+285    01 18 57  61.7 140.9 -1.3     -25.6   720      177   13 43 01

13 58 00  J0237+2848   01 21 58  62.0 142.1 -1.3     -24.9   173      177   13 58 00
14 10 00  =0234+285    01 34 00  63.0 147.4 -1.1     -21.7   720      223   13 58 01

14 13 00  J0237+2848   01 37 00  63.2 148.7 -1.0     -20.9   173      223   14 13 00
14 25 00  =0234+285    01 49 02  64.1 154.3 -0.8     -17.3   720      269   14 13 01

14 28 00  J0530+1331   01 52 03  31.5 111.0 -3.7     -35.2    43      269   14 28 00
14 40 00  =0528+134    02 04 05  33.2 113.8 -3.5     -34.4   720      315   14 28 01

14 43 00  J0530+1331   02 07 05  33.6 114.6 -3.4     -34.2   173      315   14 43 00
14 55 00  =0528+134    02 19 07  35.2 117.5 -3.2     -33.2   720      362   14 43 01

14 58 00  J0530+1331   02 22 08  35.6 118.3 -3.2     -33.0   173      362   14 58 00
15 10 00  =0528+134    02 34 10  37.2 121.3 -3.0     -31.8   720      408   14 58 01

15 13 00  J0530+1331   02 37 10  37.5 122.1 -2.9     -31.5   173      408   15 13 00
15 25 00  =0528+134    02 49 12  39.0 125.3 -2.7     -30.3   720      454   15 13 01

15 28 00  J0530+1331   02 52 13  39.4 126.1 -2.7     -29.9   173      454   15 28 00
15 40 00  =0528+134    03 04 14  40.8 129.5 -2.5     -28.5   720      500   15 28 01

15 43 00  J0530+1331   03 07 15  41.2 130.3 -2.4     -28.1   173      500   15 43 00
15 55 00  =0528+134    03 19 17  42.5 133.8 -2.2     -26.5   720      546   15 43 01
```

Schedule for TORUN (Code Tr) Page 3

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 22 Feb 2018 Day 53 ---										
---------- P.Beam Test ----------										
15 55 30	J0530+1331	03 19 47	42.6	134.0	-2.2		-26.4	24	546	15 55 30
15 57 00	=0528+134	03 21 17	42.7	134.4	-2.2		-26.2	90	552	15 55 31
15 57 00	PB+4-4	03 21 17	42.3	134.2	-2.2		-26.2	-13	552	No stop
15 59 30	---	03 23 48	42.6	134.9	-2.2		-25.9	137	562	15 57 01
15 59 30	PB+3-4	03 23 48	42.6	135.0	-2.2		-25.8	-8	562	No stop
16 02 00	---	03 26 18	42.9	135.8	-2.1		-25.5	142	571	15 59 31
16 02 00	PB+2-4	03 26 18	42.9	135.9	-2.1		-25.4	-8	571	No stop
16 04 30	---	03 28 49	43.2	136.6	-2.1		-25.1	142	581	16 02 01
16 04 30	PB+1-4	03 28 49	43.2	136.7	-2.1		-25.0	-8	581	No stop
16 07 00	---	03 31 19	43.5	137.5	-2.0		-24.6	142	590	16 04 31
16 07 40	J0530+1331	03 31 59	43.9	137.6	-2.0		-24.6	28	590	16 07 40
16 09 00	=0528+134	03 33 19	44.0	138.0	-2.0		-24.4	80	596	16 07 41
16 09 00	PB+0-4	03 33 19	43.7	138.2	-2.0		-24.3	-11	596	No stop
16 11 30	---	03 35 50	43.9	139.0	-1.9		-23.9	139	605	16 09 01
16 11 30	PB-1-4	03 35 50	44.0	139.1	-1.9		-23.8	-8	605	No stop
16 14 00	---	03 38 20	44.2	139.9	-1.9		-23.4	142	615	16 11 31
16 14 00	PB-2-4	03 38 20	44.2	140.0	-1.9		-23.4	-8	615	No stop
16 16 30	---	03 40 50	44.5	140.8	-1.8		-23.0	142	624	16 14 01
16 16 30	PB-3-4	03 40 50	44.5	140.9	-1.8		-22.9	-8	624	No stop
16 19 00	---	03 43 21	44.8	141.7	-1.8		-22.5	142	634	16 16 31
16 19 40	J0530+1331	03 44 01	45.0	141.4	-1.8		-22.7	29	634	16 19 40
16 21 00	=0528+134	03 45 21	45.2	141.8	-1.8		-22.5	80	639	16 19 41
16 21 00	PB-4-4	03 45 21	45.0	142.4	-1.8		-22.1	-12	639	No stop
16 23 30	---	03 47 52	45.2	143.2	-1.7		-21.7	138	649	16 21 01
16 23 30	PB-4-3	03 47 52	45.3	143.2	-1.7		-21.7	-8	649	No stop
16 26 00	---	03 50 22	45.5	144.0	-1.7		-21.3	142	658	16 23 31
16 26 00	PB-3-3	03 50 22	45.5	143.9	-1.7		-21.3	-8	658	No stop
16 28 30	---	03 52 52	45.7	144.7	-1.6		-20.9	142	668	16 26 01
16 28 30	PB-2-3	03 52 52	45.7	144.6	-1.6		-21.0	-8	668	No stop
16 31 00	---	03 55 23	45.9	145.4	-1.6		-20.5	142	678	16 28 31
16 31 40	J0530+1331	03 56 03	46.1	145.3	-1.6		-20.6	30	678	16 31 40
16 33 00	=0528+134	03 57 23	46.2	145.7	-1.6		-20.4	80	683	16 31 41

Schedule for TORUN (Code Tr) Page 4

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 22 Feb 2018 Day 53 ---										
16 33 00	PB-1-3	03 57 23	46.0	145.9	-1.6		-20.2	-10	683	No stop
16 35 30	---	03 59 54	46.2	146.8	-1.5		-19.8	140	692	16 33 01
16 35 30	PB+0-3	03 59 54	46.2	146.7	-1.5		-19.8	-8	692	No stop
16 38 00	---	04 02 24	46.4	147.5	-1.5		-19.4	142	702	16 35 31
16 38 00	PB+1-3	04 02 24	46.4	147.4	-1.5		-19.4	-8	702	No stop
16 40 30	---	04 04 54	46.6	148.2	-1.5		-19.0	142	712	16 38 01
16 40 30	PB+2-3	04 04 54	46.5	148.1	-1.5		-19.0	-8	712	No stop
16 43 00	---	04 07 25	46.7	148.9	-1.4		-18.6	142	721	16 40 31
16 43 40	J0530+1331	04 08 05	47.1	149.3	-1.4		-18.4	29	721	16 43 40
16 45 00	=0528+134	04 09 25	47.2	149.7	-1.4		-18.1	80	726	16 43 41
16 45 00	PB+3-3	04 09 25	46.9	149.5	-1.4		-18.3	-11	726	No stop
16 47 30	---	04 11 56	47.1	150.3	-1.4		-17.8	139	736	16 45 01
16 47 30	PB+4-3	04 11 56	47.0	150.2	-1.4		-17.8	-8	736	No stop
16 50 00	---	04 14 26	47.2	151.1	-1.3		-17.4	142	746	16 47 31
16 50 00	PB+4-2	04 14 26	47.3	151.0	-1.3		-17.4	-8	746	No stop
16 52 30	---	04 16 56	47.5	151.9	-1.3		-16.9	142	755	16 50 01
16 52 30	PB+3-2	04 16 56	47.5	152.0	-1.3		-16.8	-8	755	No stop
16 55 00	---	04 19 27	47.7	152.9	-1.2		-16.3	142	765	16 52 31
16 55 40	J0530+1331	04 20 07	48.0	153.4	-1.2		-16.1	29	765	16 55 40
16 57 00	=0528+134	04 21 27	48.0	153.9	-1.2		-15.8	80	770	16 55 41
16 57 00	PB+2-2	04 21 27	47.8	153.7	-1.2		-15.9	-10	770	No stop
16 59 30	---	04 23 58	48.0	154.6	-1.1		-15.4	140	779	16 57 01
16 59 30	PB+1-2	04 23 58	48.0	154.7	-1.1		-15.3	-8	779	No stop
17 02 00	---	04 26 28	48.2	155.6	-1.1		-14.8	142	789	16 59 31
17 02 00	PB+0-2	04 26 28	48.2	155.7	-1.1		-14.7	-8	789	No stop
17 04 30	---	04 28 58	48.4	156.6	-1.0		-14.2	142	799	17 02 01
17 04 30	PB-1-2	04 28 58	48.4	156.7	-1.0		-14.1	-8	799	No stop
17 07 00	---	04 31 29	48.5	157.6	-1.0		-13.6	142	808	17 04 31
17 07 40	J0530+1331	04 32 09	48.7	157.7	-1.0		-13.6	31	808	17 07 40
17 09 00	=0528+134	04 33 29	48.8	158.1	-1.0		-13.3	80	813	17 07 41

Schedule for TORUN (Code Tr) Page 5

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 22 Feb 2018 Day 53 ---										
17 09 00	PB-2-2	04 33 29	48.7	158.4	-1.0		-13.1	-10	813	No stop
17 11 30	---	04 36 00	48.8	159.3	-0.9		-12.6	140	823	17 09 01
17 11 30	PB-3-2	04 36 00	48.8	159.5	-0.9		-12.5	-8	823	No stop
17 14 00	---	04 38 30	48.9	160.4	-0.9		-12.0	142	833	17 11 31
17 14 00	PB-4-2	04 38 30	49.0	160.5	-0.9		-11.9	-8	833	No stop
17 16 30	---	04 41 00	49.1	161.4	-0.8		-11.3	142	842	17 14 01
17 16 30	PB-4-1	04 41 00	49.2	161.4	-0.8		-11.4	-8	842	No stop
17 19 00	---	04 43 31	49.3	162.3	-0.8		-10.8	142	852	17 16 31
17 19 40	J0530+1331	04 44 11	49.3	162.0	-0.8		-11.0	29	852	17 19 40
17 21 00	=0528+134	04 45 31	49.4	162.5	-0.8		-10.7	80	857	17 19 41
17 21 00	PB-3-1	04 45 31	49.3	162.9	-0.8		-10.5	-11	857	No stop
17 23 30	---	04 48 01	49.5	163.8	-0.7		-9.9	139	867	17 21 01
17 23 30	PB-2-1	04 48 01	49.4	163.7	-0.7		-10.0	-8	867	No stop
17 26 00	---	04 50 32	49.5	164.6	-0.7		-9.4	142	876	17 23 31
17 26 00	PB-1-1	04 50 32	49.5	164.5	-0.7		-9.5	-8	876	No stop
17 28 30	---	04 53 02	49.6	165.4	-0.6		-8.9	142	886	17 26 01
17 28 30	PB+0-1	04 53 02	49.6	165.3	-0.6		-9.0	-8	886	No stop
17 31 00	---	04 55 33	49.7	166.2	-0.6		-8.4	142	896	17 28 31
17 31 40	J0530+1331	04 56 13	49.8	166.5	-0.6		-8.3	32	896	17 31 40
17 33 00	=0528+134	04 57 33	49.9	167.0	-0.6		-8.0	80	901	17 31 41
17 33 00	PB+1-1	04 57 33	49.8	166.9	-0.6		-8.1	-9	901	No stop
17 35 30	---	05 00 03	49.8	167.8	-0.5		-7.5	141	910	17 33 01
17 35 30	PB+2-1	05 00 03	49.8	167.7	-0.5		-7.6	-8	910	No stop
17 38 00	---	05 02 34	49.9	168.6	-0.5		-7.0	142	920	17 35 31
17 38 00	PB+3-1	05 02 34	49.9	168.5	-0.5		-7.1	-8	920	No stop
17 40 30	---	05 05 04	50.0	169.4	-0.5		-6.5	142	929	17 38 01
17 40 30	PB+4-1	05 05 04	50.0	169.3	-0.5		-6.6	-8	929	No stop
17 43 00	---	05 07 35	50.0	170.2	-0.4		-6.0	142	939	17 40 31
17 43 40	J0530+1331	05 08 15	50.2	171.0	-0.4		-5.6	28	939	17 43 40
17 45 00	=0528+134	05 09 35	50.2	171.5	-0.4		-5.2	80	944	17 43 41

Schedule for TORUN (Code Tr) Page 6

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 22 Feb 2018 Day 53 ---										
17 45 00	PB+4+0	05 09 35	50.2	171.0	-0.4		-5.6	-11	944	No stop
17 47 30	---	05 12 05	50.2	171.9	-0.4		-5.0	139	954	17 45 01
17 47 30	PB+3+0	05 12 05	50.2	172.0	-0.3		-4.9	-8	954	No stop
17 50 00	---	05 14 36	50.3	173.0	-0.3		-4.3	142	963	17 47 31
17 50 00	PB+2+0	05 14 36	50.3	173.1	-0.3		-4.2	-8	963	No stop
17 52 30	---	05 17 06	50.3	174.1	-0.3		-3.7	142	973	17 50 01
17 52 30	PB+1+0	05 17 06	50.3	174.2	-0.3		-3.6	-8	973	No stop
17 55 00	---	05 19 37	50.4	175.2	-0.2		-3.0	142	983	17 52 31
17 55 40	J0530+1331	05 20 17	50.4	175.5	-0.2		-2.7	31	983	17 55 40
17 57 00	=0528+134	05 21 37	50.4	176.1	-0.2		-2.4	80	988	17 55 41
17 57 00	PB-1+0	05 21 37	50.4	176.2	-0.2		-2.4	-8	988	No stop
17 59 30	---	05 24 07	50.4	177.1	-0.1		-1.8	142	997	17 57 01
17 59 30	PB-2+0	05 24 07	50.4	177.3	-0.1		-1.7	-8	997	No stop
18 02 00	---	05 26 38	50.4	178.2	-0.1		-1.1	142	1007	17 59 31
18 02 00	PB-3+0	05 26 38	50.4	178.4	-0.1		-1.0	-8	1007	No stop
18 04 30	---	05 29 08	50.4	179.3	-0.0		-0.4	142	1017	18 02 01
18 05 10	J0530+1331	05 29 48	50.4	179.2	-0.0		-0.5	30	1017	18 05 10
18 06 30	=0528+134	05 31 09	50.4	179.7	-0.0		-0.2	80	1022	18 05 11
18 06 30	PB-4+0	05 31 09	50.4	180.2	0.0		0.1	-12	1022	No stop
18 09 00	---	05 33 39	50.4	181.2	0.1		0.7	138	1031	18 06 31
18 09 00	PB-4+1	05 33 39	50.5	181.2	0.1		0.7	-8	1031	No stop
18 11 30	---	05 36 09	50.5	182.1	0.1		1.3	142	1041	18 09 01
18 11 30	PB-3+1	05 36 09	50.5	182.0	0.1		1.2	-8	1041	No stop
18 14 00	---	05 38 40	50.5	183.0	0.1		1.8	142	1051	18 11 31
18 14 00	PB-2+1	05 38 40	50.5	182.8	0.1		1.7	-8	1051	No stop
18 16 30	---	05 41 10	50.5	183.8	0.2		2.3	142	1060	18 14 01
18 17 10	J0530+1331	05 41 50	50.4	183.8	0.2		2.3	31	1060	18 17 10
18 18 30	=0528+134	05 43 11	50.4	184.3	0.2		2.6	80	1065	18 17 11
18 18 30	PB-1+1	05 43 11	50.5	184.4	0.2		2.7	-9	1065	No stop
18 21 00	---	05 45 41	50.4	185.4	0.2		3.3	141	1075	18 18 31

Schedule for TORUN (Code Tr) Page 7

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 22 Feb 2018 Day 53 ---										
18 21 00	PB+0+1	05 45 41	50.4	185.2	0.2		3.2	-8	1075	No stop
18 23 30	---	05 48 11	50.4	186.2	0.3		3.8	142	1085	18 21 01
18 23 30	PB+1+1	05 48 11	50.4	186.1	0.3		3.7	-8	1085	No stop
18 26 00	---	05 50 42	50.4	187.0	0.3		4.3	142	1094	18 23 31
18 26 00	PB+2+1	05 50 42	50.4	186.9	0.3		4.2	-8	1094	No stop
18 28 30	---	05 53 12	50.3	187.8	0.3		4.8	142	1104	18 26 01
18 29 10	J0530+1331	05 53 52	50.2	188.3	0.4		5.1	30	1104	18 29 10
18 30 30	=0528+134	05 55 12	50.2	188.8	0.4		5.4	80	1109	18 29 11
18 30 30	PB+3+1	05 55 12	50.3	188.5	0.4		5.2	-10	1109	No stop
18 33 00	---	05 57 43	50.2	189.4	0.4		5.8	140	1119	18 30 31
18 33 00	PB+4+1	05 57 43	50.2	189.3	0.4		5.7	-8	1119	No stop
18 35 30	---	06 00 13	50.2	190.2	0.4		6.3	142	1128	18 33 01
18 35 30	PB+4+2	06 00 13	50.3	190.2	0.4		6.3	-8	1128	No stop
18 38 00	---	06 02 44	50.2	191.2	0.5		6.9	142	1138	18 35 31
18 38 00	PB+3+2	06 02 44	50.2	191.3	0.5		7.0	-8	1138	No stop
18 40 30	---	06 05 14	50.1	192.3	0.5		7.5	142	1147	18 38 01
18 41 10	J0530+1331	06 05 54	49.9	192.9	0.6		7.9	29	1147	18 41 10
18 42 30	=0528+134	06 07 14	49.8	193.4	0.6		8.2	80	1153	18 41 11
18 42 30	PB+2+2	06 07 14	50.0	193.1	0.6		8.1	-10	1153	No stop
18 45 00	---	06 09 45	49.9	194.1	0.6		8.6	140	1162	18 42 31
18 45 00	PB+1+2	06 09 45	49.9	194.2	0.6		8.7	-8	1162	No stop
18 47 30	---	06 12 15	49.8	195.1	0.7		9.3	142	1172	18 45 01
18 47 30	PB+0+2	06 12 15	49.8	195.3	0.7		9.4	-8	1172	No stop
18 50 00	---	06 14 46	49.7	196.2	0.7		9.9	142	1181	18 47 31
18 50 00	PB-1+2	06 14 46	49.7	196.3	0.7		10.0	-8	1181	No stop
18 52 30	---	06 17 16	49.6	197.2	0.8		10.6	142	1191	18 50 01
18 53 10	J0530+1331	06 17 56	49.4	197.3	0.8		10.6	30	1191	18 53 10
18 54 30	=0528+134	06 19 16	49.3	197.8	0.8		10.9	80	1196	18 53 11
18 54 30	PB-2+2	06 19 16	49.5	198.1	0.8		11.1	-10	1196	No stop
18 57 00	---	06 21 47	49.4	199.0	0.8		11.6	140	1206	18 54 31

Schedule for TORUN (Code Tr) Page 8

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 22 Feb 2018 Day 53 ---										
18 57 00	PB-3+2	06 21 47	49.3	199.2	0.8		11.7	-8	1206	No stop
18 59 30	---	06 24 17	49.2	200.1	0.9		12.2	142	1215	18 57 01
18 59 30	PB-4+2	06 24 17	49.2	200.2	0.9		12.3	-8	1215	No stop
19 02 00	---	06 26 48	49.1	201.1	0.9		12.9	142	1225	18 59 31
19 02 00	PB-4+3	06 26 48	49.1	201.1	0.9		12.9	-8	1225	No stop
19 04 30	---	06 29 18	49.0	202.0	1.0		13.4	142	1235	19 02 01
19 05 10	J0530+1331	06 29 58	48.8	201.7	1.0		13.2	28	1235	19 05 10
19 06 30	=0528+134	06 31 18	48.7	202.2	1.0		13.5	80	1240	19 05 11
19 06 30	PB-3+3	06 31 18	48.9	202.6	1.0		13.8	-11	1240	No stop
19 09 00	---	06 33 49	48.8	203.5	1.0		14.3	139	1249	19 06 31
19 09 00	PB-2+3	06 33 49	48.8	203.4	1.0		14.2	-8	1249	No stop
19 11 30	---	06 36 19	48.6	204.3	1.1		14.7	142	1259	19 09 01
19 11 30	PB-1+3	06 36 19	48.7	204.2	1.1		14.7	-8	1259	No stop
19 14 00	---	06 38 50	48.5	205.1	1.1		15.2	142	1269	19 11 31
19 14 00	PB+0+3	06 38 50	48.5	204.9	1.1		15.1	-8	1269	No stop
19 16 30	---	06 41 20	48.4	205.8	1.2		15.6	142	1278	19 14 01
19 17 10	J0530+1331	06 42 00	48.1	206.0	1.2		15.7	29	1278	19 17 10
19 18 30	=0528+134	06 43 20	48.0	206.4	1.2		16.0	80	1283	19 17 11
19 18 30	PB+1+3	06 43 20	48.2	206.4	1.2		16.0	-11	1283	No stop
19 21 00	---	06 45 51	48.1	207.3	1.2		16.5	139	1293	19 18 31
19 21 00	PB+2+3	06 45 51	48.1	207.2	1.2		16.4	-8	1293	No stop
19 23 30	---	06 48 21	47.9	208.0	1.3		16.9	142	1303	19 21 01
19 23 30	PB+3+3	06 48 21	47.9	207.9	1.3		16.8	-8	1303	No stop
19 26 00	---	06 50 52	47.8	208.8	1.3		17.3	142	1312	19 23 31
19 26 00	PB+4+3	06 50 52	47.8	208.7	1.3		17.3	-8	1312	No stop
19 28 30	---	06 53 22	47.6	209.5	1.3		17.7	142	1322	19 26 01
19 29 10	J0530+1331	06 54 02	47.2	210.1	1.4		18.1	28	1322	19 29 10
19 30 30	=0528+134	06 55 22	47.1	210.6	1.4		18.3	80	1327	19 29 11
19 30 30	PB+4+4	06 55 22	47.5	210.3	1.4		18.2	-12	1327	No stop
19 33 00	---	06 57 53	47.3	211.1	1.4		18.6	138	1337	19 30 31

Schedule for TORUN (Code Tr) Page 9

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 22 Feb 2018 Day 53 ---										
19 33 00	PB+3+4	06 57 53	47.3	211.2	1.4		18.7	-8	1337	No stop
19 35 30	---	07 00 23	47.1	212.1	1.5		19.2	142	1346	19 33 01
19 35 30	PB+2+4	07 00 23	47.1	212.2	1.5		19.2	-8	1346	No stop
19 38 00	---	07 02 54	46.9	213.0	1.5		19.7	142	1356	19 35 31
19 38 00	PB+1+4	07 02 54	46.9	213.1	1.5		19.8	-8	1356	No stop
19 40 30	---	07 05 24	46.7	214.0	1.6		20.2	142	1365	19 38 01
19 41 10	J0530+1331	07 06 04	46.3	214.1	1.6		20.3	28	1365	19 41 10
19 42 30	=0528+134	07 07 24	46.1	214.6	1.6		20.5	80	1371	19 41 11
19 42 30	PB+0+4	07 07 24	46.5	214.8	1.6		20.6	-11	1371	No stop
19 45 00	---	07 09 55	46.2	215.6	1.6		21.1	139	1380	19 42 31
19 45 00	PB-1+4	07 09 55	46.2	215.7	1.6		21.2	-8	1380	No stop
19 47 30	---	07 12 25	46.0	216.5	1.7		21.6	142	1390	19 45 01
19 47 30	PB-2+4	07 12 25	46.0	216.6	1.7		21.7	-8	1390	No stop
19 50 00	---	07 14 56	45.7	217.4	1.7		22.1	142	1399	19 47 31
19 50 40	J0530+1331	07 15 36	45.4	217.2	1.7		22.0	29	1399	19 50 40
19 52 00	=0528+134	07 16 56	45.3	217.7	1.7		22.2	80	1404	19 50 41
19 52 00	PB-3+4	07 16 56	45.5	218.2	1.8		22.5	-12	1404	No stop
19 54 30	---	07 19 26	45.3	219.0	1.8		22.9	138	1414	19 52 01
19 54 30	PB-4+4	07 19 26	45.3	219.1	1.8		23.0	-8	1414	No stop
19 57 00	---	07 21 57	45.0	219.9	1.9		23.4	142	1424	19 54 31
19 57 00	J0530+1331	07 21 57	44.8	219.3	1.8		23.0	-12	1424	No stop
20 00 00	=0528+134	07 24 57	44.5	220.2	1.9		23.5	168	1435	19 57 01

SETUP FILE INFORMATION:
NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

======== Setup file: sess118.L512nme

Setup group: 13 Station: TORUN Total bit rate: 512
Format: MARK5B Bits per sample: 2 Sample rate: 32.000
Number of channels: 8 DBE type: DBBC_DDC Speedup factor: 1.00

Disk used to record data.

```
 1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
 Net SB=         L         L         U         U         L         L         U         U
 IF SB =         L         L         L         L         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         3         7         3         7
 BBC SB=         U         U         L         L         U         U         L         L
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1

The following frequency sets based on these setups were used.

 Frequency Set:   8  Setup file default.  Used with PCAL = off
 LO sum=   1642.49  1642.49  1642.49  1642.49  1674.49  1674.49  1674.49  1674.49
 BBC fr=    657.51   657.51   657.51   657.51   625.51   625.51   625.51   625.51
 Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
  Matching frequency sets:   8

 Track assignments are:
  track1=   2,  6, 10, 14,  4,  8, 12, 16
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* PB-4-4	05 26 44.895485	* 05 29 34.132500	05 30 35.276702	0.00
	13 09 36.36248	* 13 11 55.14950	13 12 32.83359	0.00
* PB-3-4	05 27 05.463122	* 05 29 54.703600	05 30 55.850560	0.00
	13 09 37.84712	* 13 11 55.14950	13 12 32.29743	0.00
* PB-2-4	05 27 26.030694	* 05 30 15.274600	05 31 16.424305	0.00
	13 09 39.33205	* 13 11 55.14950	13 12 31.76117	0.00
* PB-1-4	05 27 46.598399	* 05 30 35.845700	05 31 36.998136	0.00
	13 09 40.81731	* 13 11 55.14950	13 12 31.22482	0.00
* PB+0-4	05 28 07.166040	* 05 30 56.416700	05 31 57.571854	0.00
	13 09 42.30285	* 13 11 55.14950	13 12 30.68837	0.00
* PB+1-4	05 28 27.733815	* 05 31 16.987800	05 32 18.145658	0.00
	13 09 43.78870	* 13 11 55.14950	13 12 30.15182	0.00
* PB+2-4	05 28 48.301624	* 05 31 37.558900	05 32 38.719448	0.00
	13 09 45.27485	* 13 11 55.14950	13 12 29.61518	0.00
* PB+3-4	05 29 08.869368	* 05 31 58.129900	05 32 59.293124	0.00
	13 09 46.76128	* 13 11 55.14950	13 12 29.07844	0.00
* PB+4-4	05 29 29.437246	* 05 32 18.701000	05 33 19.866887	0.00
	13 09 48.24801	* 13 11 55.14950	13 12 28.54162	0.00
* PB-4-3	05 26 44.793957	* 05 29 34.132500	05 30 35.313376	0.00
	13 14 36.35898	* 13 16 55.14950	13 17 32.86106	0.00
* PB-3-3	05 27 05.361572	* 05 29 54.703600	05 30 55.887241	0.00
	13 14 37.84362	* 13 16 55.14950	13 17 32.32488	0.00
* PB-2-3	05 27 25.929122	* 05 30 15.274600	05 31 16.460993	0.00

	13 14 39.32856	* 13 16 55.14950	13 17 31.78861	0.00
* PB-1-3	05 27 46.496807	* 05 30 35.845700	05 31 37.034830	0.00
	13 14 40.81381	* 13 16 55.14950	13 17 31.25224	0.00
* PB+0-3	05 28 07.064427	* 05 30 56.416700	05 31 57.608555	0.00
	13 14 42.29935	* 13 16 55.14950	13 17 30.71577	0.00
* PB+1-3	05 28 27.632181	* 05 31 16.987800	05 32 18.182365	0.00
	13 14 43.78520	* 13 16 55.14950	13 17 30.17921	0.00
* PB+2-3	05 28 48.199970	* 05 31 37.558900	05 32 38.756162	0.00
	13 14 45.27134	* 13 16 55.14950	13 17 29.64255	0.00
* PB+3-3	05 29 08.767694	* 05 31 58.129900	05 32 59.329844	0.00
	13 14 46.75777	* 13 16 55.14950	13 17 29.10581	0.00
* PB+4-3	05 29 29.335553	* 05 32 18.701000	05 33 19.903614	0.00
	13 14 48.24450	* 13 16 55.14950	13 17 28.56896	0.00
* PB-4-2	05 26 44.692359	* 05 29 34.132500	05 30 35.350077	0.00
	13 19 36.35549	* 13 21 55.14950	13 22 32.88854	0.00
* PB-3-2	05 27 05.259953	* 05 29 54.703600	05 30 55.923949	0.00
	13 19 37.84012	* 13 21 55.14950	13 22 32.35235	0.00
* PB-2-2	05 27 25.827482	* 05 30 15.274600	05 31 16.497707	0.00
	13 19 39.32506	* 13 21 55.14950	13 22 31.81606	0.00
* PB-1-2	05 27 46.395146	* 05 30 35.845700	05 31 37.071551	0.00
	13 19 40.81030	* 13 21 55.14950	13 22 31.27967	0.00
* PB+0-2	05 28 06.962745	* 05 30 56.416700	05 31 57.645282	0.00
	13 19 42.29585	* 13 21 55.14950	13 22 30.74319	0.00
* PB+1-2	05 28 27.530478	* 05 31 16.987800	05 32 18.219098	0.00
	13 19 43.78169	* 13 21 55.14950	13 22 30.20661	0.00
* PB+2-2	05 28 48.098247	* 05 31 37.558900	05 32 38.792901	0.00
	13 19 45.26783	* 13 21 55.14950	13 22 29.66994	0.00
* PB+3-2	05 29 08.665951	* 05 31 58.129900	05 32 59.366591	0.00
	13 19 46.75426	* 13 21 55.14950	13 22 29.13317	0.00
* PB+4-2	05 29 29.233790	* 05 32 18.701000	05 33 19.940366	0.00
	13 19 48.24098	* 13 21 55.14950	13 22 28.59632	0.00
* PB-4-1	05 26 44.590690	* 05 29 34.132500	05 30 35.386803	0.00
	13 24 36.35199	* 13 26 55.14950	13 27 32.91602	0.00
* PB-3-1	05 27 05.158263	* 05 29 54.703600	05 30 55.960682	0.00
	13 24 37.83662	* 13 26 55.14950	13 27 32.37981	0.00
* PB-2-1	05 27 25.725771	* 05 30 15.274600	05 31 16.534447	0.00
	13 24 39.32155	* 13 26 55.14950	13 27 31.84351	0.00
* PB-1-1	05 27 46.293414	* 05 30 35.845700	05 31 37.108298	0.00
	13 24 40.80680	* 13 26 55.14950	13 27 31.30711	0.00
* PB+0-1	05 28 06.860992	* 05 30 56.416700	05 31 57.682035	0.00
	13 24 42.29234	* 13 26 55.14950	13 27 30.77061	0.00
* PB+1-1	05 28 27.428706	* 05 31 16.987800	05 32 18.255859	0.00
	13 24 43.77818	* 13 26 55.14950	13 27 30.23402	0.00

* PB+2-1	05 28 47.996454	* 05 31 37.558900	05 32 38.829668	0.00
	13 24 45.26432	* 13 26 55.14950	13 27 29.69733	0.00
* PB+3-1	05 29 08.564138	* 05 31 58.129900	05 32 59.403364	0.00
	13 24 46.75075	* 13 26 55.14950	13 27 29.16055	0.00
* PB+4-1	05 29 29.131957	* 05 32 18.701000	05 33 19.977145	0.00
	13 24 48.23747	* 13 26 55.14950	13 27 28.62367	0.00
* PB-4+0	05 26 44.488952	* 05 29 34.132500	05 30 35.423557	0.00
	13 29 36.34849	* 13 31 55.14950	13 32 32.94351	0.00
* PB-3+0	05 27 05.056503	* 05 29 54.703600	05 30 55.997443	0.00
	13 29 37.83312	* 13 31 55.14950	13 32 32.40729	0.00
* PB-2+0	05 27 25.623990	* 05 30 15.274600	05 31 16.571214	0.00
	13 29 39.31805	* 13 31 55.14950	13 32 31.87097	0.00
* PB-1+0	05 27 46.191612	* 05 30 35.845700	05 31 37.145072	0.00
	13 29 40.80329	* 13 31 55.14950	13 32 31.33455	0.00
* PB+1+0	05 28 27.326862	* 05 31 16.987800	05 32 18.292645	0.00
	13 29 43.77467	* 13 31 55.14950	13 32 30.26143	0.00
* PB+2+0	05 28 47.894590	* 05 31 37.558900	05 32 38.866461	0.00
	13 29 45.26081	* 13 31 55.14950	13 32 29.72472	0.00
* PB+3+0	05 29 08.462254	* 05 31 58.129900	05 32 59.440163	0.00
	13 29 46.74723	* 13 31 55.14950	13 32 29.18793	0.00
* PB+4+0	05 29 29.030053	* 05 32 18.701000	05 33 20.013951	0.00
	13 29 48.23395	* 13 31 55.14950	13 32 28.65104	0.00
* PB-4+1	05 26 44.387142	* 05 29 34.132500	05 30 35.460337	0.00
	13 34 36.34499	* 13 36 55.14950	13 37 32.97100	0.00
* PB-3+1	05 27 04.954672	* 05 29 54.703600	05 30 56.034230	0.00
	13 34 37.82961	* 13 36 55.14950	13 37 32.43477	0.00
* PB-2+1	05 27 25.522138	* 05 30 15.274600	05 31 16.608008	0.00
	13 34 39.31454	* 13 36 55.14950	13 37 31.89843	0.00
* PB-1+1	05 27 46.089739	* 05 30 35.845700	05 31 37.181872	0.00
	13 34 40.79978	* 13 36 55.14950	13 37 31.36200	0.00
* PB+0+1	05 28 06.657275	* 05 30 56.416700	05 31 57.755623	0.00
	13 34 42.28532	* 13 36 55.14950	13 37 30.82547	0.00
* PB+1+1	05 28 27.224948	* 05 31 16.987800	05 32 18.329459	0.00
	13 34 43.77116	* 13 36 55.14950	13 37 30.28885	0.00
* PB+2+1	05 28 47.792655	* 05 31 37.558900	05 32 38.903281	0.00
	13 34 45.25729	* 13 36 55.14950	13 37 29.75213	0.00
* PB+3+1	05 29 08.360299	* 05 31 58.129900	05 32 59.476989	0.00
	13 34 46.74371	* 13 36 55.14950	13 37 29.21532	0.00
* PB+4+1	05 29 28.928078	* 05 32 18.701000	05 33 20.050783	0.00
	13 34 48.23043	* 13 36 55.14950	13 37 28.67841	0.00
* PB-4+2	05 26 44.285261	* 05 29 34.132500	05 30 35.497145	0.00
	13 39 36.34148	* 13 41 55.14950	13 42 32.99850	0.00

* PB-3+2	05 27 04.852770	* 05 29 54.703600	05 30 56.071044	0.00
	13 39 37.82611	* 13 41 55.14950	13 42 32.46225	0.00
* PB-2+2	05 27 25.420214	* 05 30 15.274600	05 31 16.644829	0.00
	13 39 39.31103	* 13 41 55.14950	13 42 31.92590	0.00
* PB-1+2	05 27 45.987794	* 05 30 35.845700	05 31 37.218700	0.00
	13 39 40.79627	* 13 41 55.14950	13 42 31.38945	0.00
* PB+0+2	05 28 06.555310	* 05 30 56.416700	05 31 57.792457	0.00
	13 39 42.28180	* 13 41 55.14950	13 42 30.85291	0.00
* PB+1+2	05 28 27.122961	* 05 31 16.987800	05 32 18.366299	0.00
	13 39 43.76764	* 13 41 55.14950	13 42 30.31627	0.00
* PB+2+2	05 28 47.690649	* 05 31 37.558900	05 32 38.940128	0.00
	13 39 45.25378	* 13 41 55.14950	13 42 29.77953	0.00
* PB+3+2	05 29 08.258272	* 05 31 58.129900	05 32 59.513843	0.00
	13 39 46.74019	* 13 41 55.14950	13 42 29.24271	0.00
* PB+4+2	05 29 28.826032	* 05 32 18.701000	05 33 20.087643	0.00
	13 39 48.22691	* 13 41 55.14950	13 42 28.70579	0.00
* PB-4+3	05 26 44.183308	* 05 29 34.132500	05 30 35.533979	0.00
	13 44 36.33797	* 13 46 55.14950	13 47 33.02601	0.00
* PB-3+3	05 27 04.750795	* 05 29 54.703600	05 30 56.107885	0.00
	13 44 37.82260	* 13 46 55.14950	13 47 32.48974	0.00
* PB-2+3	05 27 25.318218	* 05 30 15.274600	05 31 16.681677	0.00
	13 44 39.30752	* 13 46 55.14950	13 47 31.95338	0.00
* PB-1+3	05 27 45.885777	* 05 30 35.845700	05 31 37.255555	0.00
	13 44 40.79276	* 13 46 55.14950	13 47 31.41691	0.00
* PB+0+3	05 28 06.453272	* 05 30 56.416700	05 31 57.829318	0.00
	13 44 42.27829	* 13 46 55.14950	13 47 30.88036	0.00
* PB+1+3	05 28 27.020903	* 05 31 16.987800	05 32 18.403167	0.00
	13 44 43.76412	* 13 46 55.14950	13 47 30.34370	0.00
* PB+2+3	05 28 47.588570	* 05 31 37.558900	05 32 38.977002	0.00
	13 44 45.25025	* 13 46 55.14950	13 47 29.80695	0.00
* PB+3+3	05 29 08.156174	* 05 31 58.129900	05 32 59.550723	0.00
	13 44 46.73667	* 13 46 55.14950	13 47 29.27011	0.00
* PB+4+3	05 29 28.723913	* 05 32 18.701000	05 33 20.124530	0.00
	13 44 48.22338	* 13 46 55.14950	13 47 28.73317	0.00
* PB-4+4	05 26 44.081282	* 05 29 34.132500	05 30 35.570841	0.00
	13 49 36.33446	* 13 51 55.14950	13 52 33.05352	0.00
* PB-3+4	05 27 04.648748	* 05 29 54.703600	05 30 56.144754	0.00
	13 49 37.81908	* 13 51 55.14950	13 52 32.51724	0.00
* PB-2+4	05 27 25.216149	* 05 30 15.274600	05 31 16.718552	0.00
	13 49 39.30400	* 13 51 55.14950	13 52 31.98086	0.00
* PB-1+4	05 27 45.783687	* 05 30 35.845700	05 31 37.292437	0.00
	13 49 40.78924	* 13 51 55.14950	13 52 31.44438	0.00
* PB+0+4	05 28 06.351162	* 05 30 56.416700	05 31 57.866207	0.00

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                    13 49 42.27477    * 13 51 55.14950      13 52 30.90781        0.00

* PB+1+4            05 28 26.918772   * 05 31 16.987800     05 32 18.440062       0.00
                    13 49 43.76060    * 13 51 55.14950      13 52 30.37113        0.00

* PB+2+4            05 28 47.486419   * 05 31 37.558900     05 32 39.013904       0.00
                    13 49 45.24673    * 13 51 55.14950      13 52 29.83437        0.00

* PB+3+4            05 29 08.054002   * 05 31 58.129900     05 32 59.587631       0.00
                    13 49 46.73314    * 13 51 55.14950      13 52 29.29751        0.00

* PB+4+4            05 29 28.621722   * 05 32 18.701000     05 33 20.161444       0.00
                    13 49 48.21985    * 13 51 55.14950      13 52 28.76056        0.00

  0234+285          02 34 55.589590   * 02 37 52.405677     02 38 55.518357       0.00
* J0237+2848        28 35 11.40776    * 28 48 08.99001      28 52 43.98385        0.00
  J0237+28          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished  54650 observations.

  0528+134          05 28 06.759216   * 05 30 56.416747     05 31 57.718862       0.21
* J0530+1331        13 29 42.28885    * 13 31 55.14952      13 32 30.79805        0.24
  J0530+13          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished 135789 observations.
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eg100atr

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

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Address:  Istituto di Radioastronomia

Observing mode:

Schedule for TORUN     (Code Tr )                                    Page   2
               EVN Observations to Solve the Puzzle of FR0 Radio Galaxies
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu  22 Feb 2018   Day  53 ---

 Next scan frequencies:  1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 Next BBC frequencies:    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

21 30 00  J0945+3534   08 55 12  70.2 147.6 -0.9     -23.3     0        0   21 30 00
21 33 00  ---          08 58 12  70.4 149.3 -0.8     -22.1   180       23   21 30 01

21 33 00  J0943+36     08 58 12  71.2 149.8 -0.8     -22.0   -15       23   No stop
21 42 30  ---          09 07 44  71.9 155.5 -0.6     -17.9   555       96   21 33 01

21 43 00  J0945+3534   09 08 14  71.1 155.1 -0.6     -18.1    15       96   21 43 00
21 44 30  ---          09 09 44  71.2 156.0 -0.6     -17.5    90      108   21 43 01

21 44 30  J0943+36     09 09 44  72.0 156.8 -0.6     -17.0   -15      108   No stop
21 54 00  ---          09 19 16  72.5 162.9 -0.4     -12.6   555      181   21 44 31

21 54 30  J0945+3534   09 19 46  71.8 162.2 -0.4     -13.0    15      181   21 54 30
21 56 00  ---          09 21 16  71.8 163.2 -0.4     -12.3    90      192   21 54 31

21 56 00  J0943+36     09 21 16  72.6 164.2 -0.4     -11.7   -15      192   No stop
22 05 30  ---          09 30 48  72.9 170.6 -0.2      -7.0   555      265   21 56 01

22 06 00  J0945+3534   09 31 18  72.2 169.7 -0.3      -7.6    15      265   22 06 00
22 07 30  ---          09 32 48  72.2 170.7 -0.2      -6.9    90      277   22 06 01

22 07 30  J0943+36     09 32 48  72.9 172.0 -0.2      -6.0   -16      277   No stop
22 17 00  ---          09 42 20  73.1 178.5 -0.0      -1.1   554      350   22 07 31

22 17 30  J0945+3534   09 42 50  72.4 177.4 -0.1      -1.9    14      350   22 17 30
22 19 00  ---          09 44 20  72.4 178.4 -0.0      -1.2    90      362   22 17 31

22 19 00  J0943+36     09 44 20  73.1 179.9 -0.0      -0.0   -17      362   No stop
22 28 30  ---          09 53 52  73.0 186.5  0.2       4.8   553      435   22 19 01

22 29 00  J0945+3534   09 54 22  72.3 185.1  0.1       3.8    14      435   22 29 00
22 30 30  ---          09 55 52  72.3 186.1  0.2       4.5    90      446   22 29 01

22 30 30  J0943+36     09 55 52  72.9 187.9  0.2       5.9   -17      446   No stop
22 40 00  ---          10 05 23  72.7 194.3  0.3      10.6   553      519   22 30 31
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Schedule for TORUN (Code Tr) Page 3

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 22 Feb 2018 Day 53 --										
22 40 30	J0945+3534	10 05 54	72.1	192.8	0.3		9.4	13	519	22 40 30
22 42 00	---	10 07 24	72.0	193.7	0.3		10.1	90	531	22 40 31
22 42 00	J0943+36	10 07 24	72.6	195.7	0.4		11.6	-18	531	No stop
22 51 30	---	10 16 55	72.1	201.8	0.5		16.1	552	604	22 42 01
22 52 00	J0945+3534	10 17 25	71.6	200.1	0.5		14.7	13	604	22 52 00
22 53 30	---	10 18 56	71.5	201.1	0.5		15.4	90	615	22 52 01
22 53 30	J0943+36	10 18 56	72.0	203.1	0.6		17.0	-18	615	No stop
23 03 00	---	10 28 27	71.4	208.9	0.7		21.1	552	688	22 53 31
23 03 30	J0945+3534	10 28 57	70.9	207.1	0.7		19.6	12	688	23 03 30
23 05 00	---	10 30 28	70.8	208.0	0.7		20.2	90	700	23 03 31
23 05 00	J0943+36	10 30 28	71.2	210.1	0.8		21.9	-18	700	No stop
23 14 30	---	10 39 59	70.5	215.4	0.9		25.5	552	773	23 05 01
23 15 00	J0945+3534	10 40 29	70.0	213.6	0.9		24.1	12	773	23 15 00
23 17 00	---	10 42 30	69.9	214.7	0.9		24.8	120	788	23 15 01
23 20 30	J1219+4829	10 46 00	74.5	98.1	-1.6		-63.5	-38	788	23 20 30
23 25 30	---	10 51 01	75.2	99.6	-1.5		-63.1	262	827	23 20 31
23 25 30	J1213+50	10 51 01	76.9	92.5	-1.4		-71.1	-29	827	No stop
23 35 35	---	11 01 08	78.5	94.9	-1.2		-70.6	576	904	23 25 31
23 36 40	J1219+4829	11 02 13	76.9	103.1	-1.3		-61.7	34	904	23 36 40
23 38 10	---	11 03 43	77.1	103.7	-1.3		-61.5	90	916	23 36 41
23 38 10	J1213+50	11 03 43	78.8	95.6	-1.2		-70.4	-31	916	No stop
23 48 15	---	11 13 50	80.4	98.7	-1.0		-69.4	574	994	23 38 11
23 49 27	J1219+4829	11 15 02	78.7	108.1	-1.1		-59.3	39	994	23 49 27
23 50 57	---	11 16 32	78.9	108.8	-1.1		-58.9	90	1005	23 49 28
--- Start: Thu 22 Feb 2018 Day 53 -- Stop: Fri 23 Feb 2018 Day 54 ---										
23 50 57	J1213+50	11 16 32	80.8	99.6	-1.0		-69.0	-33	1005	No stop
00 01 02	---	11 26 39	82.2	103.7	-0.8		-66.9	572	1083	23 50 58
00 02 07	J1219+4829	11 27 44	80.5	114.4	-0.9		-55.4	29	1083	00 02 07
00 03 37	---	11 29 14	80.7	115.3	-0.8		-54.8	90	1094	00 02 08
00 03 37	J1213+50	11 29 14	82.6	104.9	-0.8		-66.2	-35	1094	No stop
00 13 42	---	11 39 21	84.1	110.9	-0.6		-62.2	570	1172	00 03 38
00 14 54	J1219+4829	11 40 33	82.2	123.1	-0.7		-49.3	34	1172	00 14 54
00 16 24	---	11 42 03	82.4	124.3	-0.6		-48.3	90	1183	00 14 55

Schedule for TORUN (Code Tr) Page 4

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
00 16 24	J1213+50	11 42 03	84.4	113.0	-0.5		-60.7	-37	1183	No stop
00 26 29	---	11 52 10	85.8	123.4	-0.4		-52.2	568	1261	00 16 25
00 27 34	J1219+4829	11 53 15	83.7	135.4	-0.4		-39.5	27	1261	00 27 34
00 29 04	---	11 54 45	83.8	137.2	-0.4		-38.0	90	1272	00 27 35
00 29 04	J1213+50	11 54 45	86.1	127.1	-0.3		-49.1	-34	1272	No stop
00 39 09	---	12 04 52	87.1	148.1	-0.2		-30.0	571	1350	00 29 05
00 40 21	J1219+4829	12 06 04	84.8	153.5	-0.2		-23.8	49	1350	00 40 21
00 41 51	---	12 07 35	84.9	156.1	-0.2		-21.5	90	1362	00 40 22
00 41 51	J1213+50	12 07 35	87.3	156.1	-0.1		-22.5	-23	1362	No stop
00 51 56	---	12 17 41	87.5	192.0	0.1		11.4	582	1439	00 41 52
00 53 01	J1219+4829	12 18 46	85.3	177.5	-0.0		-2.3	19	1439	00 53 01
00 54 31	---	12 20 17	85.3	180.5	0.0		0.5	90	1451	00 53 02
00 54 31	J1213+50	12 20 17	87.4	200.9	0.1		19.7	-61	1451	No stop
01 04 36	---	12 30 23	86.5	226.7	0.3		43.6	544	1528	00 54 32
01 05 48	J1219+4829	12 31 35	85.0	202.4	0.2		20.2	8	1528	01 05 48
01 07 18	---	12 33 06	84.9	205.1	0.2		22.5	90	1540	01 05 49
01 07 18	J1213+50	12 33 06	86.2	231.5	0.3		47.8	-71	1540	No stop
01 17 18	---	12 43 07	84.9	243.9	0.5		58.2	529	1617	01 07 19
01 18 48	J1219+4829	12 44 38	83.9	222.1	0.4		37.3	30	1617	01 18 48
01 20 48	---	12 46 38	83.7	224.5	0.4		39.3	120	1632	01 18 49
01 25 08	J0911+3349	12 50 59	47.2	265.6	3.6		46.1	110	1632	01 25 08
01 33 08	---	12 59 00	46.0	267.3	3.8		46.2	480	1694	01 25 09
01 33 38	J0907+32	12 59 30	44.7	267.4	3.8		45.6	12	1694	01 33 38
01 42 38	---	13 08 31	43.4	269.2	4.0		45.6	540	1763	01 33 39
01 43 08	J0911+3349	13 09 02	44.5	269.3	3.9		46.2	12	1763	01 43 08
01 44 38	---	13 10 32	44.3	269.6	4.0		46.2	90	1774	01 43 09
01 44 38	J0907+32	13 10 32	43.1	269.6	4.0		45.6	-18	1774	No stop
01 54 08	---	13 20 03	41.6	271.5	4.2		45.6	552	1847	01 44 39
01 54 38	J0911+3349	13 20 33	42.8	271.6	4.1		46.2	12	1847	01 54 38
01 56 08	---	13 22 04	42.6	271.9	4.2		46.2	90	1859	01 54 39

Schedule for TORUN (Code Tr) Page 5

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
01 56 38	J0907+32	13 22 34	41.3	272.0	4.2		45.6	12	1859	01 56 38
02 05 38	---	13 31 35	39.9	273.7	4.4		45.5	540	1928	01 56 39
02 06 08	J0911+3349	13 32 05	41.1	273.8	4.3		46.1	12	1928	02 06 08
02 07 38	---	13 33 36	40.8	274.1	4.3		46.1	90	1940	02 06 09
02 07 38	J0907+32	13 33 36	39.6	274.1	4.4		45.5	-18	1940	No stop
02 17 08	---	13 43 07	38.2	275.9	4.6		45.3	552	2013	02 07 39
02 17 38	J0911+3349	13 43 37	39.3	276.0	4.5		45.9	12	2013	02 17 38
02 19 08	---	13 45 07	39.1	276.3	4.5		45.9	90	2024	02 17 39
02 19 38	J0907+32	13 45 38	37.8	276.4	4.6		45.3	12	2024	02 19 38
02 28 38	---	13 54 39	36.5	278.1	4.8		45.1	540	2094	02 19 39
02 29 08	J0911+3349	13 55 09	37.6	278.1	4.7		45.6	12	2094	02 29 08
02 30 38	---	13 56 39	37.4	278.4	4.7		45.6	90	2105	02 29 09
02 30 38	J0907+32	13 56 39	36.2	278.4	4.8		45.0	-18	2105	No stop
02 40 08	---	14 06 11	34.7	280.2	5.0		44.7	552	2178	02 30 39
02 40 38	J0911+3349	14 06 41	35.9	280.2	4.9		45.3	12	2178	02 40 38
02 42 08	---	14 08 11	35.7	280.5	4.9		45.2	90	2190	02 40 39
02 42 38	J0907+32	14 08 41	34.4	280.6	5.0		44.6	12	2190	02 42 38
02 51 38	---	14 17 43	33.1	282.3	5.2		44.3	540	2259	02 42 39
02 52 08	J0911+3349	14 18 13	34.2	282.3	5.1		44.9	12	2259	02 52 08
02 53 38	---	14 19 43	34.0	282.6	5.1		44.8	90	2271	02 52 09
02 53 38	J0907+32	14 19 43	32.8	282.6	5.2		44.2	-18	2271	No stop
03 03 08	---	14 29 15	31.4	284.3	5.3		43.9	552	2344	02 53 39
03 03 38	J0911+3349	14 29 45	32.5	284.4	5.3		44.4	12	2344	03 03 38
03 05 08	---	14 31 15	32.3	284.6	5.3		44.3	90	2355	03 03 39
03 05 38	J0907+32	14 31 45	31.0	284.7	5.4		43.7	12	2355	03 05 38
03 14 38	---	14 40 47	29.7	286.3	5.5		43.3	540	2424	03 05 39
03 15 08	J0911+3349	14 41 17	30.9	286.4	5.5		43.9	12	2424	03 15 08
03 16 38	---	14 42 47	30.6	286.6	5.5		43.8	90	2436	03 15 09
03 16 38	J0907+32	14 42 47	29.4	286.7	5.6		43.2	-18	2436	No stop
03 26 08	---	14 52 18	28.0	288.4	5.7		42.7	552	2509	03 16 39

Schedule for TORUN (Code Tr) Page 6

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
03 26 38	J0911+3349	14 52 49	29.2	288.4	5.7		43.3	12	2509	03 26 38
03 28 08	---	14 54 19	29.0	288.6	5.7		43.2	90	2521	03 26 39
03 28 38	J0907+32	14 54 49	27.7	288.8	5.8		42.6	12	2521	03 28 38
03 37 38	---	15 03 50	26.4	290.4	5.9		42.1	540	2590	03 28 39
03 38 08	J0911+3349	15 04 20	27.6	290.4	5.9		42.6	12	2590	03 38 08
03 39 38	---	15 05 51	27.4	290.6	5.9		42.5	90	2601	03 38 09
03 39 38	J0907+32	15 05 51	26.1	290.7	6.0		42.0	-18	2601	No stop
03 49 08	---	15 15 22	24.8	292.4	6.1		41.4	552	2674	03 39 39
03 49 38	J0911+3349	15 15 52	26.0	292.4	6.0		41.9	12	2674	03 49 38
03 51 08	---	15 17 23	25.8	292.6	6.1		41.8	90	2686	03 49 39
03 51 08	J0907+32	15 17 23	24.5	292.7	6.1		41.3	-18	2686	No stop
04 00 38	---	15 26 54	23.2	294.4	6.3		40.6	552	2759	03 51 09
04 01 08	J0911+3349	15 27 24	24.4	294.4	6.2		41.1	12	2759	04 01 08
04 03 08	---	15 29 25	24.1	294.7	6.3		41.0	120	2774	04 01 09
04 04 08	J0930+3503	15 30 25	27.5	292.5	6.0		42.6	33	2774	04 04 08
04 07 08	---	15 33 25	27.1	293.0	6.0		42.4	180	2797	04 04 09
04 07 08	J0930+34	15 33 25	26.4	292.5	6.0		42.1	-15	2797	No stop
04 16 38	---	15 42 57	25.0	294.2	6.2		41.4	555	2871	04 07 09
04 17 08	J0930+3503	15 43 27	25.7	294.7	6.2		41.7	15	2871	04 17 08
04 18 38	---	15 44 57	25.5	295.0	6.2		41.6	90	2882	04 17 09
04 18 38	J0930+34	15 44 57	24.8	294.5	6.2		41.3	-15	2882	No stop
04 28 08	---	15 54 29	23.5	296.1	6.4		40.6	555	2955	04 18 39
04 28 38	J0930+3503	15 54 59	24.2	296.7	6.4		40.9	15	2955	04 28 38
04 30 08	---	15 56 29	24.0	296.9	6.4		40.8	90	2967	04 28 39
04 30 08	J0930+34	15 56 29	23.2	296.5	6.4		40.5	-15	2967	No stop
04 39 38	---	16 06 01	21.9	298.1	6.6		39.8	555	3040	04 30 09
04 40 08	J0930+3503	16 06 31	22.6	298.6	6.6		40.0	15	3040	04 40 08
04 41 38	---	16 08 01	22.4	298.9	6.6		39.9	90	3051	04 40 09
04 41 38	J0930+34	16 08 01	21.7	298.5	6.6		39.6	-15	3051	No stop
04 51 08	---	16 17 32	20.4	300.1	6.8		38.9	555	3124	04 41 39

Schedule for TORUN (Code Tr) Page 7

EVN Observations to Solve the Puzzle of FRO Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
04 51 38	J0930+3503	16 18 03	21.1	300.6	6.8		39.1	15	3124	04 51 38
04 53 08	---	16 19 33	20.9	300.9	6.8		39.0	90	3136	04 51 39
04 53 08	J0930+34	16 19 33	20.2	300.4	6.8		38.7	-15	3136	No stop
05 02 38	---	16 29 04	18.9	302.1	7.0		37.9	555	3209	04 53 09
05 03 08	J0930+3503	16 29 34	19.6	302.6	7.0		38.1	15	3209	05 03 08
05 04 38	---	16 31 05	19.5	302.8	7.0		38.0	90	3221	05 03 09
05 04 38	J0930+34	16 31 05	18.7	302.4	7.0		37.8	-15	3221	No stop
05 14 08	---	16 40 36	17.5	304.1	7.2		36.9	555	3294	05 04 39
05 14 38	J0930+3503	16 41 06	18.2	304.5	7.2		37.1	15	3294	05 14 38
05 16 08	---	16 42 37	18.0	304.8	7.2		37.0	90	3305	05 14 39
05 16 08	J0930+34	16 42 37	17.2	304.4	7.2		36.8	-15	3305	No stop
05 25 38	---	16 52 08	16.1	306.1	7.3		35.9	555	3378	05 16 09
05 26 08	J0930+3503	16 52 38	16.8	306.5	7.3		36.1	15	3378	05 26 08
05 27 38	---	16 54 08	16.6	306.8	7.4		35.9	90	3390	05 26 09
05 27 38	J0930+34	16 54 08	15.8	306.4	7.4		35.7	-15	3390	No stop
05 37 08	---	17 03 40	14.7	308.1	7.5		34.8	555	3463	05 27 39
05 37 38	J0930+3503	17 04 10	15.4	308.5	7.5		35.0	15	3463	05 37 38
05 39 08	---	17 05 40	15.2	308.8	7.6		34.8	90	3474	05 37 39
05 39 08	J0930+34	17 05 40	14.5	308.5	7.6		34.6	-15	3474	No stop
05 48 38	---	17 15 12	13.3	310.1	7.7		33.7	555	3547	05 39 09
05 49 08	J0930+3503	17 15 42	14.1	310.6	7.7		33.8	15	3547	05 49 08
05 50 38	---	17 17 12	13.9	310.8	7.8		33.7	90	3559	05 49 09
05 50 38	J0930+34	17 17 12	13.1	310.5	7.8		33.5	-15	3559	No stop
06 00 08	---	17 26 44	12.0	312.2	7.9		32.5	555	3632	05 50 39
06 00 38	J0930+3503	17 27 14	12.8	312.6	7.9		32.7	15	3632	06 00 38
06 02 08	---	17 28 44	12.6	312.9	7.9		32.5	90	3644	06 00 39
06 02 08	J0930+34	17 28 44	11.8	312.5	8.0		32.3	-15	3644	No stop
06 11 38	---	17 38 16	10.8	314.3	8.1		31.3	555	3717	06 02 09
06 12 08	J0930+3503	17 38 46	11.5	314.6	8.1		31.4	15	3717	06 12 08
06 13 38	---	17 40 16	11.4	314.9	8.1		31.3	90	3728	06 12 09

Schedule for TORUN (Code Tr) Page 8

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
06 13 38	J0930+34	17 40 16	10.6	314.6	8.2		31.1	-15	3728	No stop
06 23 08	---	17 49 48	9.6	316.3	8.3		30.1	555	3801	06 13 39
06 23 38	J0930+3503	17 50 18	10.3	316.7	8.3		30.2	15	3801	06 23 38
06 25 08	---	17 51 48	10.2	317.0	8.3		30.0	90	3813	06 23 39
06 25 08	J0930+34	17 51 48	9.4	316.7	8.3		29.8	-16	3813	No stop
06 34 38	---	18 01 19	8.4	318.4	8.5		28.8	554	3886	06 25 09
06 35 08	J0930+3503	18 01 50	9.2	318.8	8.5		28.9	15	3886	06 35 08
06 37 08	---	18 03 50	9.0	319.1	8.5		28.6	120	3901	06 35 09
06 41 38	J1234+4753	18 08 21	39.7	299.8	5.6		50.9	140	3901	06 41 38
06 44 38	---	18 11 21	39.3	300.2	5.6		50.6	180	3924	06 41 39
06 44 38	J1230+47	18 11 21	38.3	299.9	5.7		49.6	-17	3924	No stop
06 54 13	---	18 20 58	37.0	301.3	5.8		48.7	558	3998	06 44 39
06 54 45	J1234+4753	18 21 30	38.0	301.6	5.8		49.6	15	3998	06 54 45
06 56 15	---	18 23 00	37.9	301.8	5.8		49.4	90	4010	06 54 46
06 56 15	J1230+47	18 23 00	36.8	301.5	5.9		48.5	-17	4010	No stop
07 05 50	---	18 32 37	35.5	302.9	6.0		47.6	558	4083	06 56 16
07 06 22	J1234+4753	18 33 09	36.6	303.2	6.0		48.4	15	4083	07 06 22
07 07 52	---	18 34 39	36.4	303.4	6.0		48.2	90	4095	07 06 23
07 07 52	J1230+47	18 34 39	35.3	303.2	6.1		47.3	-17	4095	No stop
07 17 27	---	18 44 15	34.1	304.6	6.2		46.4	558	4169	07 07 53
07 17 59	J1234+4753	18 44 48	35.1	304.9	6.2		47.2	15	4169	07 17 59
07 19 29	---	18 46 18	34.9	305.1	6.2		47.0	90	4180	07 18 00
07 19 29	J1230+47	18 46 18	33.8	304.9	6.3		46.2	-17	4180	No stop
07 29 04	---	18 55 54	32.7	306.2	6.4		45.2	558	4254	07 19 30
07 29 36	J1234+4753	18 56 26	33.7	306.5	6.4		45.9	15	4254	07 29 36
07 31 06	---	18 57 57	33.5	306.7	6.4		45.8	90	4265	07 29 37
07 31 06	J1230+47	18 57 57	32.4	306.5	6.4		44.9	-17	4265	No stop
07 40 41	---	19 07 33	31.3	307.9	6.6		43.9	558	4339	07 31 07
07 41 13	J1234+4753	19 08 05	32.3	308.1	6.5		44.7	15	4339	07 41 13
07 42 43	---	19 09 36	32.1	308.3	6.6		44.5	90	4351	07 41 14

```
Schedule for TORUN     (Code Tr )                                  Page   9
               EVN Observations to Solve the Puzzle of FR0 Radio Galaxies
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Fri  23 Feb 2018   Day  54 ---

07 42 43  J1230+47     19 09 36  31.0 308.2  6.6      43.7   -17     4351   No stop
07 52 18  ---          19 19 12  29.9 309.6  6.8      42.6   558     4424   07 42 44

07 52 50  J1234+4753   19 19 44  30.9 309.8  6.7      43.4    15     4424   07 52 50
07 54 20  ---          19 21 15  30.8 310.0  6.8      43.2    90     4436   07 52 51

07 54 20  J1230+47     19 21 15  29.7 309.9  6.8      42.4   -17     4436   No stop
08 03 55  ---          19 30 51  28.6 311.3  7.0      41.3   558     4510   07 54 21

08 04 27  J1234+4753   19 31 23  29.6 311.4  6.9      42.1    15     4510   08 04 27
08 05 57  ---          19 32 53  29.5 311.7  7.0      41.9    90     4521   08 04 28

08 05 57  J1230+47     19 32 53  28.3 311.6  7.0      41.1   -17     4521   No stop
08 15 32  ---          19 42 30  27.3 313.0  7.2      40.0   558     4595   08 05 58

08 16 04  J1234+4753   19 43 02  28.3 313.1  7.1      40.7    15     4595   08 16 04
08 17 34  ---          19 44 32  28.2 313.3  7.2      40.5    90     4606   08 16 05

08 17 34  J1230+47     19 44 32  27.0 313.3  7.2      39.8   -17     4606   No stop
08 27 04  ---          19 54 04  26.0 314.7  7.4      38.7   553     4679   08 17 35

08 27 34  J1234+4753   19 54 34  27.1 314.8  7.3      39.4    13     4679   08 27 34
08 30 00  ---          19 57 00  26.8 315.2  7.4      39.1   146     4698   08 27 35



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.L1024

   Setup group:   13         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
 Net SB=         L         L         U         U         L         L         U         U
 IF SB =         L         L         L         L         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         3         7         3         7
 BBC SB=         U         U         L         L         U         U         L         L
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1

The following frequency sets based on these setups were used.

 Frequency Set:   9  Setup file default.  Used with PCAL = off
 LO sum=   1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 BBC fr=    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
  Matching frequency sets:   9

 Track assignments are:
  track1=   2,  6, 10, 14,  4,  8, 12, 16
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* J0907+32	09 04 31.154317	* 09 07 34.821040	09 08 41.758852	0.00
	33 09 29.71762	* 32 57 22.77880	32 52 52.36208	0.00
* J0930+34	09 27 01.807455	* 09 30 03.559740	09 31 09.823675	0.00
	34 26 36.32589	* 34 13 25.32110	34 08 31.80093	0.00
* J0943+36	09 40 17.519051	* 09 43 19.158870	09 44 25.390391	0.00
	36 28 37.35575	* 36 14 52.11890	36 09 46.34640	0.00
* J1213+50	12 10 59.905434	* 12 13 29.278990	12 14 23.812625	0.00
	51 01 09.79870	* 50 44 29.37800	50 38 18.78943	0.00
* J1230+47	12 27 47.172869	* 12 30 11.851120	12 31 04.609140	0.00
	47 16 56.48400	* 47 00 22.63020	46 54 14.25023	0.00
* J0911+3349	09 08 43.699018	* 09 11 47.761484	09 12 54.846456	0.00
	34 01 36.28032	* 33 49 16.79409	33 44 41.93164	0.00
* J0930+3503	09 27 52.778452	* 09 30 55.279096	09 32 01.814510	0.00
	35 16 50.90131	* 35 03 37.60828	34 58 43.34182	0.00
* J0945+3534	09 42 37.555454	* 09 45 38.120717	09 46 43.964023	0.00
	35 48 46.04866	* 35 34 55.08850	35 29 47.17444	0.00
* J1219+4829	12 16 38.565791	* 12 19 06.414741	12 20 00.359394	0.00
	48 46 34.97550	* 48 29 56.16479	48 23 46.11096	0.00
* J1234+4753	12 31 50.237067	* 12 34 13.330788	12 35 05.514728	0.00
	48 10 22.70378	* 47 53 51.23519	47 47 43.61666	0.00

ep106atr

Mrk1018 at 1 Gb/s - L band - 1st segment

PI: *Miguel A. Perez-Torres*

```
Address:  IAA - CSIC

Observing mode: 1024 Mbps

Schedule for TORUN     (Code Tr )                                   Page   2
               Mrk1018 at 1 Gb/s - L band - 1st segment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                  Early    Disk   TPStart
Stop UT                   LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------
 --- Fri  23 Feb 2018   Day  54 ---
 Next scan frequencies:  1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 Next BBC frequencies:    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

11 00 00  0149+218     22 27 25  40.4 107.9 -3.4     -38.1     0        0   11 00 00
11 03 40  ---          22 31 06  41.0 108.8 -3.4     -37.9   220       28   11 00 01

11 03 40  0205-010     22 31 06  19.8 120.0 -3.6     -31.3   -93       28   No stop
11 06 40  ---          22 34 06  20.2 120.7 -3.6     -31.1    87       51   11 03 41

11 06 40  MRK1018      22 34 06  20.9 120.9 -3.6     -31.0   -15       51   No stop
11 10 30  ---          22 37 57  21.4 121.8 -3.5     -30.7   215       81   11 06 41

11 11 00  0205-010     22 38 27  20.7 121.7 -3.5     -30.7    15       81   11 11 00
11 12 10  ---          22 39 37  20.9 122.0 -3.5     -30.6    70       90   11 11 01

11 12 10  MRK1018      22 39 37  21.6 122.2 -3.5     -30.5   -15       90   No stop
11 16 00  ---          22 43 28  22.1 123.1 -3.4     -30.2   215      119   11 12 11

11 16 00  0205-010     22 43 28  21.3 122.9 -3.4     -30.3   -15      119   No stop
11 17 10  ---          22 44 38  21.5 123.1 -3.4     -30.2    55      128   11 16 01

11 17 10  MRK1018      22 44 38  22.2 123.4 -3.4     -30.1   -15      128   No stop
11 21 00  ---          22 48 28  22.7 124.3 -3.3     -29.7   215      158   11 17 11

11 21 30  0205-010     22 48 59  22.0 124.2 -3.3     -29.8    15      158   11 21 30
11 22 40  ---          22 50 09  22.2 124.4 -3.3     -29.7    70      167   11 21 31

11 22 40  MRK1018      22 50 09  22.9 124.7 -3.3     -29.6   -15      167   No stop
11 26 30  ---          22 53 59  23.4 125.6 -3.2     -29.2   215      196   11 22 41

11 26 30  0205-010     22 53 59  22.7 125.3 -3.3     -29.3   -15      196   No stop
11 27 40  ---          22 55 10  22.8 125.6 -3.2     -29.2    55      205   11 26 31

11 27 40  MRK1018      22 55 10  23.5 125.9 -3.2     -29.1   -15      205   No stop
11 31 30  ---          22 59 00  24.0 126.8 -3.1     -28.7   215      235   11 27 41

11 32 00  0205-010     22 59 30  23.3 126.6 -3.2     -28.8    15      235   11 32 00
11 33 10  ---          23 00 40  23.5 126.9 -3.1     -28.7    70      244   11 32 01

11 33 10  MRK1018      23 00 40  24.2 127.2 -3.1     -28.6   -15      244   No stop
11 37 00  ---          23 04 31  24.6 128.1 -3.0     -28.2   215      273   11 33 11
```

Schedule for TORUN (Code Tr) Page 3

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 23 Feb 2018 Day 54 ---										
11 37 00	0205-010	23 04 31	23.9	127.8	-3.1		-28.3	-15	273	No stop
11 38 10	---	23 05 41	24.1	128.1	-3.1		-28.2	55	282	11 37 01
11 38 10	MRK1018	23 05 41	24.8	128.4	-3.0		-28.1	-15	282	No stop
11 42 00	---	23 09 32	25.2	129.3	-3.0		-27.7	215	312	11 38 11
11 42 30	0205-010	23 10 02	24.6	129.2	-3.0		-27.7	15	312	11 42 30
11 43 40	---	23 11 12	24.7	129.5	-3.0		-27.6	70	321	11 42 31
11 43 40	MRK1018	23 11 12	25.4	129.7	-2.9		-27.5	-15	321	No stop
11 47 30	---	23 15 03	25.8	130.7	-2.9		-27.1	215	350	11 43 41
11 47 30	0205-010	23 15 03	25.2	130.4	-2.9		-27.2	-15	350	No stop
11 48 40	---	23 16 13	25.3	130.7	-2.9		-27.1	55	359	11 47 31
11 48 40	MRK1018	23 16 13	26.0	131.0	-2.8		-27.0	-15	359	No stop
11 52 30	---	23 20 04	26.4	131.9	-2.8		-26.5	215	388	11 48 41
11 53 00	0205-010	23 20 34	25.8	131.8	-2.8		-26.6	16	388	11 53 00
11 54 10	---	23 21 44	25.9	132.1	-2.8		-26.5	70	397	11 53 01
11 54 10	MRK1018	23 21 44	26.6	132.4	-2.8		-26.3	-15	397	No stop
11 58 00	---	23 25 35	27.0	133.3	-2.7		-25.9	215	427	11 54 11
11 58 00	0205-010	23 25 35	26.3	133.0	-2.7		-26.0	-14	427	No stop
11 59 10	---	23 26 45	26.5	133.3	-2.7		-25.9	56	436	11 58 01
11 59 10	MRK1018	23 26 45	27.2	133.6	-2.7		-25.8	-15	436	No stop
12 03 00	---	23 30 35	27.6	134.6	-2.6		-25.3	215	465	11 59 11
12 03 30	0205-010	23 31 05	26.9	134.4	-2.6		-25.4	16	465	12 03 30
12 04 40	---	23 32 16	27.1	134.7	-2.6		-25.3	70	474	12 03 31
12 04 40	MRK1018	23 32 16	27.7	135.0	-2.6		-25.1	-15	474	No stop
12 08 30	---	23 36 06	28.1	136.0	-2.5		-24.7	215	504	12 04 41
12 08 30	0205-010	23 36 06	27.5	135.7	-2.6		-24.8	-14	504	No stop
12 09 40	---	23 37 16	27.6	136.0	-2.5		-24.7	56	513	12 08 31
12 09 40	MRK1018	23 37 16	28.3	136.3	-2.5		-24.5	-15	513	No stop
12 13 30	---	23 41 07	28.7	137.3	-2.4		-24.0	215	542	12 09 41
12 14 00	0205-010	23 41 37	28.0	137.1	-2.5		-24.1	16	542	12 14 00
12 15 10	---	23 42 47	28.2	137.4	-2.4		-24.0	70	551	12 14 01
12 15 10	MRK1018	23 42 47	28.8	137.7	-2.4		-23.8	-15	551	No stop
12 19 00	---	23 46 38	29.2	138.7	-2.3		-23.3	215	581	12 15 11

Schedule for TORUN (Code Tr) Page 4

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
12 19 00	0205-010	23 46 38	28.5	138.4	-2.4		-23.5	-14	581	No stop
12 20 10	---	23 47 48	28.7	138.7	-2.4		-23.3	56	590	12 19 01
12 20 10	MRK1018	23 47 48	29.3	139.1	-2.3		-23.2	-15	590	No stop
12 24 00	---	23 51 39	29.7	140.1	-2.3		-22.7	215	619	12 20 11
12 24 30	0205-010	23 52 09	29.1	139.9	-2.3		-22.8	16	619	12 24 30
12 25 40	---	23 53 19	29.2	140.2	-2.3		-22.6	70	628	12 24 31
12 25 40	MRK1018	23 53 19	29.9	140.5	-2.2		-22.4	-15	628	No stop
12 29 30	---	23 57 10	30.2	141.5	-2.2		-21.9	215	658	12 25 41
12 29 30	0205-010	23 57 10	29.6	141.2	-2.2		-22.1	-14	658	No stop
12 30 40	---	23 58 20	29.7	141.5	-2.2		-22.0	56	667	12 29 31
12 30 40	MRK1018	23 58 20	30.3	141.9	-2.1		-21.8	-15	667	No stop
12 34 30	---	00 02 11	30.7	142.9	-2.1		-21.2	215	696	12 30 41
12 35 00	0205-010	00 02 41	30.1	142.7	-2.1		-21.4	16	696	12 35 00
12 36 10	---	00 03 51	30.2	143.0	-2.1		-21.2	70	705	12 35 01
12 36 10	MRK1018	00 03 51	30.8	143.3	-2.1		-21.0	-15	705	No stop
12 40 00	---	00 07 41	31.2	144.4	-2.0		-20.5	215	735	12 36 11
12 40 00	0205-010	00 07 41	30.5	144.0	-2.0		-20.7	-14	735	No stop
12 41 10	---	00 08 52	30.6	144.3	-2.0		-20.5	56	744	12 40 01
12 41 10	MRK1018	00 08 52	31.3	144.7	-2.0		-20.3	-14	744	No stop
12 45 00	---	00 12 42	31.6	145.8	-1.9		-19.7	216	773	12 41 11
12 45 30	0205-010	00 13 12	31.0	145.5	-1.9		-19.9	16	773	12 45 30
12 46 40	---	00 14 23	31.1	145.8	-1.9		-19.7	70	782	12 45 31
12 46 40	MRK1018	00 14 23	31.8	146.2	-1.9		-19.5	-14	782	No stop
12 50 30	---	00 18 13	32.1	147.3	-1.8		-18.9	216	812	12 46 41
12 50 30	0205-010	00 18 13	31.4	146.9	-1.9		-19.1	-14	812	No stop
12 51 40	---	00 19 23	31.5	147.2	-1.8		-19.0	56	821	12 50 31
12 51 40	MRK1018	00 19 23	32.2	147.6	-1.8		-18.8	-14	821	No stop
12 55 30	---	00 23 14	32.5	148.7	-1.7		-18.2	216	850	12 51 41
12 56 00	0205-010	00 23 44	31.9	148.4	-1.8		-18.3	16	850	12 56 00
12 57 10	---	00 24 54	32.0	148.8	-1.7		-18.1	70	859	12 56 01

Schedule for TORUN (Code Tr) Page 5

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 23 Feb 2018 Day 54 ---										
12 57 10	MRK1018	00 24 54	32.6	149.2	-1.7		-17.9	-14	859	No stop
13 01 00	---	00 28 45	32.9	150.3	-1.6		-17.3	216	888	12 57 11
13 01 00	0205-010	00 28 45	32.2	149.8	-1.7		-17.6	-14	888	No stop
13 02 10	---	00 29 55	32.3	150.2	-1.7		-17.4	56	897	13 01 01
13 02 10	MRK1018	00 29 55	33.0	150.6	-1.6		-17.1	-14	897	No stop
13 06 00	---	00 33 46	33.3	151.7	-1.6		-16.5	216	927	13 02 11
13 06 30	0205-010	00 34 16	32.7	151.4	-1.6		-16.7	16	927	13 06 30
13 07 40	---	00 35 26	32.7	151.7	-1.6		-16.5	70	936	13 06 31
13 07 40	MRK1018	00 35 26	33.4	152.2	-1.5		-16.3	-14	936	No stop
13 11 30	---	00 39 17	33.6	153.3	-1.5		-15.7	216	965	13 07 41
13 11 30	0205-010	00 39 17	33.0	152.8	-1.5		-15.9	-14	965	No stop
13 12 40	---	00 40 27	33.1	153.2	-1.5		-15.7	56	974	13 11 31
13 12 40	MRK1018	00 40 27	33.7	153.6	-1.4		-15.5	-14	974	No stop
13 16 30	---	00 44 17	34.0	154.7	-1.4		-14.8	216	1004	13 12 41
13 17 00	0205-010	00 44 48	33.4	154.4	-1.4		-15.0	16	1004	13 17 00
13 18 10	---	00 45 58	33.4	154.8	-1.4		-14.8	70	1013	13 17 01
13 18 10	MRK1018	00 45 58	34.1	155.2	-1.4		-14.6	-14	1013	No stop
13 22 00	---	00 49 48	34.3	156.4	-1.3		-13.9	216	1042	13 18 11
13 22 00	0205-010	00 49 48	33.7	155.9	-1.3		-14.2	-14	1042	No stop
13 23 10	---	00 50 59	33.8	156.2	-1.3		-14.0	56	1051	13 22 01
13 23 10	MRK1018	00 50 59	34.4	156.7	-1.3		-13.7	-14	1051	No stop
13 27 00	---	00 54 49	34.6	157.8	-1.2		-13.1	216	1081	13 23 11
13 27 30	0205-010	00 55 19	34.0	157.5	-1.2		-13.3	16	1081	13 27 30
13 28 40	---	00 56 29	34.1	157.8	-1.2		-13.1	70	1090	13 27 31
13 28 40	MRK1018	00 56 29	34.7	158.3	-1.2		-12.8	-14	1090	No stop
13 32 30	---	01 00 20	34.9	159.5	-1.1		-12.2	216	1119	13 28 41
13 32 30	0205-010	01 00 20	34.3	159.0	-1.2		-12.4	-14	1119	No stop
13 33 40	---	01 01 30	34.4	159.3	-1.1		-12.3	56	1128	13 32 31
13 33 40	MRK1018	01 01 30	35.0	159.8	-1.1		-12.0	-14	1128	No stop
13 37 30	---	01 05 21	35.2	161.0	-1.0		-11.3	216	1158	13 33 41

Schedule for TORUN (Code Tr) Page 6

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 23 Feb 2018 Day 54 ---										
13 38 00	0205-010	01 05 51	34.6	160.6	-1.1		-11.5	16	1158	13 38 00
13 39 10	---	01 07 01	34.6	160.9	-1.0		-11.3	70	1167	13 38 01
13 39 10	MRK1018	01 07 01	35.2	161.5	-1.0		-11.0	-14	1167	No stop
13 43 00	---	01 10 52	35.4	162.6	-0.9		-10.3	216	1196	13 39 11
13 43 00	0205-010	01 10 52	34.8	162.1	-1.0		-10.6	-14	1196	No stop
13 44 10	---	01 12 02	34.9	162.4	-1.0		-10.4	56	1205	13 43 01
13 44 10	0154-000	01 12 02	36.3	165.7	-0.8		-8.6	-21	1205	No stop
13 46 00	---	01 13 52	36.4	166.2	-0.7		-8.2	89	1219	13 44 11
13 46 00	MRK1018	01 13 52	35.5	163.5	-0.9		-9.8	-19	1219	No stop
13 49 50	---	01 17 43	35.7	164.7	-0.8		-9.1	211	1249	13 46 01
13 50 20	0205-010	01 18 13	35.1	164.3	-0.9		-9.3	16	1249	13 50 20
13 51 30	---	01 19 23	35.2	164.7	-0.8		-9.1	70	1258	13 50 21
13 51 30	MRK1018	01 19 23	35.8	165.2	-0.8		-8.8	-14	1258	No stop
13 55 20	---	01 23 14	35.9	166.4	-0.7		-8.1	216	1287	13 51 31
13 55 20	0205-010	01 23 14	35.3	165.8	-0.8		-8.5	-14	1287	No stop
13 56 30	---	01 24 24	35.4	166.2	-0.7		-8.3	56	1296	13 55 21
13 56 30	MRK1018	01 24 24	36.0	166.7	-0.7		-7.9	-14	1296	No stop
14 00 20	---	01 28 15	36.1	167.9	-0.6		-7.2	216	1326	13 56 31
14 00 50	0205-010	01 28 45	35.5	167.5	-0.7		-7.5	16	1326	14 00 50
14 02 00	---	01 29 55	35.6	167.9	-0.7		-7.3	70	1335	14 00 51
14 02 00	MRK1018	01 29 55	36.1	168.4	-0.6		-6.9	-14	1335	No stop
14 05 50	---	01 33 46	36.2	169.6	-0.6		-6.2	216	1364	14 02 01
14 05 50	0205-010	01 33 46	35.7	169.0	-0.6		-6.6	-14	1364	No stop
14 07 00	---	01 34 56	35.7	169.4	-0.6		-6.4	56	1373	14 05 51
14 07 00	MRK1018	01 34 56	36.3	170.0	-0.5		-6.0	-14	1373	No stop
14 10 50	---	01 38 46	36.4	171.2	-0.5		-5.3	216	1403	14 07 01
14 11 20	0205-010	01 39 16	35.8	170.7	-0.5		-5.6	16	1403	14 11 20
14 12 30	---	01 40 27	35.9	171.1	-0.5		-5.3	70	1412	14 11 21
14 12 30	MRK1018	01 40 27	36.4	171.7	-0.4		-5.0	-14	1412	No stop
14 16 20	---	01 44 17	36.5	172.9	-0.4		-4.3	216	1441	14 12 31

Schedule for TORUN (Code Tr) Page 7

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 23 Feb 2018 Day 54 ---										
14 16 20	0205-010	01 44 17	35.9	172.3	-0.4		-4.6	-14	1441	No stop
14 17 30	---	01 45 27	36.0	172.6	-0.4		-4.4	56	1450	14 16 21
14 17 30	MRK1018	01 45 27	36.5	173.2	-0.4		-4.1	-14	1450	No stop
14 21 20	---	01 49 18	36.6	174.4	-0.3		-3.3	216	1479	14 17 31
14 21 50	0205-010	01 49 48	36.0	174.0	-0.3		-3.6	17	1479	14 21 50
14 23 00	---	01 50 58	36.1	174.3	-0.3		-3.4	70	1488	14 21 51
14 23 00	MRK1018	01 50 58	36.6	175.0	-0.3		-3.0	-13	1488	No stop
14 26 50	---	01 54 49	36.6	176.1	-0.2		-2.3	217	1518	14 23 01
14 26 50	0205-010	01 54 49	36.1	175.5	-0.2		-2.7	-13	1518	No stop
14 28 00	---	01 55 59	36.1	175.9	-0.2		-2.5	57	1527	14 26 51
14 28 00	MRK1018	01 55 59	36.6	176.5	-0.2		-2.1	-13	1527	No stop
14 31 50	---	01 59 50	36.7	177.7	-0.1		-1.4	217	1556	14 28 01
14 32 20	0205-010	02 00 20	36.2	177.2	-0.2		-1.7	17	1556	14 32 20
14 33 30	---	02 01 30	36.2	177.6	-0.1		-1.5	70	1565	14 32 21
14 33 30	MRK1018	02 01 30	36.7	178.2	-0.1		-1.1	-13	1565	No stop
14 37 20	---	02 05 21	36.7	179.4	-0.0		-0.3	217	1595	14 33 31
14 37 20	0205-010	02 05 21	36.2	178.8	-0.1		-0.7	-13	1595	No stop
14 38 30	---	02 06 31	36.2	179.1	-0.0		-0.5	57	1604	14 37 21
14 38 30	MRK1018	02 06 31	36.7	179.8	-0.0		-0.1	-13	1604	No stop
14 42 20	---	02 10 22	36.7	181.0	0.1		0.6	217	1633	14 38 31
14 42 50	0205-010	02 10 52	36.2	180.5	0.0		0.3	17	1633	14 42 50
14 44 00	---	02 12 02	36.2	180.8	0.0		0.5	70	1642	14 42 51
14 44 00	MRK1018	02 12 02	36.7	181.5	0.1		0.9	-13	1642	No stop
14 47 50	---	02 15 52	36.7	182.7	0.1		1.6	217	1672	14 44 01
14 47 50	0205-010	02 15 52	36.2	182.0	0.1		1.2	-13	1672	No stop
14 49 00	---	02 17 03	36.2	182.4	0.1		1.4	57	1681	14 47 51
14 49 00	MRK1018	02 17 03	36.7	183.1	0.2		1.8	-13	1681	No stop
14 52 50	---	02 20 53	36.6	184.3	0.2		2.6	217	1710	14 49 01
14 53 20	0205-010	02 21 23	36.1	183.7	0.2		2.2	17	1710	14 53 20
14 54 30	---	02 22 34	36.1	184.1	0.2		2.5	70	1719	14 53 21

Schedule for TORUN (Code Tr) Page 8

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 23 Feb 2018 Day 54 ---										
14 54 30	MRK1018	02 22 34	36.6	184.8	0.3		2.9	-13	1719	No stop
14 58 20	---	02 26 24	36.5	186.0	0.3		3.6	217	1749	14 54 31
14 58 20	0205-010	02 26 24	36.1	185.3	0.3		3.2	-13	1749	No stop
14 59 30	---	02 27 34	36.1	185.6	0.3		3.4	57	1758	14 58 21
14 59 30	MRK1018	02 27 34	36.5	186.4	0.3		3.8	-13	1758	No stop
15 03 20	---	02 31 25	36.5	187.5	0.4		4.5	217	1787	14 59 31
15 03 50	0205-010	02 31 55	36.0	187.0	0.4		4.2	17	1787	15 03 50
15 05 00	---	02 33 05	36.0	187.3	0.4		4.4	70	1796	15 03 51
15 05 00	MRK1018	02 33 05	36.4	188.1	0.4		4.8	-13	1796	No stop
15 08 50	---	02 36 56	36.3	189.2	0.5		5.5	217	1826	15 05 01
15 08 50	0205-010	02 36 56	35.9	188.5	0.5		5.1	-13	1826	No stop
15 10 00	---	02 38 06	35.9	188.9	0.5		5.3	57	1835	15 08 51
15 10 00	MRK1018	02 38 06	36.3	189.6	0.5		5.8	-13	1835	No stop
15 13 50	---	02 41 57	36.2	190.8	0.6		6.5	217	1864	15 10 01
15 14 20	0205-010	02 42 27	35.7	190.2	0.6		6.1	17	1864	15 14 20
15 15 30	---	02 43 37	35.7	190.6	0.6		6.3	70	1873	15 14 21
15 15 30	MRK1018	02 43 37	36.2	191.3	0.6		6.8	-13	1873	No stop
15 19 20	---	02 47 28	36.0	192.5	0.7		7.5	217	1903	15 15 31
15 19 20	0205-010	02 47 28	35.6	191.7	0.6		7.0	-13	1903	No stop
15 20 30	---	02 48 38	35.6	192.1	0.7		7.2	57	1912	15 19 21
15 20 30	MRK1018	02 48 38	36.0	192.8	0.7		7.7	-13	1912	No stop
15 24 20	---	02 52 28	35.9	194.0	0.8		8.4	217	1941	15 20 31
15 24 50	0205-010	02 52 59	35.4	193.4	0.7		8.0	17	1941	15 24 50
15 26 00	---	02 54 09	35.4	193.8	0.7		8.2	70	1950	15 24 51
15 26 00	MRK1018	02 54 09	35.8	194.5	0.8		8.7	-13	1950	No stop
15 29 50	---	02 57 59	35.7	195.7	0.8		9.4	217	1979	15 26 01
15 29 50	0205-010	02 57 59	35.2	194.9	0.8		8.9	-13	1979	No stop
15 31 00	---	02 59 10	35.2	195.3	0.8		9.1	57	1988	15 29 51
15 31 00	MRK1018	02 59 10	35.6	196.1	0.9		9.6	-13	1988	No stop
15 34 50	---	03 03 00	35.4	197.2	0.9		10.2	217	2018	15 31 01

Schedule for TORUN (Code Tr) Page 9

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
15 35 20	0205-010	03 03 30	35.0	196.6	0.9		9.9	17	2018	15 35 20
15 36 30	---	03 04 40	35.0	197.0	0.9		10.1	70	2027	15 35 21
15 36 30	MRK1018	03 04 40	35.4	197.7	1.0		10.5	-13	2027	No stop
15 40 20	---	03 08 31	35.2	198.9	1.0		11.2	217	2056	15 36 31
15 40 20	0205-010	03 08 31	34.8	198.1	1.0		10.8	-13	2056	No stop
15 41 30	---	03 09 41	34.7	198.5	1.0		11.0	57	2065	15 40 21
15 41 30	MRK1018	03 09 41	35.1	199.2	1.0		11.4	-13	2065	No stop
15 45 20	---	03 13 32	34.9	200.4	1.1		12.1	217	2095	15 41 31
15 45 50	0205-010	03 14 02	34.5	199.8	1.1		11.7	17	2095	15 45 50
15 47 00	---	03 15 12	34.5	200.1	1.1		11.9	70	2104	15 45 51
15 47 00	MRK1018	03 15 12	34.8	200.9	1.1		12.4	-13	2104	No stop
15 50 50	---	03 19 03	34.6	202.0	1.2		13.0	217	2133	15 47 01
15 50 50	0205-010	03 19 03	34.3	201.2	1.2		12.6	-13	2133	No stop
15 52 00	---	03 20 13	34.2	201.6	1.2		12.8	57	2142	15 50 51
15 52 00	MRK1018	03 20 13	34.6	202.4	1.2		13.2	-13	2142	No stop
15 55 50	---	03 24 04	34.3	203.5	1.3		13.9	217	2172	15 52 01
15 56 20	0205-010	03 24 34	33.9	202.9	1.3		13.5	17	2172	15 56 20
15 57 30	---	03 25 44	33.9	203.2	1.3		13.7	70	2181	15 56 21
15 57 30	MRK1018	03 25 44	34.2	204.0	1.3		14.1	-13	2181	No stop
16 01 20	---	03 29 35	34.0	205.1	1.4		14.8	217	2210	15 57 31
16 01 20	0205-010	03 29 35	33.6	204.3	1.3		14.3	-13	2210	No stop
16 02 30	---	03 30 45	33.6	204.7	1.4		14.5	57	2219	16 01 21
16 02 30	MRK1018	03 30 45	33.9	205.5	1.4		15.0	-13	2219	No stop
16 06 20	---	03 34 35	33.7	206.6	1.5		15.6	217	2249	16 02 31
16 06 50	0205-010	03 35 05	33.3	205.9	1.4		15.2	17	2249	16 06 50
16 08 00	---	03 36 16	33.2	206.3	1.4		15.4	70	2258	16 06 51
16 08 00	MRK1018	03 36 16	33.6	207.1	1.5		15.8	-13	2258	No stop
16 11 50	---	03 40 06	33.3	208.2	1.5		16.5	217	2287	16 08 01
16 11 50	0205-010	03 40 06	33.0	207.4	1.5		16.0	-13	2287	No stop
16 13 00	---	03 41 16	32.9	207.7	1.5		16.2	57	2296	16 11 51

Schedule for TORUN (Code Tr) Page 10

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
16 13 00	MRK1018	03 41 16	33.2	208.5	1.6		16.6	-13	2296	No stop
16 16 50	---	03 45 07	32.9	209.6	1.6		17.2	217	2326	16 13 01
16 17 20	0205-010	03 45 37	32.6	208.9	1.6		16.9	17	2326	16 17 20
16 18 30	---	03 46 47	32.5	209.3	1.6		17.1	70	2335	16 17 21
16 18 30	MRK1018	03 46 47	32.8	210.1	1.7		17.5	-13	2335	No stop
16 22 20	---	03 50 38	32.5	211.2	1.7		18.1	217	2364	16 18 31
16 22 20	0205-010	03 50 38	32.2	210.4	1.7		17.7	-13	2364	No stop
16 23 30	---	03 51 48	32.1	210.7	1.7		17.8	57	2373	16 22 21
16 23 30	0154-000	03 51 48	32.1	214.2	1.9		19.7	-22	2373	No stop
16 25 20	---	03 53 38	32.0	214.7	1.9		20.0	88	2387	16 23 31
16 25 20	MRK1018	03 53 38	32.3	212.0	1.8		18.6	-20	2387	No stop
16 29 10	---	03 57 29	32.0	213.1	1.8		19.1	210	2417	16 25 21
16 29 40	0205-010	03 57 59	31.6	212.4	1.8		18.8	17	2417	16 29 40
16 30 50	---	03 59 09	31.5	212.7	1.8		19.0	70	2426	16 29 41
16 30 50	MRK1018	03 59 09	31.8	213.5	1.9		19.4	-13	2426	No stop
16 34 40	---	04 03 00	31.5	214.6	1.9		19.9	217	2455	16 30 51
16 34 40	0205-010	04 03 00	31.2	213.8	1.9		19.5	-13	2455	No stop
16 35 50	---	04 04 10	31.1	214.1	1.9		19.7	57	2464	16 34 41
16 35 50	MRK1018	04 04 10	31.4	214.9	1.9		20.1	-13	2464	No stop
16 39 40	---	04 08 01	31.1	216.0	2.0		20.7	217	2494	16 35 51
16 40 10	0205-010	04 08 31	30.7	215.3	2.0		20.3	17	2494	16 40 10
16 41 20	---	04 09 41	30.6	215.6	2.0		20.5	70	2503	16 40 11
16 41 20	MRK1018	04 09 41	30.9	216.4	2.0		20.9	-13	2503	No stop
16 45 10	---	04 13 32	30.6	217.5	2.1		21.4	217	2532	16 41 21
16 45 10	0205-010	04 13 32	30.3	216.7	2.1		21.0	-13	2532	No stop
16 46 20	---	04 14 42	30.2	217.0	2.1		21.2	57	2541	16 45 11
16 46 20	MRK1018	04 14 42	30.5	217.8	2.1		21.6	-13	2541	No stop
16 50 10	---	04 18 33	30.1	218.8	2.2		22.1	217	2571	16 46 21
16 50 40	0205-010	04 19 03	29.8	218.2	2.2		21.8	17	2571	16 50 40
16 51 50	---	04 20 13	29.7	218.5	2.2		21.9	70	2579	16 50 41

Schedule for TORUN (Code Tr) Page 11

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 23 Feb 2018 Day 54 ---										
16 51 50	MRK1018	04 20 13	29.9	219.3	2.2		22.3	-13	2579	No stop
16 55 40	---	04 24 03	29.6	220.3	2.3		22.8	217	2609	16 51 51
16 55 40	0205-010	04 24 03	29.3	219.5	2.2		22.5	-13	2609	No stop
16 56 50	---	04 25 14	29.2	219.8	2.3		22.6	57	2618	16 55 41
16 56 50	MRK1018	04 25 14	29.5	220.6	2.3		23.0	-13	2618	No stop
17 00 40	---	04 29 04	29.1	221.6	2.4		23.5	217	2647	16 56 51
17 01 10	0205-010	04 29 34	28.8	220.9	2.3		23.2	17	2647	17 01 10
17 02 20	---	04 30 45	28.7	221.3	2.4		23.3	70	2656	17 01 11
17 02 20	MRK1018	04 30 45	28.9	222.0	2.4		23.7	-13	2656	No stop
17 06 10	---	04 34 35	28.5	223.1	2.5		24.2	217	2686	17 02 21
17 06 10	0205-010	04 34 35	28.3	222.3	2.4		23.8	-13	2686	No stop
17 07 20	---	04 35 45	28.2	222.6	2.4		24.0	57	2695	17 06 11
17 07 20	MRK1018	04 35 45	28.4	223.4	2.5		24.3	-13	2695	No stop
17 11 10	---	04 39 36	28.0	224.3	2.5		24.8	217	2724	17 07 21
17 11 40	0205-010	04 40 06	27.7	223.7	2.5		24.5	17	2724	17 11 40
17 12 50	---	04 41 16	27.6	224.0	2.5		24.6	70	2733	17 11 41
17 12 50	MRK1018	04 41 16	27.8	224.8	2.6		25.0	-13	2733	No stop
17 16 40	---	04 45 07	27.4	225.8	2.6		25.5	217	2763	17 12 51
17 16 40	0205-010	04 45 07	27.2	225.0	2.6		25.1	-13	2763	No stop
17 17 50	---	04 46 17	27.1	225.3	2.6		25.2	57	2772	17 16 41
17 17 50	MRK1018	04 46 17	27.3	226.1	2.7		25.6	-13	2772	No stop
17 21 40	---	04 50 08	26.9	227.0	2.7		26.1	217	2801	17 17 51
17 22 10	0205-010	04 50 38	26.6	226.4	2.7		25.8	17	2801	17 22 10
17 23 20	---	04 51 48	26.5	226.7	2.7		25.9	70	2810	17 22 11
17 23 20	MRK1018	04 51 48	26.7	227.4	2.7		26.3	-13	2810	No stop
17 27 10	---	04 55 39	26.3	228.4	2.8		26.7	217	2840	17 23 21
17 27 10	0205-010	04 55 39	26.1	227.6	2.8		26.3	-13	2840	No stop
17 28 20	---	04 56 49	25.9	227.9	2.8		26.5	57	2849	17 27 11
17 28 20	MRK1018	04 56 49	26.1	228.7	2.8		26.8	-13	2849	No stop
17 32 10	---	05 00 39	25.7	229.6	2.9		27.2	217	2878	17 28 21

Schedule for TORUN (Code Tr) Page 12

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
17 32 40	0205-010	05 01 10	25.4	229.0	2.9		26.9	17	2878	17 32 40
17 33 50	---	05 02 20	25.3	229.3	2.9		27.1	70	2887	17 32 41
17 33 50	MRK1018	05 02 20	25.5	230.1	2.9		27.4	-13	2887	No stop
17 37 40	---	05 06 10	25.1	231.0	3.0		27.8	217	2917	17 33 51
17 37 40	0205-010	05 06 10	24.9	230.2	2.9		27.5	-13	2917	No stop
17 38 50	---	05 07 21	24.7	230.5	3.0		27.6	57	2926	17 37 41
17 38 50	MRK1018	05 07 21	24.9	231.3	3.0		27.9	-13	2926	No stop
17 42 40	---	05 11 11	24.5	232.2	3.1		28.3	217	2955	17 38 51
17 43 10	0205-010	05 11 41	24.2	231.6	3.0		28.1	17	2955	17 43 10
17 44 20	---	05 12 51	24.1	231.8	3.1		28.2	70	2964	17 43 11
17 44 20	MRK1018	05 12 51	24.3	232.6	3.1		28.5	-13	2964	No stop
17 48 10	---	05 16 42	23.8	233.5	3.2		28.9	217	2994	17 44 21
17 48 10	0205-010	05 16 42	23.6	232.8	3.1		28.6	-13	2994	No stop
17 49 20	---	05 17 52	23.5	233.0	3.1		28.7	57	3003	17 48 11
17 49 20	MRK1018	05 17 52	23.7	233.8	3.2		29.0	-13	3003	No stop
17 53 10	---	05 21 43	23.2	234.7	3.2		29.4	217	3032	17 49 21
17 53 40	0205-010	05 22 13	23.0	234.1	3.2		29.1	17	3032	17 53 40
17 54 50	---	05 23 23	22.8	234.4	3.2		29.2	70	3041	17 53 41
17 54 50	MRK1018	05 23 23	23.0	235.1	3.3		29.5	-13	3041	No stop
17 58 40	---	05 27 14	22.5	236.0	3.3		29.9	217	3071	17 54 51
17 58 40	0205-010	05 27 14	22.3	235.3	3.3		29.6	-13	3071	No stop
17 59 50	---	05 28 24	22.2	235.5	3.3		29.7	57	3079	17 58 41
17 59 50	MRK1018	05 28 24	22.4	236.3	3.4		30.0	-13	3079	No stop
18 03 40	---	05 32 15	21.9	237.2	3.4		30.3	217	3109	17 59 51
18 04 10	0205-010	05 32 45	21.7	236.5	3.4		30.1	17	3109	18 04 10
18 05 20	---	05 33 55	21.5	236.8	3.4		30.2	70	3118	18 04 11
18 05 20	MRK1018	05 33 55	21.7	237.6	3.4		30.5	-13	3118	No stop
18 09 10	---	05 37 46	21.2	238.5	3.5		30.8	217	3147	18 05 21
18 09 10	0205-010	05 37 46	21.0	237.7	3.5		30.5	-13	3147	No stop
18 10 20	---	05 38 56	20.9	238.0	3.5		30.6	57	3156	18 09 11

Schedule for TORUN (Code Tr) Page 13

Mrk1018 at 1 Gb/s - L band - 1st segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 23 Feb 2018 Day 54 ---										
18 10 20	MRK1018	05 38 56	21.0	238.8	3.5		30.9	-13	3156	No stop
18 14 10	---	05 42 46	20.5	239.6	3.6		31.2	217	3186	18 10 21
18 14 40	0205-010	05 43 16	20.3	239.0	3.6		31.0	17	3186	18 14 40
18 15 50	---	05 44 27	20.2	239.2	3.6		31.1	70	3195	18 14 41
18 15 50	MRK1018	05 44 27	20.3	240.0	3.6		31.3	-13	3195	No stop
18 19 40	---	05 48 17	19.8	240.9	3.7		31.6	217	3224	18 15 51
18 19 40	0205-010	05 48 17	19.7	240.1	3.6		31.4	-13	3224	No stop
18 20 50	---	05 49 27	19.5	240.4	3.7		31.5	57	3233	18 19 41
18 20 50	MRK1018	05 49 27	19.7	241.2	3.7		31.7	-13	3233	No stop
18 24 40	---	05 53 18	19.2	242.0	3.8		32.0	217	3263	18 20 51
18 25 10	0205-010	05 53 48	19.0	241.4	3.7		31.8	17	3263	18 25 10
18 26 20	---	05 54 58	18.8	241.6	3.8		31.9	70	3272	18 25 11
18 26 20	MRK1018	05 54 58	18.9	242.4	3.8		32.1	-13	3272	No stop
18 30 10	---	05 58 49	18.4	243.3	3.9		32.4	217	3301	18 26 21
18 30 10	0205-010	05 58 49	18.3	242.5	3.8		32.2	-13	3301	No stop
18 31 20	---	05 59 59	18.1	242.7	3.8		32.3	57	3310	18 30 11
18 31 20	MRK1018	05 59 59	18.3	243.5	3.9		32.5	-13	3310	No stop
18 35 10	---	06 03 50	17.8	244.4	3.9		32.8	217	3340	18 31 21
18 35 40	0205-010	06 04 20	17.6	243.7	3.9		32.6	17	3340	18 35 40
18 36 50	---	06 05 30	17.4	244.0	3.9		32.7	70	3349	18 35 41
18 36 50	MRK1018	06 05 30	17.5	244.7	4.0		32.9	-13	3349	No stop
18 40 40	---	06 09 21	17.0	245.6	4.0		33.1	217	3378	18 36 51
18 40 40	0205-010	06 09 21	16.9	244.8	4.0		32.9	-13	3378	No stop
18 41 50	---	06 10 31	16.7	245.1	4.0		33.0	57	3387	18 40 41
18 41 50	MRK1018	06 10 31	16.8	245.8	4.1		33.2	-13	3387	No stop
18 45 40	---	06 14 22	16.3	246.7	4.1		33.5	217	3417	18 41 51
18 46 10	0205-010	06 14 52	16.1	246.0	4.1		33.3	17	3417	18 46 10
18 47 20	---	06 16 02	16.0	246.3	4.1		33.4	70	3426	18 46 11
18 47 20	MRK1018	06 16 02	16.1	247.0	4.1		33.6	-13	3426	No stop
18 51 10	---	06 19 52	15.5	247.9	4.2		33.8	217	3455	18 47 21

```
Schedule for TORUN     (Code Tr )                                Page  14
               Mrk1018 at 1 Gb/s - L band - 1st segment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Fri  23 Feb 2018   Day  54 ---

18 51 10  0205-010     06 19 52  15.4 247.1  4.2      33.6   -13     3455   No stop
18 52 20  ---          06 21 03  15.3 247.4  4.2      33.7    57     3464   18 51 11

18 52 20  MRK1018      06 21 03  15.4 248.1  4.2      33.9   -13     3464   No stop
18 55 50  ---          06 24 33  14.9 248.9  4.3      34.1   197     3491   18 52 21

18 56 20  0205-010     06 25 03  14.7 248.2  4.3      33.9    17     3491   18 56 20
19 00 00  ---          06 28 44  14.2 249.0  4.3      34.1   220     3519   18 56 21



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.L1024

   Setup group:   12         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         L         L         L         L         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         U         U         L         L         U         U         L         L
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
  BBC fr=    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=   2,  6, 10, 14,  4,  8, 12, 16
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* MRK1018           02 03 42.480768   * 02 06 15.990000     02 07 10.369942       0.00
                   -00 31 46.69524    *-00 17 29.90000     -00 12 35.04171        0.00

* 0149+218          01 49 31.744134   * 01 52 18.059045     01 53 17.124206       0.02
  J0152+2207        21 52 20.74790    * 22 07 07.69977      22 12 20.45456        0.02
  J0152+22          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   2091 observations.

* 0154-000          01 54 36.737811   * 01 57 10.534893     01 58 04.976749       0.17
  J0157+0011       -00 03 12.25373    * 00 11 24.48441      00 16 26.92620        0.34
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    161 observations.

* 0205-010          02 05 53.149970   * 02 08 26.345906     02 09 20.620194       0.11
  J0208-0047       -01 01 56.11936    *-00 47 44.29360     -00 42 51.43233        0.24
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished     63 observations.
```

eg100btr

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

PI: *Gabriele Giovannini*

```
Address:  Istituto di Radioastronomia

Observing mode:
Schedule for TORUN     (Code Tr )                                    Page   2
               EVN Observations to Solve the Puzzle of FR0 Radio Galaxies
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------
 --- Fri  23 Feb 2018   Day  54 ---
 Next scan frequencies:  1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 Next BBC frequencies:    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

21 30 00  J1042+1203   08 59 09  43.9 143.3 -1.7     -21.5     0        0   21 30 00
21 33 00  ---          09 02 09  44.1 144.2 -1.7     -21.0   180       23   21 30 01

21 33 00  J1040+09     09 02 09  41.6 146.3 -1.7     -19.7   -23       23   No stop
21 42 40  ---          09 11 51  42.4 149.4 -1.5     -18.1   557       97   21 33 01

21 43 20  J1042+1203   09 12 31  45.0 147.6 -1.5     -19.2    16       97   21 43 20
21 44 50  ---          09 14 01  45.1 148.1 -1.5     -18.9    90      109   21 43 21

21 44 50  J1040+09     09 14 01  42.6 150.1 -1.5     -17.7   -23      109   No stop
21 54 30  ---          09 23 43  43.3 153.2 -1.3     -15.9   557      183   21 44 51

21 55 10  J1042+1203   09 24 23  45.9 151.5 -1.3     -17.0    16      183   21 55 10
21 56 10  ---          09 25 23  46.0 151.8 -1.3     -16.8    60      191   21 55 11

21 56 10  J1040+09     09 25 23  43.4 153.7 -1.3     -15.6   -24      191   No stop
22 05 50  ---          09 35 04  44.0 156.9 -1.1     -13.8   556      265   21 56 11

22 06 30  J1042+1203   09 35 45  46.7 155.4 -1.1     -14.8    16      265   22 06 30
22 08 00  ---          09 37 15  46.8 155.9 -1.1     -14.5    90      277   22 06 31

22 08 00  J1040+09     09 37 15  44.1 157.7 -1.1     -13.4   -24      277   No stop
22 17 40  ---          09 46 56  44.6 160.9 -0.9     -11.5   556      351   22 08 01

22 18 20  J1042+1203   09 47 36  47.4 159.5 -0.9     -12.4    16      351   22 18 20
22 19 20  ---          09 48 37  47.4 159.9 -0.9     -12.2    60      359   22 18 21

22 19 20  J1040+09     09 48 37  44.7 161.5 -0.9     -11.1   -24      359   No stop
22 29 00  ---          09 58 18  45.1 164.8 -0.7      -9.2   556      433   22 19 21

22 29 40  J1042+1203   09 58 58  47.9 163.6 -0.7     -10.0    16      433   22 29 40
22 31 10  ---          10 00 29  48.0 164.1 -0.7      -9.7    90      445   22 29 41

22 31 10  J1040+09     10 00 29  45.2 165.6 -0.7      -8.7   -24      445   No stop
22 40 50  ---          10 10 10  45.5 168.9 -0.5      -6.7   556      519   22 31 11

22 41 30  J1042+1203   10 10 50  48.3 167.9 -0.5      -7.4    16      519   22 41 30
22 42 30  ---          10 11 50  48.4 168.2 -0.5      -7.2    60      527   22 41 31
```

Schedule for TORUN (Code Tr) Page 3

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 23 Feb 2018 Day 54 ---										
22 42 30	J1040+09	10 11 50	45.6	169.5	-0.5		-6.3	-24	527	No stop
22 52 10	---	10 21 32	45.8	172.9	-0.3		-4.3	556	601	22 42 31
22 52 50	J1042+1203	10 22 12	48.6	172.0	-0.4		-4.9	16	601	22 52 50
22 54 20	---	10 23 42	48.7	172.6	-0.3		-4.5	90	613	22 52 51
22 54 20	J1040+09	10 23 42	45.8	173.7	-0.3		-3.8	-24	613	No stop
23 04 00	---	10 33 24	46.0	177.1	-0.1		-1.7	556	687	22 54 21
23 04 40	J1042+1203	10 34 04	48.8	176.4	-0.2		-2.2	15	687	23 04 40
23 05 40	---	10 35 04	48.8	176.8	-0.1		-2.0	60	695	23 04 41
23 05 40	J1040+09	10 35 04	46.0	177.7	-0.1		-1.4	-25	695	No stop
23 15 20	---	10 44 46	46.0	181.2	0.1		0.7	555	769	23 05 41
23 15 54	J1042+1203	10 45 20	48.9	180.6	0.0		0.4	9	769	23 15 54
23 17 54	---	10 47 20	48.9	181.3	0.1		0.8	120	785	23 15 55
23 18 44	J1025+1253	10 48 10	49.5	188.0	0.4		4.9	22	785	23 18 44
23 21 44	---	10 51 11	49.4	189.1	0.4		5.6	180	808	23 18 45
23 21 44	J1025+10	10 51 11	46.9	188.8	0.4		5.4	-23	808	No stop
23 31 24	---	11 00 52	46.6	192.3	0.6		7.5	557	882	23 21 45
23 31 59	J1025+1253	11 01 28	49.1	192.9	0.6		7.9	12	882	23 31 59
23 33 29	---	11 02 58	49.1	193.5	0.6		8.3	90	894	23 32 00
23 33 29	J1025+10	11 02 58	46.6	193.0	0.6		7.9	-23	894	No stop
23 43 09	---	11 12 39	46.2	196.4	0.8		9.9	557	968	23 33 30
23 43 44	J1025+1253	11 13 15	48.7	197.2	0.8		10.5	12	968	23 43 44
23 44 44	---	11 14 15	48.6	197.6	0.8		10.7	60	976	23 43 45
23 44 44	J1025+10	11 14 15	46.1	197.0	0.8		10.3	-23	976	No stop
23 54 24	---	11 23 56	45.7	200.4	1.0		12.3	557	1050	23 44 45
23 54 59	J1025+1253	11 24 31	48.1	201.3	1.0		12.9	12	1050	23 54 59
23 56 29	---	11 26 02	48.0	201.8	1.0		13.2	90	1062	23 55 00
--- Start: Fri 23 Feb 2018 Day 54 -- Stop: Sat 24 Feb 2018 Day 55 ---										
23 56 29	J1025+10	11 26 02	45.6	201.1	1.0		12.7	-23	1062	No stop
00 06 09	---	11 35 43	45.0	204.4	1.2		14.6	557	1136	23 56 30
00 06 44	J1025+1253	11 36 18	47.4	205.4	1.2		15.3	12	1136	00 06 44
00 07 44	---	11 37 18	47.3	205.8	1.2		15.5	60	1144	00 06 45

Schedule for TORUN (Code Tr) Page 4

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
00 07 44	J1025+10	11 37 18	44.9	204.9	1.2		14.9	-23	1144	No stop
00 17 24	---	11 47 00	44.2	208.1	1.3		16.7	557	1218	00 07 45
00 17 59	J1025+1253	11 47 35	46.6	209.3	1.3		17.5	12	1218	00 17 59
00 19 29	---	11 49 05	46.5	209.8	1.4		17.8	90	1229	00 18 00
00 19 29	J1025+10	11 49 05	44.1	208.8	1.4		17.1	-23	1229	No stop
00 29 09	---	11 58 47	43.4	211.9	1.5		18.8	557	1304	00 19 30
00 29 44	J1025+1253	11 59 22	45.7	213.2	1.5		19.7	12	1304	00 29 44
00 30 44	---	12 00 22	45.6	213.6	1.6		19.9	60	1312	00 29 45
00 30 44	J1025+10	12 00 22	43.2	212.5	1.6		19.1	-23	1312	No stop
00 40 24	---	12 10 04	42.4	215.5	1.7		20.8	557	1386	00 30 45
00 40 59	J1025+1253	12 10 39	44.7	216.9	1.7		21.7	12	1386	00 40 59
00 42 29	---	12 12 09	44.6	217.4	1.8		21.9	90	1397	00 41 00
00 42 29	J1025+10	12 12 09	42.2	216.2	1.8		21.1	-23	1397	No stop
00 52 09	---	12 21 51	41.3	219.1	1.9		22.7	557	1472	00 42 30
00 52 44	J1025+1253	12 22 26	43.6	220.6	1.9		23.6	12	1472	00 52 44
00 53 44	---	12 23 26	43.5	220.9	1.9		23.8	60	1479	00 52 45
00 53 44	J1025+10	12 23 26	41.2	219.6	1.9		22.9	-23	1479	No stop
01 03 24	---	12 33 08	40.2	222.5	2.1		24.3	557	1554	00 53 45
01 03 59	J1025+1253	12 33 43	42.5	224.0	2.1		25.3	13	1554	01 03 59
01 05 59	---	12 35 43	42.3	224.6	2.1		25.6	120	1569	01 04 00
01 13 14	J1539+2744	12 42 59	48.7	110.2	-3.0		-39.5	189	1569	01 13 14
01 16 14	---	12 46 00	49.2	110.9	-2.9		-39.3	180	1592	01 13 15
01 16 14	J1530+27	12 46 00	50.0	114.1	-2.8		-38.0	-21	1592	No stop
01 25 56	---	12 55 43	51.3	116.8	-2.6		-37.0	561	1667	01 16 15
01 26 33	J1539+2744	12 56 20	50.6	113.7	-2.7		-38.4	16	1667	01 26 33
01 28 03	---	12 57 51	50.8	114.1	-2.7		-38.2	90	1678	01 26 34
01 28 03	J1530+27	12 57 51	51.6	117.4	-2.6		-36.8	-21	1678	No stop
01 37 45	---	13 07 34	52.8	120.2	-2.4		-35.6	561	1753	01 28 04
01 38 22	J1539+2744	13 08 11	52.2	117.0	-2.5		-37.2	16	1753	01 38 22
01 39 22	---	13 09 12	52.3	117.3	-2.5		-37.0	60	1761	01 38 23

Schedule for TORUN (Code Tr) Page 5

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
01 39 22	J1530+27	13 09 12	53.0	120.7	-2.4		-35.4	-22	1761	No stop
01 49 04	---	13 18 55	54.3	123.7	-2.2		-34.1	560	1835	01 39 23
01 49 41	J1539+2744	13 19 32	53.7	120.4	-2.3		-35.8	15	1835	01 49 41
01 51 11	---	13 21 02	53.9	120.9	-2.3		-35.6	90	1847	01 49 42
01 51 11	J1530+27	13 21 02	54.5	124.4	-2.2		-33.8	-22	1847	No stop
02 00 53	---	13 30 46	55.7	127.6	-2.0		-32.3	560	1922	01 51 12
02 01 30	J1539+2744	13 31 23	55.2	124.1	-2.2		-34.2	15	1922	02 01 30
02 02 30	---	13 32 23	55.3	124.4	-2.1		-34.0	60	1929	02 01 31
02 02 30	J1530+27	13 32 23	55.9	128.1	-2.0		-32.0	-22	1929	No stop
02 12 12	---	13 42 07	57.0	131.5	-1.8		-30.3	560	2004	02 02 31
02 12 49	J1539+2744	13 42 44	56.6	127.8	-2.0		-32.4	15	2004	02 12 49
02 14 19	---	13 44 14	56.8	128.4	-1.9		-32.1	90	2015	02 12 50
02 14 19	J1530+27	13 44 14	57.3	132.2	-1.8		-29.9	-23	2015	No stop
02 24 01	---	13 53 58	58.3	135.8	-1.6		-28.0	559	2090	02 14 20
02 24 38	J1539+2744	13 54 35	57.9	132.0	-1.8		-30.3	14	2090	02 24 38
02 25 38	---	13 55 35	58.1	132.3	-1.7		-30.1	60	2098	02 24 39
02 25 38	J1530+27	13 55 35	58.5	136.4	-1.6		-27.7	-23	2098	No stop
02 35 20	---	14 05 19	59.5	140.2	-1.4		-25.6	559	2172	02 25 39
02 35 57	J1539+2744	14 05 56	59.2	136.2	-1.6		-28.0	14	2172	02 35 57
02 37 27	---	14 07 26	59.3	136.8	-1.5		-27.7	90	2184	02 35 58
02 37 27	J1530+27	14 07 26	59.7	141.0	-1.4		-25.1	-24	2184	No stop
02 47 09	---	14 17 10	60.5	145.0	-1.2		-22.8	558	2258	02 37 28
02 47 46	J1539+2744	14 17 47	60.4	140.8	-1.4		-25.4	14	2258	02 47 46
02 48 46	---	14 18 47	60.4	141.3	-1.4		-25.1	60	2266	02 47 47
02 48 46	J1530+27	14 18 47	60.7	145.7	-1.2		-22.4	-24	2266	No stop
02 58 31	---	14 28 34	61.5	149.9	-1.0		-19.8	561	2341	02 48 47
02 59 11	J1539+2744	14 29 14	61.4	145.6	-1.2		-22.5	16	2341	02 59 11
03 01 11	---	14 31 14	61.5	146.5	-1.2		-22.0	120	2357	02 59 12
03 02 06	J1609+2641	14 32 09	57.9	135.9	-1.6		-27.9	19	2357	03 02 06
03 05 06	---	14 35 10	58.2	137.0	-1.6		-27.3	180	2380	03 02 07

Schedule for TORUN (Code Tr) Page 6

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
03 05 06	J1559+25	14 35 10	58.5	141.2	-1.4		-24.7	-24	2380	No stop
03 14 54	---	14 44 59	59.3	145.1	-1.3		-22.4	564	2455	03 05 07
03 15 37	J1609+2641	14 45 42	59.3	141.1	-1.4		-25.0	20	2455	03 15 37
03 17 07	---	14 47 13	59.4	141.7	-1.4		-24.6	90	2467	03 15 38
03 17 07	J1559+25	14 47 13	59.5	146.0	-1.2		-21.9	-24	2467	No stop
03 26 55	---	14 57 02	60.3	150.2	-1.1		-19.4	564	2542	03 17 08
03 27 38	J1609+2641	14 57 45	60.3	146.0	-1.2		-22.1	19	2542	03 27 38
03 28 38	---	14 58 45	60.4	146.4	-1.2		-21.8	60	2550	03 27 39
03 28 38	J1559+25	14 58 45	60.4	150.9	-1.0		-18.9	-24	2550	No stop
03 38 26	---	15 08 35	61.1	155.2	-0.9		-16.2	564	2625	03 28 39
03 39 09	J1609+2641	15 09 18	61.2	150.9	-1.0		-19.1	19	2625	03 39 09
03 40 39	---	15 10 48	61.3	151.6	-1.0		-18.6	90	2637	03 39 10
03 40 39	J1559+25	15 10 48	61.2	156.2	-0.8		-15.6	-25	2637	No stop
03 50 27	---	15 20 38	61.8	160.7	-0.7		-12.7	563	2712	03 40 40
03 51 10	J1609+2641	15 21 21	62.0	156.3	-0.8		-15.6	19	2712	03 51 10
03 52 10	---	15 22 21	62.1	156.8	-0.8		-15.3	60	2720	03 51 11
03 52 10	J1559+25	15 22 21	61.9	161.5	-0.6		-12.2	-25	2720	No stop
04 01 58	---	15 32 11	62.3	166.2	-0.5		-9.2	563	2795	03 52 11
04 02 41	J1609+2641	15 32 54	62.7	161.7	-0.6		-12.2	19	2795	04 02 41
04 04 11	---	15 34 24	62.7	162.5	-0.6		-11.7	90	2807	04 02 42
04 04 11	J1559+25	15 34 24	62.4	167.2	-0.4		-8.5	-25	2807	No stop
04 13 59	---	15 44 14	62.6	172.0	-0.3		-5.3	563	2882	04 04 12
04 14 42	J1609+2641	15 44 57	63.1	167.6	-0.4		-8.3	19	2882	04 14 42
04 15 42	---	15 45 57	63.2	168.0	-0.4		-8.0	60	2890	04 14 43
04 15 42	J1559+25	15 45 57	62.7	172.8	-0.2		-4.8	-25	2890	No stop
04 25 30	---	15 55 47	62.8	177.6	-0.1		-1.6	563	2965	04 15 43
04 26 13	J1609+2641	15 56 30	63.4	173.3	-0.2		-4.5	19	2965	04 26 13
04 27 43	---	15 58 00	63.5	174.0	-0.2		-4.0	90	2977	04 26 14
04 27 43	J1559+25	15 58 00	62.8	178.7	-0.0		-0.9	-25	2977	No stop
04 37 31	---	16 07 50	62.8	183.5	0.1		2.4	563	3052	04 27 44

Schedule for TORUN (Code Tr) Page 7

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
04 38 14	J1609+2641	16 08 33	63.5	179.3	-0.0		-0.5	19	3052	04 38 14
04 39 14	---	16 09 33	63.5	179.8	-0.0		-0.1	60	3060	04 38 15
04 39 14	J1559+25	16 09 33	62.7	184.4	0.1		2.9	-25	3060	No stop
04 49 02	---	16 19 23	62.6	189.2	0.3		6.1	563	3135	04 39 15
04 49 45	J1609+2641	16 20 06	63.5	185.1	0.2		3.4	19	3135	04 49 45
04 51 45	---	16 22 06	63.5	186.1	0.2		4.1	120	3150	04 49 46
04 52 40	J1628+2247	16 23 01	59.6	177.3	-0.1		-1.8	22	3150	04 52 40
04 55 40	---	16 26 02	59.7	178.6	-0.0		-0.9	180	3173	04 52 41
04 55 40	J1628+25	16 26 02	62.4	178.3	-0.1		-1.1	-24	3173	No stop
05 05 20	---	16 35 43	62.3	183.0	0.1		2.0	556	3248	04 55 41
05 05 55	J1628+2247	16 36 18	59.6	183.3	0.1		2.2	11	3248	05 05 55
05 07 25	---	16 37 49	59.6	184.0	0.1		2.6	90	3259	05 05 56
05 07 25	J1628+25	16 37 49	62.3	184.0	0.1		2.7	-24	3259	No stop
05 17 05	---	16 47 30	62.2	188.7	0.3		5.8	556	3334	05 07 26
05 17 40	J1628+2247	16 48 05	59.4	188.7	0.3		5.6	11	3334	05 17 40
05 18 40	---	16 49 06	59.4	189.1	0.3		5.9	60	3341	05 17 41
05 18 40	J1628+25	16 49 06	62.1	189.5	0.3		6.3	-24	3341	No stop
05 28 20	---	16 58 47	61.8	194.1	0.5		9.3	556	3416	05 18 41
05 28 55	J1628+2247	16 59 22	59.1	193.7	0.5		8.9	11	3416	05 28 55
05 30 25	---	17 00 52	59.1	194.4	0.5		9.3	90	3427	05 28 56
05 30 25	J1628+25	17 00 52	61.7	195.1	0.5		10.0	-24	3427	No stop
05 40 05	---	17 10 34	61.3	199.6	0.7		12.9	556	3502	05 30 26
05 40 40	J1628+2247	17 11 09	58.6	198.9	0.7		12.2	11	3502	05 40 40
05 41 40	---	17 12 09	58.6	199.3	0.7		12.4	60	3509	05 40 41
05 41 40	J1628+25	17 12 09	61.2	200.3	0.7		13.3	-24	3509	No stop
05 51 20	---	17 21 51	60.7	204.7	0.9		16.1	556	3584	05 41 41
05 51 55	J1628+2247	17 22 26	58.0	203.7	0.9		15.2	11	3584	05 51 55
05 53 25	---	17 23 56	57.9	204.3	0.9		15.6	90	3595	05 51 56
05 53 25	J1628+25	17 23 56	60.5	205.6	0.9		16.7	-24	3595	No stop
06 03 05	---	17 33 38	59.9	209.8	1.1		19.3	556	3670	05 53 26

Schedule for TORUN (Code Tr) Page 8

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
06 03 40	J1628+2247	17 34 13	57.2	208.6	1.1		18.1	11	3670	06 03 40
06 04 40	---	17 35 13	57.2	209.0	1.1		18.4	60	3677	06 03 41
06 04 40	J1628+25	17 35 13	59.7	210.4	1.1		19.7	-23	3677	No stop
06 14 20	---	17 44 55	59.0	214.5	1.3		22.1	557	3752	06 04 41
06 14 55	J1628+2247	17 45 30	56.4	213.0	1.3		20.8	11	3752	06 14 55
06 16 25	---	17 47 00	56.2	213.6	1.3		21.1	90	3763	06 14 56
06 16 25	J1628+25	17 47 00	58.8	215.3	1.3		22.6	-23	3763	No stop
06 26 05	---	17 56 42	57.9	219.1	1.5		24.8	557	3838	06 16 26
06 26 40	J1628+2247	17 57 17	55.3	217.5	1.5		23.4	12	3838	06 26 40
06 27 40	---	17 58 17	55.2	217.9	1.5		23.6	60	3845	06 26 41
06 27 40	J1628+25	17 58 17	57.7	219.7	1.5		25.2	-23	3845	No stop
06 37 20	---	18 07 58	56.8	223.4	1.6		27.2	557	3920	06 27 41
06 37 55	J1628+2247	18 08 34	54.3	221.6	1.7		25.6	12	3920	06 37 55
06 39 55	---	18 10 34	54.1	222.3	1.7		26.0	120	3935	06 37 56
06 41 15	J1659+2629	18 11 54	60.2	213.7	1.2		21.9	43	3935	06 41 15
06 44 15	---	18 14 55	59.9	215.0	1.2		22.6	180	3958	06 41 16
06 44 15	J1703+24	18 14 55	58.2	211.4	1.2		20.1	-22	3958	No stop
06 54 00	---	18 24 41	57.4	215.3	1.3		22.4	563	4033	06 44 16
06 54 40	J1659+2629	18 25 21	59.0	219.2	1.4		25.1	18	4033	06 54 40
06 56 10	---	18 26 52	58.9	219.8	1.4		25.4	90	4045	06 54 41
06 56 10	J1703+24	18 26 52	57.2	216.2	1.4		22.9	-22	4045	No stop
07 05 55	---	18 36 38	56.3	219.9	1.5		25.0	563	4120	06 56 11
07 06 35	J1659+2629	18 37 18	57.8	223.7	1.6		27.6	18	4120	07 06 35
07 07 35	---	18 38 18	57.7	224.1	1.6		27.8	60	4127	07 06 36
07 07 35	J1703+24	18 38 18	56.1	220.5	1.6		25.3	-22	4127	No stop
07 17 20	---	18 48 05	55.1	224.1	1.7		27.2	563	4202	07 07 36
07 18 00	J1659+2629	18 48 45	56.6	227.9	1.8		29.8	18	4202	07 18 00
07 19 30	---	18 50 15	56.4	228.4	1.8		30.1	90	4214	07 18 01
07 19 30	J1703+24	18 50 15	54.9	224.8	1.8		27.6	-22	4214	No stop
07 29 15	---	19 00 02	53.8	228.2	1.9		29.4	563	4289	07 19 31

Schedule for TORUN (Code Tr) Page 9

EVN Observations to Solve the Puzzle of FR0 Radio Galaxies

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
07 29 55	J1659+2629	19 00 42	55.2	232.0	2.0		31.9	18	4289	07 29 55
07 30 55	---	19 01 42	55.1	232.3	2.0		32.1	60	4297	07 29 56
07 30 55	J1703+24	19 01 42	53.6	228.8	1.9		29.7	-22	4297	No stop
07 40 40	---	19 11 29	52.5	232.0	2.1		31.2	563	4372	07 30 56
07 41 20	J1659+2629	19 12 09	53.8	235.7	2.2		33.6	18	4372	07 41 20
07 42 50	---	19 13 39	53.6	236.2	2.2		33.9	90	4383	07 41 21
07 42 50	J1703+24	19 13 39	52.2	232.6	2.1		31.5	-22	4383	No stop
07 52 35	---	19 23 26	51.1	235.7	2.3		32.9	563	4458	07 42 51
07 53 15	J1659+2629	19 24 06	52.3	239.4	2.4		35.3	18	4458	07 53 15
07 54 15	---	19 25 06	52.2	239.7	2.4		35.4	60	4466	07 53 16
07 54 15	J1703+24	19 25 06	50.8	236.2	2.3		33.1	-21	4466	No stop
08 04 00	---	19 34 53	49.6	239.1	2.5		34.4	564	4541	07 54 16
08 04 40	J1659+2629	19 35 33	50.8	242.7	2.6		36.6	18	4541	08 04 40
08 06 10	---	19 37 03	50.6	243.1	2.6		36.8	90	4552	08 04 41
08 06 10	J1703+24	19 37 03	49.3	239.7	2.5		34.6	-21	4552	No stop
08 15 55	---	19 46 50	48.0	242.5	2.7		35.7	564	4627	08 06 11
08 16 35	J1659+2629	19 47 30	49.2	246.0	2.8		37.8	18	4627	08 16 35
08 17 35	---	19 48 30	49.0	246.3	2.8		37.9	60	4635	08 16 36
08 17 35	J1703+24	19 48 30	47.8	242.9	2.7		35.9	-21	4635	No stop
08 27 20	---	19 58 17	46.5	245.6	2.9		36.8	564	4710	08 17 36
08 28 00	J1659+2629	19 58 57	47.6	249.0	3.0		38.8	19	4710	08 28 00
08 30 00	---	20 00 57	47.3	249.6	3.0		38.9	120	4725	08 28 01

SETUP FILE INFORMATION:
NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

======== Setup file: sess118.L1024

Setup group: 13 Station: TORUN Total bit rate: 1024
Format: MARK5B Bits per sample: 2 Sample rate: 64.000
Number of channels: 8 DBE type: DBBC_DDC Speedup factor: 1.00

Disk used to record data.

```
  1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         L         L         L         L         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         U         U         L         L         U         U         L         L
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   9  Setup file default.  Used with PCAL = off
  LO sum=   1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
  BBC fr=    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   9

  Track assignments are:
   track1=   2,  6, 10, 14,  4,  8, 12, 16
   barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                      (B1950)             (J2000)             (Date)             (mas)

* J1025+10          10 23 05.443161   * 10 25 44.212110     10 26 42.275789       0.00
                    10 37 46.62190    * 10 22 30.47520      10 16 51.09109        0.00

* J1040+09          10 37 50.834968   * 10 40 28.373070     10 41 25.995479       0.00
                    09 26 37.60846    * 09 10 57.25220      09 05 09.54257        0.00

* J1530+27          15 28 09.518755   * 15 30 16.153070     15 31 01.636413       0.00
                    27 16 03.64170    * 27 05 51.00240      27 02 02.79821        0.00

* J1559+25          15 57 45.979195   * 15 59 51.615280     16 00 36.586034       0.00
                    26 04 51.75303    * 25 56 26.32510      25 53 17.28119        0.00

* J1628+25          16 26 41.726627   * 16 28 46.129410     16 29 30.502673       0.00
                    25 36 13.53487    * 25 29 41.00180      25 27 12.98872        0.00

* J1703+24          17 01 53.831069   * 17 03 58.503430     17 04 42.789764       0.00
                    24 14 46.40212    * 24 10 39.54000      24 09 04.65478        0.00

* J1025+1253        10 23 16.285226   * 10 25 56.285367     10 26 54.776080       0.00
                    13 09 05.49494    * 12 53 49.02206      12 48 09.51635        0.00

* J1042+1203        10 40 06.000139   * 10 42 44.605235     10 43 42.590680       0.00
                    12 19 14.97616    * 12 03 31.26378      11 57 42.32170        0.00

* J1539+2744        15 37 34.114972   * 15 39 39.137102     15 40 23.989818       0.00
                    27 54 17.83884    * 27 44 38.21421      27 41 01.80975        0.00

* J1609+2641        16 07 09.290093   * 16 09 13.320761     16 09 57.661885       0.00
                    26 49 18.65815    * 26 41 29.03615      26 38 32.76841        0.00

* J1628+2247        16 26 07.334837   * 16 28 15.239918     16 29 00.883350       0.00
                    22 54 32.04036    * 22 47 57.31240      22 45 29.24839        0.00

* J1659+2629        16 57 22.517635   * 16 59 24.149447     17 00 07.359081       0.00
                    26 34 03.01795    * 26 29 36.94311      26 27 54.48150        0.00
```

ep106btr

Mrk1018 at 1 Gb/s - L band - 2nd segment

PI: *Miguel A. Perez-Torres*

```
Address:  IAA - CSIC

Observing mode: 1024 Mbps

Schedule for TORUN     (Code Tr )                                   Page   2
               Mrk1018 at 1 Gb/s - L band - 2nd segment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------
 --- Sat  24 Feb 2018   Day  55 ---
 Next scan frequencies:  1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 Next BBC frequencies:    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

11 00 00  0149+218     22 31 22  41.0 108.9 -3.4     -37.9     0        0   11 00 00
11 03 40  ---          22 35 02  41.5 109.8 -3.3     -37.6   220       28   11 00 01

11 03 40  0205-010     22 35 02  20.3 120.9 -3.6     -31.0   -93       28   No stop
11 06 40  ---          22 38 03  20.7 121.6 -3.5     -30.8    87       51   11 03 41

11 06 40  MRK1018      22 38 03  21.4 121.8 -3.5     -30.7   -15       51   No stop
11 10 30  ---          22 41 53  21.9 122.7 -3.4     -30.3   215       81   11 06 41

11 11 00  0205-010     22 42 23  21.2 122.6 -3.4     -30.4    15       81   11 11 00
11 12 10  ---          22 43 34  21.4 122.9 -3.4     -30.3    70       90   11 11 01

11 12 10  MRK1018      22 43 34  22.1 123.1 -3.4     -30.2   -15       90   No stop
11 16 00  ---          22 47 24  22.6 124.0 -3.3     -29.8   215      119   11 12 11

11 16 00  0205-010     22 47 24  21.8 123.8 -3.4     -29.9   -15      119   No stop
11 17 10  ---          22 48 34  22.0 124.1 -3.3     -29.8    55      128   11 16 01

11 17 10  MRK1018      22 48 34  22.7 124.3 -3.3     -29.7   -15      128   No stop
11 21 00  ---          22 52 25  23.2 125.2 -3.2     -29.4   215      158   11 17 11

11 21 30  0205-010     22 52 55  22.5 125.1 -3.3     -29.4    15      158   11 21 30
11 22 40  ---          22 54 05  22.7 125.4 -3.3     -29.3    70      167   11 21 31

11 22 40  MRK1018      22 54 05  23.4 125.6 -3.2     -29.2   -15      167   No stop
11 26 30  ---          22 57 56  23.8 126.5 -3.2     -28.9   215      196   11 22 41

11 26 30  0205-010     22 57 56  23.1 126.3 -3.2     -29.0   -15      196   No stop
11 27 40  ---          22 59 06  23.3 126.6 -3.2     -28.8    55      205   11 26 31

11 27 40  MRK1018      22 59 06  24.0 126.8 -3.1     -28.7   -15      205   No stop
11 31 30  ---          23 02 57  24.4 127.7 -3.1     -28.4   215      235   11 27 41

11 32 00  0205-010     23 03 27  23.8 127.6 -3.1     -28.4    15      235   11 32 00
11 33 10  ---          23 04 37  23.9 127.9 -3.1     -28.3    70      244   11 32 01

11 33 10  MRK1018      23 04 37  24.6 128.1 -3.0     -28.2   -15      244   No stop
11 37 00  ---          23 08 28  25.1 129.1 -3.0     -27.8   215      273   11 33 11
```

Schedule for TORUN (Code Tr) Page 3

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sat 24 Feb 2018 Day 55 ---										
11 37 00	0205-010	23 08 28	24.4	128.8	-3.0		-27.9	-15	273	No stop
11 38 10	---	23 09 38	24.5	129.1	-3.0		-27.8	55	282	11 37 01
11 38 10	MRK1018	23 09 38	25.2	129.4	-3.0		-27.7	-15	282	No stop
11 42 00	---	23 13 29	25.7	130.3	-2.9		-27.3	215	312	11 38 11
11 42 30	0205-010	23 13 59	25.0	130.1	-2.9		-27.3	15	312	11 42 30
11 43 40	---	23 15 09	25.2	130.4	-2.9		-27.2	70	321	11 42 31
11 43 40	MRK1018	23 15 09	25.9	130.7	-2.9		-27.1	-15	321	No stop
11 47 30	---	23 18 59	26.3	131.7	-2.8		-26.7	215	350	11 43 41
11 47 30	0205-010	23 18 59	25.6	131.4	-2.8		-26.8	-14	350	No stop
11 48 40	---	23 20 10	25.7	131.7	-2.8		-26.7	56	359	11 47 31
11 48 40	MRK1018	23 20 10	26.4	132.0	-2.8		-26.5	-15	359	No stop
11 52 30	---	23 24 00	26.9	132.9	-2.7		-26.1	215	388	11 48 41
11 53 00	0205-010	23 24 30	26.2	132.8	-2.7		-26.2	16	388	11 53 00
11 54 10	---	23 25 41	26.3	133.0	-2.7		-26.0	70	397	11 53 01
11 54 10	MRK1018	23 25 41	27.0	133.3	-2.7		-25.9	-15	397	No stop
11 58 00	---	23 29 31	27.5	134.3	-2.6		-25.4	215	427	11 54 11
11 58 00	0205-010	23 29 31	26.8	134.0	-2.7		-25.6	-14	427	No stop
11 59 10	---	23 30 41	26.9	134.3	-2.6		-25.5	56	436	11 58 01
11 59 10	MRK1018	23 30 41	27.6	134.6	-2.6		-25.3	-15	436	No stop
12 03 00	---	23 34 32	28.0	135.6	-2.5		-24.8	215	465	11 59 11
12 03 30	0205-010	23 35 02	27.4	135.4	-2.6		-24.9	16	465	12 03 30
12 04 40	---	23 36 12	27.5	135.7	-2.6		-24.8	70	474	12 03 31
12 04 40	MRK1018	23 36 12	28.2	136.0	-2.5		-24.6	-15	474	No stop
12 08 30	---	23 40 03	28.6	137.0	-2.5		-24.2	215	504	12 04 41
12 08 30	0205-010	23 40 03	27.9	136.7	-2.5		-24.3	-14	504	No stop
12 09 40	---	23 41 13	28.0	137.0	-2.5		-24.2	56	513	12 08 31
12 09 40	MRK1018	23 41 13	28.7	137.3	-2.4		-24.0	-15	513	No stop
12 13 30	---	23 45 04	29.1	138.3	-2.4		-23.5	215	542	12 09 41
12 14 00	0205-010	23 45 34	28.4	138.1	-2.4		-23.6	16	542	12 14 00
12 15 10	---	23 46 44	28.5	138.4	-2.4		-23.5	70	551	12 14 01
12 15 10	MRK1018	23 46 44	29.2	138.8	-2.3		-23.3	-15	551	No stop
12 19 00	---	23 50 35	29.6	139.8	-2.3		-22.8	215	581	12 15 11

Schedule for TORUN (Code Tr) Page 4

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
12 19 00	0205-010	23 50 35	28.9	139.4	-2.3		-23.0	-14	581	No stop
12 20 10	---	23 51 45	29.0	139.7	-2.3		-22.8	56	590	12 19 01
12 20 10	MRK1018	23 51 45	29.7	140.1	-2.3		-22.7	-15	590	No stop
12 24 00	---	23 55 35	30.1	141.1	-2.2		-22.1	215	619	12 20 11
12 24 30	0205-010	23 56 05	29.5	140.9	-2.2		-22.3	16	619	12 24 30
12 25 40	---	23 57 16	29.6	141.2	-2.2		-22.1	70	628	12 24 31
12 25 40	MRK1018	23 57 16	30.2	141.6	-2.2		-21.9	-15	628	No stop
12 29 30	---	00 01 06	30.6	142.6	-2.1		-21.4	215	658	12 25 41
12 29 30	0205-010	00 01 06	29.9	142.2	-2.1		-21.6	-14	658	No stop
12 30 40	---	00 02 16	30.0	142.5	-2.1		-21.4	56	667	12 29 31
12 30 40	MRK1018	00 02 16	30.7	142.9	-2.1		-21.2	-15	667	No stop
12 34 30	---	00 06 07	31.0	144.0	-2.0		-20.7	215	696	12 30 41
12 35 00	0205-010	00 06 37	30.4	143.7	-2.0		-20.8	16	696	12 35 00
12 36 10	---	00 07 47	30.5	144.0	-2.0		-20.6	70	705	12 35 01
12 36 10	MRK1018	00 07 47	31.2	144.4	-2.0		-20.4	-14	705	No stop
12 40 00	---	00 11 38	31.5	145.5	-1.9		-19.9	216	735	12 36 11
12 40 00	0205-010	00 11 38	30.9	145.1	-2.0		-20.1	-14	735	No stop
12 41 10	---	00 12 48	31.0	145.4	-1.9		-19.9	56	744	12 40 01
12 41 10	MRK1018	00 12 48	31.6	145.8	-1.9		-19.7	-14	744	No stop
12 45 00	---	00 16 39	31.9	146.9	-1.8		-19.2	216	773	12 41 11
12 45 30	0205-010	00 17 09	31.3	146.6	-1.9		-19.3	16	773	12 45 30
12 46 40	---	00 18 19	31.4	146.9	-1.9		-19.1	70	782	12 45 31
12 46 40	MRK1018	00 18 19	32.1	147.3	-1.8		-18.9	-14	782	No stop
12 50 30	---	00 22 10	32.4	148.4	-1.8		-18.3	216	812	12 46 41
12 50 30	0205-010	00 22 10	31.7	148.0	-1.8		-18.6	-14	812	No stop
12 51 40	---	00 23 20	31.8	148.3	-1.8		-18.4	56	821	12 50 31
12 51 40	MRK1018	00 23 20	32.5	148.7	-1.7		-18.2	-14	821	No stop
12 55 30	---	00 27 11	32.8	149.8	-1.7		-17.6	216	850	12 51 41
12 56 00	0205-010	00 27 41	32.2	149.5	-1.7		-17.7	16	850	12 56 00
12 57 10	---	00 28 51	32.3	149.9	-1.7		-17.5	70	859	12 56 01

Schedule for TORUN (Code Tr) Page 5

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sat 24 Feb 2018 Day 55 ---										
12 57 10	MRK1018	00 28 51	32.9	150.3	-1.6		-17.3	-14	859	No stop
13 01 00	---	00 32 41	33.2	151.4	-1.6		-16.7	216	888	12 57 11
13 01 00	0205-010	00 32 41	32.5	151.0	-1.6		-17.0	-14	888	No stop
13 02 10	---	00 33 52	32.6	151.3	-1.6		-16.8	56	897	13 01 01
13 02 10	MRK1018	00 33 52	33.3	151.7	-1.6		-16.5	-14	897	No stop
13 06 00	---	00 37 42	33.5	152.8	-1.5		-15.9	216	927	13 02 11
13 06 30	0205-010	00 38 12	32.9	152.5	-1.5		-16.1	16	927	13 06 30
13 07 40	---	00 39 23	33.0	152.9	-1.5		-15.9	70	936	13 06 31
13 07 40	MRK1018	00 39 23	33.6	153.3	-1.5		-15.6	-14	936	No stop
13 11 30	---	00 43 13	33.9	154.4	-1.4		-15.0	216	965	13 07 41
13 11 30	0205-010	00 43 13	33.3	154.0	-1.4		-15.3	-14	965	No stop
13 12 40	---	00 44 23	33.3	154.3	-1.4		-15.1	56	974	13 11 31
13 12 40	MRK1018	00 44 23	34.0	154.8	-1.4		-14.8	-14	974	No stop
13 16 30	---	00 48 14	34.2	155.9	-1.3		-14.2	216	1004	13 12 41
13 17 00	0205-010	00 48 44	33.6	155.6	-1.3		-14.4	16	1004	13 17 00
13 18 10	---	00 49 54	33.7	155.9	-1.3		-14.2	70	1013	13 17 01
13 18 10	MRK1018	00 49 54	34.3	156.4	-1.3		-13.9	-14	1013	No stop
13 22 00	---	00 53 45	34.5	157.5	-1.2		-13.3	216	1042	13 18 11
13 22 00	0205-010	00 53 45	33.9	157.0	-1.3		-13.6	-14	1042	No stop
13 23 10	---	00 54 55	34.0	157.4	-1.2		-13.4	56	1051	13 22 01
13 23 10	MRK1018	00 54 55	34.6	157.9	-1.2		-13.1	-14	1051	No stop
13 27 00	---	00 58 46	34.8	159.0	-1.1		-12.4	216	1081	13 23 11
13 27 30	0205-010	00 59 16	34.2	158.6	-1.2		-12.6	16	1081	13 27 30
13 28 40	---	01 00 26	34.3	159.0	-1.1		-12.4	70	1090	13 27 31
13 28 40	MRK1018	01 00 26	34.9	159.5	-1.1		-12.1	-14	1090	No stop
13 32 30	---	01 04 17	35.1	160.7	-1.0		-11.5	216	1119	13 28 41
13 32 30	0205-010	01 04 17	34.5	160.1	-1.1		-11.8	-14	1119	No stop
13 33 40	---	01 05 27	34.6	160.5	-1.1		-11.6	56	1128	13 32 31
13 33 40	MRK1018	01 05 27	35.2	161.0	-1.0		-11.3	-14	1128	No stop
13 37 30	---	01 09 17	35.3	162.2	-1.0		-10.6	216	1158	13 33 41

Schedule for TORUN (Code Tr) Page 6

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
13 38 00	0205-010	01 09 48	34.8	161.8	-1.0		-10.8	16	1158	13 38 00
13 39 10	---	01 10 58	34.8	162.1	-1.0		-10.6	70	1167	13 38 01
13 39 10	MRK1018	01 10 58	35.4	162.7	-0.9		-10.3	-14	1167	No stop
13 43 00	---	01 14 48	35.6	163.8	-0.9		-9.6	216	1196	13 39 11
13 43 00	0205-010	01 14 48	35.0	163.3	-0.9		-10.0	-14	1196	No stop
13 44 10	---	01 15 59	35.0	163.6	-0.9		-9.7	56	1205	13 43 01
13 44 10	0154-000	01 15 59	36.5	166.9	-0.7		-7.8	-21	1205	No stop
13 46 00	---	01 17 49	36.5	167.4	-0.7		-7.5	89	1219	13 44 11
13 46 00	MRK1018	01 17 49	35.7	164.7	-0.8		-9.1	-19	1219	No stop
13 49 50	---	01 21 40	35.9	165.9	-0.8		-8.4	211	1249	13 46 01
13 50 20	0205-010	01 22 10	35.3	165.5	-0.8		-8.7	16	1249	13 50 20
13 51 30	---	01 23 20	35.3	165.9	-0.8		-8.4	70	1258	13 50 21
13 51 30	MRK1018	01 23 20	35.9	166.4	-0.7		-8.1	-14	1258	No stop
13 55 20	---	01 27 10	36.0	167.6	-0.7		-7.4	216	1287	13 51 31
13 55 20	0205-010	01 27 10	35.5	167.0	-0.7		-7.8	-14	1287	No stop
13 56 30	---	01 28 21	35.5	167.4	-0.7		-7.5	56	1296	13 55 21
13 56 30	MRK1018	01 28 21	36.1	168.0	-0.6		-7.2	-14	1296	No stop
14 00 20	---	01 32 11	36.2	169.1	-0.6		-6.5	216	1326	13 56 31
14 00 50	0205-010	01 32 41	35.6	168.7	-0.6		-6.8	16	1326	14 00 50
14 02 00	---	01 33 52	35.7	169.1	-0.6		-6.5	70	1335	14 00 51
14 02 00	MRK1018	01 33 52	36.2	169.7	-0.6		-6.2	-14	1335	No stop
14 05 50	---	01 37 42	36.3	170.8	-0.5		-5.5	216	1364	14 02 01
14 05 50	0205-010	01 37 42	35.8	170.2	-0.5		-5.8	-14	1364	No stop
14 07 00	---	01 38 52	35.8	170.6	-0.5		-5.6	56	1373	14 05 51
14 07 00	MRK1018	01 38 52	36.4	171.2	-0.5		-5.3	-14	1373	No stop
14 10 50	---	01 42 43	36.5	172.4	-0.4		-4.6	216	1403	14 07 01
14 11 20	0205-010	01 43 13	35.9	171.9	-0.4		-4.8	16	1403	14 11 20
14 12 30	---	01 44 23	35.9	172.3	-0.4		-4.6	70	1412	14 11 21
14 12 30	MRK1018	01 44 23	36.5	172.9	-0.4		-4.3	-14	1412	No stop
14 16 20	---	01 48 14	36.5	174.1	-0.3		-3.5	216	1441	14 12 31

Schedule for TORUN (Code Tr) Page 7

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sat 24 Feb 2018 Day 55 ---										
14 16 20	0205-010	01 48 14	36.0	173.5	-0.4		-3.9	-13	1441	No stop
14 17 30	---	01 49 24	36.0	173.8	-0.3		-3.7	57	1450	14 16 21
14 17 30	MRK1018	01 49 24	36.6	174.5	-0.3		-3.3	-13	1450	No stop
14 21 20	---	01 53 15	36.6	175.7	-0.2		-2.6	217	1479	14 17 31
14 21 50	0205-010	01 53 45	36.1	175.2	-0.3		-2.9	17	1479	14 21 50
14 23 00	---	01 54 55	36.1	175.5	-0.2		-2.7	70	1488	14 21 51
14 23 00	MRK1018	01 54 55	36.6	176.2	-0.2		-2.3	-13	1488	No stop
14 26 50	---	01 58 46	36.7	177.4	-0.1		-1.6	217	1518	14 23 01
14 26 50	0205-010	01 58 46	36.1	176.7	-0.2		-2.0	-13	1518	No stop
14 28 00	---	01 59 56	36.2	177.1	-0.2		-1.8	57	1527	14 26 51
14 28 00	MRK1018	01 59 56	36.7	177.7	-0.1		-1.4	-13	1527	No stop
14 31 50	---	02 03 46	36.7	178.9	-0.1		-0.6	217	1556	14 28 01
14 32 20	0205-010	02 04 16	36.2	178.4	-0.1		-0.9	17	1556	14 32 20
14 33 30	---	02 05 27	36.2	178.8	-0.1		-0.7	70	1565	14 32 21
14 33 30	MRK1018	02 05 27	36.7	179.5	-0.0		-0.3	-13	1565	No stop
14 37 20	---	02 09 17	36.7	180.7	0.0		0.4	217	1595	14 33 31
14 37 20	0205-010	02 09 17	36.2	180.0	-0.0		-0.0	-13	1595	No stop
14 38 30	---	02 10 27	36.2	180.3	0.0		0.2	57	1604	14 37 21
14 38 30	MRK1018	02 10 27	36.7	181.0	0.1		0.6	-13	1604	No stop
14 42 20	---	02 14 18	36.7	182.2	0.1		1.3	217	1633	14 38 31
14 42 50	0205-010	02 14 48	36.2	181.7	0.1		1.0	17	1633	14 42 50
14 44 00	---	02 15 58	36.2	182.1	0.1		1.2	70	1642	14 42 51
14 44 00	MRK1018	02 15 58	36.7	182.7	0.1		1.6	-13	1642	No stop
14 47 50	---	02 19 49	36.6	183.9	0.2		2.4	217	1672	14 44 01
14 47 50	0205-010	02 19 49	36.1	183.2	0.2		1.9	-13	1672	No stop
14 49 00	---	02 20 59	36.1	183.6	0.2		2.2	57	1681	14 47 51
14 49 00	MRK1018	02 20 59	36.6	184.3	0.2		2.6	-13	1681	No stop
14 52 50	---	02 24 50	36.6	185.5	0.3		3.3	217	1710	14 49 01
14 53 20	0205-010	02 25 20	36.1	184.9	0.3		3.0	17	1710	14 53 20
14 54 30	---	02 26 30	36.1	185.3	0.3		3.2	70	1719	14 53 21

Schedule for TORUN (Code Tr) Page 8

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
14 54 30	MRK1018	02 26 30	36.5	186.0	0.3		3.6	-13	1719	No stop
14 58 20	---	02 30 21	36.5	187.2	0.4		4.3	217	1749	14 54 31
14 58 20	0205-010	02 30 21	36.0	186.5	0.4		3.9	-13	1749	No stop
14 59 30	---	02 31 31	36.0	186.9	0.4		4.1	57	1758	14 58 21
14 59 30	MRK1018	02 31 31	36.5	187.6	0.4		4.5	-13	1758	No stop
15 03 20	---	02 35 22	36.4	188.8	0.5		5.2	217	1787	14 59 31
15 03 50	0205-010	02 35 52	35.9	188.2	0.4		4.9	17	1787	15 03 50
15 05 00	---	02 37 02	35.9	188.6	0.5		5.1	70	1796	15 03 51
15 05 00	MRK1018	02 37 02	36.3	189.3	0.5		5.6	-13	1796	No stop
15 08 50	---	02 40 52	36.2	190.5	0.6		6.3	217	1826	15 05 01
15 08 50	0205-010	02 40 52	35.8	189.7	0.5		5.8	-13	1826	No stop
15 10 00	---	02 42 03	35.8	190.1	0.5		6.0	57	1835	15 08 51
15 10 00	MRK1018	02 42 03	36.2	190.8	0.6		6.5	-13	1835	No stop
15 13 50	---	02 45 53	36.1	192.0	0.6		7.2	217	1864	15 10 01
15 14 20	0205-010	02 46 23	35.6	191.4	0.6		6.8	17	1864	15 14 20
15 15 30	---	02 47 34	35.6	191.8	0.6		7.0	70	1873	15 14 21
15 15 30	MRK1018	02 47 34	36.0	192.5	0.7		7.5	-13	1873	No stop
15 19 20	---	02 51 24	35.9	193.7	0.7		8.2	217	1903	15 15 31
15 19 20	0205-010	02 51 24	35.5	192.9	0.7		7.7	-13	1903	No stop
15 20 30	---	02 52 34	35.4	193.3	0.7		7.9	57	1912	15 19 21
15 20 30	MRK1018	02 52 34	35.9	194.1	0.8		8.4	-13	1912	No stop
15 24 20	---	02 56 25	35.7	195.2	0.8		9.1	217	1941	15 20 31
15 24 50	0205-010	02 56 55	35.3	194.6	0.8		8.7	17	1941	15 24 50
15 26 00	---	02 58 05	35.2	195.0	0.8		8.9	70	1950	15 24 51
15 26 00	MRK1018	02 58 05	35.6	195.7	0.8		9.4	-13	1950	No stop
15 29 50	---	03 01 56	35.5	196.9	0.9		10.1	217	1979	15 26 01
15 29 50	0205-010	03 01 56	35.1	196.1	0.9		9.6	-13	1979	No stop
15 31 00	---	03 03 06	35.0	196.5	0.9		9.8	57	1988	15 29 51
15 31 00	MRK1018	03 03 06	35.4	197.3	0.9		10.3	-13	1988	No stop
15 34 50	---	03 06 57	35.3	198.4	1.0		10.9	217	2018	15 31 01

Schedule for TORUN (Code Tr) Page 9

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
15 35 20	0205-010	03 07 27	34.8	197.8	1.0		10.6	17	2018	15 35 20
15 36 30	---	03 08 37	34.8	198.1	1.0		10.8	70	2027	15 35 21
15 36 30	MRK1018	03 08 37	35.2	198.9	1.0		11.2	-13	2027	No stop
15 40 20	---	03 12 28	35.0	200.1	1.1		11.9	217	2056	15 36 31
15 40 20	0205-010	03 12 28	34.6	199.3	1.1		11.4	-13	2056	No stop
15 41 30	---	03 13 38	34.5	199.6	1.1		11.6	57	2065	15 40 21
15 41 30	MRK1018	03 13 38	34.9	200.4	1.1		12.1	-13	2065	No stop
15 45 20	---	03 17 28	34.7	201.6	1.2		12.7	217	2095	15 41 31
15 45 50	0205-010	03 17 59	34.3	200.9	1.1		12.4	17	2095	15 45 50
15 47 00	---	03 19 09	34.3	201.3	1.2		12.6	70	2104	15 45 51
15 47 00	MRK1018	03 19 09	34.6	202.0	1.2		13.0	-13	2104	No stop
15 50 50	---	03 22 59	34.4	203.2	1.3		13.7	217	2133	15 47 01
15 50 50	0205-010	03 22 59	34.0	202.4	1.2		13.2	-13	2133	No stop
15 52 00	---	03 24 10	34.0	202.7	1.2		13.4	57	2142	15 50 51
15 52 00	MRK1018	03 24 10	34.3	203.5	1.3		13.9	-13	2142	No stop
15 55 50	---	03 28 00	34.1	204.7	1.3		14.5	217	2172	15 52 01
15 56 20	0205-010	03 28 30	33.7	204.0	1.3		14.1	17	2172	15 56 20
15 57 30	---	03 29 40	33.6	204.4	1.3		14.3	70	2181	15 56 21
15 57 30	MRK1018	03 29 40	34.0	205.1	1.4		14.8	-13	2181	No stop
16 01 20	---	03 33 31	33.7	206.3	1.4		15.4	217	2210	15 57 31
16 01 20	0205-010	03 33 31	33.4	205.5	1.4		15.0	-13	2210	No stop
16 02 30	---	03 34 41	33.3	205.8	1.4		15.2	57	2219	16 01 21
16 02 30	MRK1018	03 34 41	33.7	206.6	1.5		15.6	-13	2219	No stop
16 06 20	---	03 38 32	33.4	207.7	1.5		16.2	217	2249	16 02 31
16 06 50	0205-010	03 39 02	33.0	207.1	1.5		15.9	17	2249	16 06 50
16 08 00	---	03 40 12	32.9	207.4	1.5		16.0	70	2258	16 06 51
16 08 00	MRK1018	03 40 12	33.3	208.2	1.6		16.5	-13	2258	No stop
16 11 50	---	03 44 03	33.0	209.3	1.6		17.1	217	2287	16 08 01
16 11 50	0205-010	03 44 03	32.7	208.5	1.6		16.6	-13	2287	No stop
16 13 00	---	03 45 13	32.6	208.8	1.6		16.8	57	2296	16 11 51

Schedule for TORUN (Code Tr) Page 10

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
16 13 00	MRK1018	03 45 13	32.9	209.6	1.6		17.3	-13	2296	No stop
16 16 50	---	03 49 04	32.6	210.7	1.7		17.9	217	2326	16 13 01
16 17 20	0205-010	03 49 34	32.3	210.1	1.7		17.5	17	2326	16 17 20
16 18 30	---	03 50 44	32.2	210.4	1.7		17.7	70	2335	16 17 21
16 18 30	MRK1018	03 50 44	32.5	211.2	1.7		18.1	-13	2335	No stop
16 22 20	---	03 54 35	32.2	212.3	1.8		18.7	217	2364	16 18 31
16 22 20	0205-010	03 54 35	31.9	211.5	1.8		18.3	-13	2364	No stop
16 23 30	---	03 55 45	31.8	211.8	1.8		18.4	57	2373	16 22 21
16 23 30	0154-000	03 55 45	31.8	215.3	2.0		20.3	-22	2373	No stop
16 25 20	---	03 57 35	31.6	215.8	2.0		20.6	88	2387	16 23 31
16 25 20	MRK1018	03 57 35	32.0	213.1	1.8		19.1	-20	2387	No stop
16 29 10	---	04 01 26	31.6	214.2	1.9		19.7	210	2417	16 25 21
16 29 40	0205-010	04 01 56	31.3	213.5	1.9		19.4	17	2417	16 29 40
16 30 50	---	04 03 06	31.2	213.8	1.9		19.5	70	2426	16 29 41
16 30 50	MRK1018	04 03 06	31.5	214.6	1.9		20.0	-13	2426	No stop
16 34 40	---	04 06 57	31.2	215.7	2.0		20.5	217	2455	16 30 51
16 34 40	0205-010	04 06 57	30.9	214.9	2.0		20.1	-13	2455	No stop
16 35 50	---	04 08 07	30.8	215.2	2.0		20.3	57	2464	16 34 41
16 35 50	MRK1018	04 08 07	31.1	216.0	2.0		20.7	-13	2464	No stop
16 39 40	---	04 11 57	30.7	217.0	2.1		21.2	217	2494	16 35 51
16 40 10	0205-010	04 12 27	30.4	216.4	2.1		20.9	17	2494	16 40 10
16 41 20	---	04 13 38	30.3	216.7	2.1		21.0	70	2503	16 40 11
16 41 20	MRK1018	04 13 38	30.6	217.5	2.1		21.4	-13	2503	No stop
16 45 10	---	04 17 28	30.2	218.5	2.2		22.0	217	2532	16 41 21
16 45 10	0205-010	04 17 28	29.9	217.7	2.1		21.6	-13	2532	No stop
16 46 20	---	04 18 38	29.8	218.0	2.2		21.7	57	2541	16 45 11
16 46 20	MRK1018	04 18 38	30.1	218.8	2.2		22.1	-13	2541	No stop
16 50 10	---	04 22 29	29.7	219.9	2.3		22.6	217	2571	16 46 21
16 50 40	0205-010	04 22 59	29.4	219.2	2.2		22.3	17	2571	16 50 40
16 51 50	---	04 24 09	29.3	219.5	2.2		22.5	70	2579	16 50 41

Schedule for TORUN (Code Tr) Page 11

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sat 24 Feb 2018 Day 55 ---										
16 51 50	MRK1018	04 24 09	29.6	220.3	2.3		22.9	-13	2579	No stop
16 55 40	---	04 28 00	29.2	221.3	2.3		23.4	217	2609	16 51 51
16 55 40	0205-010	04 28 00	28.9	220.5	2.3		23.0	-13	2609	No stop
16 56 50	---	04 29 10	28.8	220.8	2.3		23.1	57	2618	16 55 41
16 56 50	MRK1018	04 29 10	29.1	221.6	2.4		23.5	-13	2618	No stop
17 00 40	---	04 33 01	28.7	222.6	2.4		24.0	217	2647	16 56 51
17 01 10	0205-010	04 33 31	28.4	222.0	2.4		23.7	17	2647	17 01 10
17 02 20	---	04 34 41	28.3	222.3	2.4		23.8	70	2656	17 01 11
17 02 20	MRK1018	04 34 41	28.5	223.1	2.5		24.2	-13	2656	No stop
17 06 10	---	04 38 32	28.1	224.1	2.5		24.7	217	2686	17 02 21
17 06 10	0205-010	04 38 32	27.9	223.3	2.5		24.3	-13	2686	No stop
17 07 20	---	04 39 42	27.8	223.6	2.5		24.5	57	2695	17 06 11
17 07 20	MRK1018	04 39 42	28.0	224.4	2.5		24.8	-13	2695	No stop
17 11 10	---	04 43 33	27.6	225.4	2.6		25.3	217	2724	17 07 21
17 11 40	0205-010	04 44 03	27.3	224.7	2.6		25.0	17	2724	17 11 40
17 12 50	---	04 45 13	27.2	225.0	2.6		25.1	70	2733	17 11 41
17 12 50	MRK1018	04 45 13	27.4	225.8	2.6		25.5	-13	2733	No stop
17 16 40	---	04 49 03	27.0	226.8	2.7		25.9	217	2763	17 12 51
17 16 40	0205-010	04 49 03	26.8	226.0	2.7		25.6	-13	2763	No stop
17 17 50	---	04 50 14	26.6	226.3	2.7		25.7	57	2772	17 16 41
17 17 50	MRK1018	04 50 14	26.9	227.0	2.7		26.1	-13	2772	No stop
17 21 40	---	04 54 04	26.4	228.0	2.8		26.5	217	2801	17 17 51
17 22 10	0205-010	04 54 34	26.2	227.3	2.8		26.2	17	2801	17 22 10
17 23 20	---	04 55 45	26.0	227.6	2.8		26.3	70	2810	17 22 11
17 23 20	MRK1018	04 55 45	26.3	228.4	2.8		26.7	-13	2810	No stop
17 27 10	---	04 59 35	25.8	229.4	2.9		27.1	217	2840	17 23 21
17 27 10	0205-010	04 59 35	25.6	228.6	2.8		26.8	-13	2840	No stop
17 28 20	---	05 00 45	25.5	228.9	2.9		26.9	57	2849	17 27 11
17 28 20	MRK1018	05 00 45	25.7	229.7	2.9		27.2	-13	2849	No stop
17 32 10	---	05 04 36	25.2	230.6	3.0		27.7	217	2878	17 28 21

Schedule for TORUN (Code Tr) Page 12

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
17 32 40	0205-010	05 05 06	25.0	230.0	2.9		27.4	17	2878	17 32 40
17 33 50	---	05 06 16	24.9	230.2	2.9		27.5	70	2887	17 32 41
17 33 50	MRK1018	05 06 16	25.0	231.0	3.0		27.8	-13	2887	No stop
17 37 40	---	05 10 07	24.6	232.0	3.0		28.2	217	2917	17 33 51
17 37 40	0205-010	05 10 07	24.4	231.2	3.0		27.9	-13	2917	No stop
17 38 50	---	05 11 17	24.3	231.5	3.0		28.0	57	2926	17 37 41
17 38 50	MRK1018	05 11 17	24.5	232.2	3.1		28.3	-13	2926	No stop
17 42 40	---	05 15 08	24.0	233.2	3.1		28.7	217	2955	17 38 51
17 43 10	0205-010	05 15 38	23.8	232.5	3.1		28.5	17	2955	17 43 10
17 44 20	---	05 16 48	23.6	232.8	3.1		28.6	70	2964	17 43 11
17 44 20	MRK1018	05 16 48	23.8	233.6	3.2		28.9	-13	2964	No stop
17 48 10	---	05 20 39	23.3	234.5	3.2		29.3	217	2994	17 44 21
17 48 10	0205-010	05 20 39	23.2	233.7	3.2		28.9	-13	2994	No stop
17 49 20	---	05 21 49	23.0	234.0	3.2		29.1	57	3003	17 48 11
17 49 20	MRK1018	05 21 49	23.2	234.8	3.2		29.4	-13	3003	No stop
17 53 10	---	05 25 39	22.7	235.7	3.3		29.7	217	3032	17 49 21
17 53 40	0205-010	05 26 10	22.5	235.0	3.3		29.5	17	3032	17 53 40
17 54 50	---	05 27 20	22.3	235.3	3.3		29.6	70	3041	17 53 41
17 54 50	MRK1018	05 27 20	22.5	236.1	3.3		29.9	-13	3041	No stop
17 58 40	---	05 31 10	22.0	237.0	3.4		30.2	217	3071	17 54 51
17 58 40	0205-010	05 31 10	21.9	236.2	3.4		29.9	-13	3071	No stop
17 59 50	---	05 32 21	21.7	236.5	3.4		30.0	57	3079	17 58 41
17 59 50	MRK1018	05 32 21	21.9	237.2	3.4		30.3	-13	3079	No stop
18 03 40	---	05 36 11	21.4	238.1	3.5		30.7	217	3109	17 59 51
18 04 10	0205-010	05 36 41	21.2	237.5	3.5		30.4	17	3109	18 04 10
18 05 20	---	05 37 51	21.0	237.7	3.5		30.5	70	3118	18 04 11
18 05 20	MRK1018	05 37 51	21.2	238.5	3.5		30.8	-13	3118	No stop
18 09 10	---	05 41 42	20.7	239.4	3.6		31.1	217	3147	18 05 21
18 09 10	0205-010	05 41 42	20.5	238.6	3.5		30.8	-13	3147	No stop
18 10 20	---	05 42 52	20.4	238.9	3.6		30.9	57	3156	18 09 11

Schedule for TORUN (Code Tr) Page 13

Mrk1018 at 1 Gb/s - L band - 2nd segment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 24 Feb 2018 Day 55 ---										
18 10 20	MRK1018	05 42 52	20.5	239.7	3.6		31.2	-13	3156	No stop
18 14 10	---	05 46 43	20.0	240.5	3.7		31.5	217	3186	18 10 21
18 14 40	0205-010	05 47 13	19.8	239.9	3.6		31.3	17	3186	18 14 40
18 15 50	---	05 48 23	19.7	240.1	3.7		31.4	70	3195	18 14 41
18 15 50	MRK1018	05 48 23	19.8	240.9	3.7		31.7	-13	3195	No stop
18 19 40	---	05 52 14	19.3	241.8	3.8		31.9	217	3224	18 15 51
18 19 40	0205-010	05 52 14	19.2	241.0	3.7		31.7	-13	3224	No stop
18 20 50	---	05 53 24	19.0	241.3	3.7		31.8	57	3233	18 19 41
18 20 50	MRK1018	05 53 24	19.1	242.0	3.8		32.0	-13	3233	No stop
18 24 40	---	05 57 15	18.6	242.9	3.8		32.3	217	3263	18 20 51
18 25 10	0205-010	05 57 45	18.4	242.2	3.8		32.1	17	3263	18 25 10
18 26 20	---	05 58 55	18.3	242.5	3.8		32.2	70	3272	18 25 11
18 26 20	MRK1018	05 58 55	18.4	243.3	3.9		32.4	-13	3272	No stop
18 30 10	---	06 02 46	17.9	244.1	3.9		32.7	217	3301	18 26 21
18 30 10	0205-010	06 02 46	17.8	243.4	3.9		32.5	-13	3301	No stop
18 31 20	---	06 03 56	17.6	243.6	3.9		32.5	57	3310	18 30 11
18 31 20	MRK1018	06 03 56	17.7	244.4	3.9		32.8	-13	3310	No stop
18 35 10	---	06 07 46	17.2	245.2	4.0		33.0	217	3340	18 31 21
18 35 40	0205-010	06 08 16	17.0	244.6	4.0		32.8	17	3340	18 35 40
18 36 50	---	06 09 27	16.9	244.8	4.0		32.9	70	3349	18 35 41
18 36 50	MRK1018	06 09 27	17.0	245.6	4.0		33.2	-13	3349	No stop
18 40 40	---	06 13 17	16.5	246.4	4.1		33.4	217	3378	18 36 51
18 40 40	0205-010	06 13 17	16.3	245.7	4.1		33.2	-13	3378	No stop
18 41 50	---	06 14 27	16.2	245.9	4.1		33.3	57	3387	18 40 41
18 41 50	MRK1018	06 14 27	16.3	246.7	4.1		33.5	-13	3387	No stop
18 45 40	---	06 18 18	15.8	247.5	4.2		33.7	217	3417	18 41 51
18 46 10	0205-010	06 18 48	15.6	246.9	4.2		33.5	17	3417	18 46 10
18 47 20	---	06 19 58	15.4	247.1	4.2		33.6	70	3426	18 46 11
18 47 20	MRK1018	06 19 58	15.5	247.9	4.2		33.8	-13	3426	No stop
18 51 10	---	06 23 49	15.0	248.7	4.3		34.0	217	3455	18 47 21

```
Schedule for TORUN     (Code Tr )                                Page  14
               Mrk1018 at 1 Gb/s - L band - 2nd segment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Sat  24 Feb 2018   Day  55 ---

18 51 10  0205-010     06 23 49  14.9 248.0  4.2      33.8   -13     3455   No stop
18 52 20  ---          06 24 59  14.7 248.2  4.3      33.9    57     3464   18 51 11

18 52 20  MRK1018      06 24 59  14.8 249.0  4.3      34.1   -13     3464   No stop
18 55 50  ---          06 28 30  14.3 249.7  4.4      34.3   197     3491   18 52 21

18 56 20  0205-010     06 29 00  14.2 249.1  4.3      34.1    17     3491   18 56 20
19 00 00  ---          06 32 40  13.6 249.8  4.4      34.3   220     3519   18 56 21



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.L1024

   Setup group:   12         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         L         L         L         L         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         U         U         L         L         U         U         L         L
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
  BBC fr=    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=   2,  6, 10, 14,  4,  8, 12, 16
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* MRK1018            02 03 42.480768   * 02 06 15.990000     02 07 10.361900       0.00
                    -00 31 46.69524    *-00 17 29.90000     -00 12 35.04231        0.00

* 0149+218           01 49 31.744134   * 01 52 18.059045     01 53 17.116696       0.02
  J0152+2207         21 52 20.74790    * 22 07 07.69977      22 12 20.37574        0.02
  J0152+22           /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                     GSFC 2015a astro solution, unpublished   2091 observations.

* 0154-000           01 54 36.737811   * 01 57 10.534893     01 58 04.969293       0.17
  J0157+0011        -00 03 12.25373    * 00 11 24.48441      00 16 26.92555        0.34
                     /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                     GSFC 2015a astro solution, unpublished    161 observations.

* 0205-010           02 05 53.149970   * 02 08 26.345906     02 09 20.611993       0.11
  J0208-0047        -01 01 56.11936    *-00 47 44.29360     -00 42 51.43157        0.24
                     /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                     GSFC 2015a astro solution, unpublished     63 observations.
```

em128dtr

EM128D

PI: *J. Moldon*

```
Address:  Jodrell Bank Centre for Astrophysics

Observing mode: vlbi
Schedule for TORUN     (Code Tr )                                  Page   2
               EM128D
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Sun  25 Feb 2018   Day  56 ---
 Next scan frequencies:  1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 Next BBC frequencies:    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

03 30 00  3C345        15 04 04  68.5 118.2 -1.7     -43.5     0        0   03 30 00
03 34 00  ---          15 08 05  69.0 119.8 -1.6     -42.7   240       31   03 30 01

03 36 00  J2015+3710   15 10 05  36.5  74.5 -5.1     -46.6   -16       31   03 36 00
03 39 00  =2013+370    15 13 06  37.0  75.0 -5.1     -46.8   164       54   03 36 01

03 39 00  J2032+4127   15 13 06  37.5  68.3 -5.3     -48.2   -28       54   No stop
03 43 00  ---          15 17 06  38.0  68.9 -5.3     -48.4   212       85   03 39 01

03 43 50  J2015+3710   15 17 57  37.7  75.8 -5.0     -47.0    21       85   03 43 50
03 45 30  =2013+370    15 19 37  37.9  76.1 -4.9     -47.1   100       97   03 43 51

03 45 30  J2032+4127   15 19 37  38.4  69.3 -5.2     -48.6   -28       97   No stop
03 49 30  ---          15 23 37  39.0  70.0 -5.2     -48.9   212      128   03 45 31

03 49 30  J2015+3710   15 23 37  38.5  76.8 -4.9     -47.3   -29      128   No stop
03 51 10  =2013+370    15 25 18  38.8  77.1 -4.8     -47.3    71      141   03 49 31

03 51 10  J2032+4127   15 25 18  39.2  70.2 -5.1     -49.0   -29      141   No stop
03 55 10  ---          15 29 18  39.8  70.9 -5.1     -49.3   211      172   03 51 11

03 56 00  J2015+3710   15 30 09  39.5  77.9 -4.8     -47.5    21      172   03 56 00
03 57 40  =2013+370    15 31 49  39.7  78.2 -4.7     -47.6   100      185   03 56 01

03 57 40  J2032+4057   15 31 49  39.8  71.7 -5.0     -49.1   -28      185   No stop
04 01 40  ---          15 35 49  40.3  72.4 -5.0     -49.3   212      215   03 57 41

04 01 40  J2015+3710   15 35 49  40.3  78.9 -4.7     -47.7   -28      215   No stop
04 03 30  =2013+370    15 37 40  40.6  79.3 -4.6     -47.8    82      229   04 01 41

04 03 30  J2032+4127   15 37 40  41.0  72.2 -4.9     -49.8   -29      229   No stop
04 07 30  ---          15 41 40  41.5  72.8 -4.9     -50.0   211      260   04 03 31

04 08 20  J2015+3710   15 42 31  41.3  80.1 -4.6     -48.0    21      260   04 08 20
04 10 00  =2013+370    15 44 11  41.5  80.4 -4.5     -48.0   100      273   04 08 21

04 10 00  J2032+4127   15 44 11  41.9  73.2 -4.8     -50.2   -29      273   No stop
04 14 00  ---          15 48 11  42.5  73.9 -4.7     -50.4   211      304   04 10 01
```

Schedule for TORUN (Code Tr) Page 3

EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun	25 Feb 2018	Day 56 ---								
04 14 00	J2015+3710	15 48 11	42.1	81.1	-4.5		-48.2	-30	304	No stop
04 15 40	=2013+370	15 49 52	42.4	81.4	-4.4		-48.2	70	317	04 14 01
04 15 40	J2032+4127	15 49 52	42.7	74.2	-4.7		-50.5	-29	317	No stop
04 19 40	---	15 53 52	43.3	74.8	-4.6		-50.7	211	347	04 15 41
04 20 30	J2015+3710	15 54 43	43.1	82.3	-4.4		-48.4	20	347	04 20 30
04 22 10	=2013+370	15 56 23	43.3	82.6	-4.3		-48.4	100	360	04 20 31
04 22 10	J2032+4057	15 56 23	43.3	75.7	-4.6		-50.5	-29	360	No stop
04 26 10	---	16 00 23	43.9	76.4	-4.5		-50.7	211	391	04 22 11
04 26 10	J2015+3710	16 00 23	43.9	83.3	-4.3		-48.5	-29	391	No stop
04 28 00	=2013+370	16 02 14	44.2	83.7	-4.2		-48.6	81	405	04 26 11
04 28 00	J2032+4127	16 02 14	44.5	76.2	-4.5		-51.1	-30	405	No stop
04 32 00	---	16 06 14	45.1	76.8	-4.4		-51.3	210	436	04 28 01
04 32 50	J2015+3710	16 07 05	44.9	84.6	-4.2		-48.7	20	436	04 32 50
04 34 30	=2013+370	16 08 45	45.2	84.9	-4.1		-48.7	100	449	04 32 51
04 34 30	J2032+4127	16 08 45	45.5	77.3	-4.4		-51.5	-30	449	No stop
04 38 30	---	16 12 45	46.0	77.9	-4.3		-51.6	210	479	04 34 31
04 38 30	J2015+3710	16 12 45	45.8	85.6	-4.1		-48.8	-31	479	No stop
04 40 10	=2013+370	16 14 26	46.0	85.9	-4.0		-48.8	69	492	04 38 31
04 40 10	J2032+4127	16 14 26	46.3	78.2	-4.3		-51.7	-30	492	No stop
04 44 10	---	16 18 26	46.9	78.9	-4.2		-51.9	210	523	04 40 11
04 45 00	J2015+3710	16 19 17	46.8	86.9	-3.9		-48.9	19	523	04 45 00
04 46 40	=2013+370	16 20 57	47.0	87.2	-3.9		-48.9	100	536	04 45 01
04 46 40	J2032+4057	16 20 57	46.9	79.8	-4.2		-51.6	-30	536	No stop
04 50 40	---	16 24 57	47.5	80.5	-4.1		-51.7	210	567	04 46 41
04 50 40	J2015+3710	16 24 57	47.6	88.0	-3.9		-48.9	-30	567	No stop
04 52 30	=2013+370	16 26 48	47.9	88.3	-3.8		-48.9	80	581	04 50 41
04 52 30	J2032+4127	16 26 48	48.1	80.3	-4.1		-52.2	-31	581	No stop
04 56 30	---	16 30 48	48.7	81.0	-4.0		-52.4	209	612	04 52 31
04 57 20	J2015+3710	16 31 39	48.6	89.3	-3.7		-49.0	19	612	04 57 20
04 59 00	=2013+370	16 33 19	48.9	89.6	-3.7		-49.0	100	624	04 57 21
04 59 00	J2032+4127	16 33 19	49.1	81.4	-4.0		-52.5	-31	624	No stop
05 03 00	---	16 37 20	49.7	82.1	-3.9		-52.6	209	655	04 59 01

Schedule for TORUN (Code Tr) Page 4
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
05 03 00	J2015+3710	16 37 20	49.5	90.4	-3.6		-49.0	-32	655	No stop
05 04 40	=2013+370	16 39 00	49.7	90.7	-3.6		-49.0	68	668	05 03 01
05 04 40	J2032+4127	16 39 00	49.9	82.4	-3.9		-52.7	-31	668	No stop
05 08 40	---	16 43 00	50.5	83.1	-3.8		-52.8	209	699	05 04 41
05 09 30	J2015+3710	16 43 51	50.5	91.7	-3.5		-48.9	18	699	05 09 30
05 11 10	=2013+370	16 45 31	50.7	92.1	-3.5		-48.9	100	712	05 09 31
05 11 10	J2032+4057	16 45 31	50.6	84.2	-3.8		-52.3	-31	712	No stop
05 15 10	---	16 49 32	51.2	84.9	-3.7		-52.4	209	742	05 11 11
05 15 10	J2015+3710	16 49 32	51.3	92.9	-3.4		-48.9	-31	742	No stop
05 17 00	=2013+370	16 51 22	51.6	93.3	-3.4		-48.9	79	756	05 15 11
05 17 00	J2032+4127	16 51 22	51.8	84.6	-3.7		-53.0	-32	756	No stop
05 21 00	---	16 55 22	52.4	85.4	-3.6		-53.1	208	787	05 17 01
05 21 50	J2015+3710	16 56 13	52.3	94.3	-3.3		-48.8	17	787	05 21 50
05 23 30	=2013+370	16 57 53	52.6	94.7	-3.3		-48.7	100	800	05 21 51
05 23 30	J2032+4127	16 57 53	52.7	85.8	-3.6		-53.1	-32	800	No stop
05 27 30	---	17 01 54	53.3	86.6	-3.5		-53.2	208	831	05 23 31
05 27 30	J2015+3710	17 01 54	53.2	95.6	-3.2		-48.7	-33	831	No stop
05 29 10	=2013+370	17 03 34	53.4	95.9	-3.2		-48.6	67	844	05 27 31
05 29 10	J2032+4127	17 03 34	53.6	86.9	-3.5		-53.2	-33	844	No stop
05 33 10	---	17 07 34	54.2	87.7	-3.4		-53.3	207	874	05 29 11
05 34 00	J2015+3710	17 08 25	54.1	97.0	-3.1		-48.5	17	874	05 34 00
05 35 40	=2013+370	17 10 05	54.4	97.4	-3.1		-48.4	100	887	05 34 01
05 35 40	J2032+4057	17 10 05	54.2	88.8	-3.4		-52.7	-32	887	No stop
05 39 40	---	17 14 06	54.8	89.6	-3.3		-52.7	208	918	05 35 41
05 39 40	J2015+3710	17 14 06	55.0	98.3	-3.0		-48.3	-33	918	No stop
05 41 30	=2013+370	17 15 56	55.2	98.7	-3.0		-48.2	77	932	05 39 41
05 41 30	J2032+4127	17 15 56	55.5	89.3	-3.3		-53.3	-34	932	No stop
05 45 30	---	17 19 56	56.1	90.1	-3.2		-53.3	206	963	05 41 31
05 46 20	J2015+3710	17 20 47	56.0	99.9	-2.9		-48.0	16	963	05 46 20
05 48 00	=2013+370	17 22 27	56.2	100.3	-2.9		-47.9	100	976	05 46 21

Schedule for TORUN (Code Tr) Page 5
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
05 48 00	J2032+4127	17 22 27	56.4	90.6	-3.2		-53.3	-34	976	No stop
05 52 00	---	17 26 28	57.0	91.4	-3.1		-53.3	206	1006	05 48 01
05 52 00	J2015+3710	17 26 28	56.8	101.2	-2.8		-47.7	-35	1006	No stop
05 53 40	=2013+370	17 28 08	57.1	101.6	-2.8		-47.6	65	1019	05 52 01
05 53 40	J2032+4127	17 28 08	57.3	91.8	-3.1		-53.3	-35	1019	No stop
05 57 40	---	17 32 08	57.9	92.6	-3.0		-53.2	205	1050	05 53 41
05 58 30	J2015+3710	17 32 59	57.8	102.9	-2.7		-47.3	15	1050	05 58 30
06 00 10	=2013+370	17 34 39	58.0	103.3	-2.7		-47.2	100	1063	05 58 31
06 00 10	J2032+4057	17 34 39	57.9	93.8	-3.0		-52.6	-34	1063	No stop
06 04 10	---	17 38 40	58.5	94.7	-2.9		-52.5	206	1094	06 00 11
06 04 10	J2015+3710	17 38 40	58.6	104.3	-2.6		-47.0	-34	1094	No stop
06 06 00	=2013+370	17 40 30	58.9	104.8	-2.6		-46.8	76	1108	06 04 11
06 06 00	J2032+4127	17 40 30	59.1	94.4	-2.9		-53.1	-36	1108	No stop
06 10 00	---	17 44 31	59.7	95.3	-2.8		-53.0	204	1138	06 06 01
06 10 50	J2015+3710	17 45 21	59.6	106.1	-2.5		-46.4	14	1138	06 10 50
06 12 30	=2013+370	17 47 01	59.8	106.5	-2.5		-46.3	100	1151	06 10 51
06 12 30	J2032+4127	17 47 01	60.1	95.8	-2.8		-52.9	-36	1151	No stop
06 16 30	---	17 51 02	60.7	96.8	-2.7		-52.8	204	1182	06 12 31
06 16 30	J2015+3710	17 51 02	60.4	107.7	-2.4		-46.0	-37	1182	No stop
06 18 10	=2013+370	17 52 42	60.6	108.1	-2.4		-45.8	63	1195	06 16 31
06 18 10	J2032+4127	17 52 42	61.0	97.1	-2.7		-52.7	-37	1195	No stop
06 22 10	---	17 56 43	61.6	98.1	-2.6		-52.6	203	1226	06 18 11
06 23 00	J2015+3710	17 57 33	61.3	109.5	-2.3		-45.3	12	1226	06 23 00
06 24 40	=2013+370	17 59 13	61.5	110.0	-2.3		-45.1	100	1238	06 23 01
06 24 40	J2032+4057	17 59 13	61.6	99.5	-2.6		-51.7	-36	1238	No stop
06 28 40	---	18 03 14	62.2	100.5	-2.5		-51.5	204	1269	06 24 41
06 28 40	J2015+3710	18 03 14	62.1	111.2	-2.2		-44.7	-37	1269	No stop
06 30 30	=2013+370	18 05 04	62.4	111.8	-2.2		-44.5	73	1283	06 28 41
06 30 30	J2032+4127	18 05 04	62.8	100.1	-2.5		-52.1	-38	1283	No stop
06 34 30	---	18 09 05	63.4	101.2	-2.4		-51.9	202	1314	06 30 31

Schedule for TORUN (Code Tr) Page 6
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
06 35 20	J2015+3710	18 09 55	63.0	113.3	-2.1		-43.9	11	1314	06 35 20
06 37 00	=2013+370	18 11 35	63.3	113.8	-2.1		-43.6	100	1327	06 35 21
06 37 00	J2032+4127	18 11 35	63.8	101.8	-2.4		-51.7	-39	1327	No stop
06 41 00	---	18 15 36	64.3	102.9	-2.3		-51.4	201	1358	06 37 01
06 41 00	J2015+3710	18 15 36	63.8	115.1	-2.0		-43.1	-40	1358	No stop
06 42 40	=2013+370	18 17 16	64.0	115.7	-2.0		-42.8	60	1371	06 41 01
06 42 40	J2032+4127	18 17 16	64.6	103.3	-2.3		-51.3	-39	1371	No stop
06 46 40	---	18 21 17	65.2	104.4	-2.2		-51.0	201	1401	06 42 41
06 47 30	J2015+3710	18 22 07	64.7	117.3	-1.9		-42.1	9	1401	06 47 30
06 49 10	=2013+370	18 23 47	64.9	117.9	-1.9		-41.8	100	1414	06 47 31
06 49 10	J2032+4057	18 23 47	65.2	106.0	-2.2		-49.9	-38	1414	No stop
06 53 10	---	18 27 48	65.8	107.2	-2.1		-49.5	202	1445	06 49 11
06 53 10	J2015+3710	18 27 48	65.4	119.3	-1.8		-41.1	-40	1445	No stop
06 55 00	=2013+370	18 29 38	65.7	120.0	-1.8		-40.8	70	1459	06 53 11
06 56 50	J2253+1608	18 31 28	27.4	99.5	-4.4		-38.1	-47	1459	06 56 50
07 00 50	=3C454.3	18 35 29	28.0	100.3	-4.3		-38.0	193	1490	06 56 51
07 02 50	J2015+3710	18 37 29	66.7	122.9	-1.6		-39.3	-39	1490	07 02 50
07 05 00	=2013+370	18 39 40	67.0	123.8	-1.6		-38.8	91	1506	07 02 51
07 05 00	J2032+4127	18 39 40	67.8	110.0	-1.9		-48.9	-42	1506	No stop
07 09 00	---	18 43 40	68.4	111.3	-1.8		-48.3	198	1537	07 05 01
07 09 50	J2015+3710	18 44 30	67.6	125.7	-1.5		-37.7	6	1537	07 09 50
07 11 40	=2013+370	18 46 21	67.8	126.5	-1.5		-37.3	110	1551	07 09 51
07 11 40	J2032+4127	18 46 21	68.7	112.2	-1.8		-47.9	-43	1551	No stop
07 15 40	---	18 50 21	69.3	113.7	-1.7		-47.3	197	1582	07 11 41
07 15 40	J2015+3710	18 50 21	68.3	128.2	-1.4		-36.3	-45	1582	No stop
07 17 30	=2013+370	18 52 12	68.5	129.0	-1.4		-35.9	65	1596	07 15 41
07 17 30	J2032+4127	18 52 12	69.6	114.3	-1.7		-47.0	-44	1596	No stop
07 21 30	---	18 56 12	70.1	115.8	-1.6		-46.2	196	1627	07 17 31
07 22 20	J2015+3710	18 57 02	69.0	131.2	-1.3		-34.6	4	1627	07 22 20
07 24 10	=2013+370	18 58 53	69.2	132.0	-1.3		-34.1	110	1641	07 22 21

Schedule for TORUN (Code Tr) Page 7
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
07 24 10	J2032+4057	18 58 53	70.1	117.8	-1.6		-44.7	-43	1641	No stop
07 28 10	---	19 02 53	70.6	119.4	-1.5		-43.9	197	1672	07 24 11
07 28 10	J2015+3710	19 02 53	69.7	133.9	-1.2		-32.9	-45	1672	No stop
07 30 00	=2013+370	19 04 44	69.9	134.8	-1.2		-32.3	65	1686	07 28 11
07 30 00	J2032+4127	19 04 44	71.2	119.2	-1.5		-44.4	-46	1686	No stop
07 34 00	---	19 08 44	71.8	120.9	-1.4		-43.5	194	1717	07 30 01
07 34 50	J2015+3710	19 09 34	70.4	137.3	-1.1		-30.8	2	1717	07 34 50
07 36 40	=2013+370	19 11 25	70.6	138.2	-1.1		-30.2	110	1731	07 34 51
07 36 40	J2032+4127	19 11 25	72.1	122.1	-1.4		-42.8	-47	1731	No stop
07 40 40	---	19 15 25	72.6	123.9	-1.3		-41.7	193	1762	07 36 41
07 40 40	J2015+3710	19 15 25	71.0	140.3	-1.0		-28.8	-49	1762	No stop
07 42 30	=2013+370	19 17 16	71.1	141.3	-1.0		-28.1	61	1776	07 40 41
07 42 30	J2032+4127	19 17 16	72.8	124.8	-1.3		-41.2	-47	1776	No stop
07 46 30	---	19 21 16	73.3	126.7	-1.2		-40.0	193	1806	07 42 31
07 47 20	J2015+3710	19 22 07	71.6	144.0	-0.9		-26.3	1	1806	07 47 20
07 49 10	=2013+370	19 23 57	71.7	145.0	-0.9		-25.6	110	1821	07 47 21
07 49 10	J2032+4057	19 23 57	73.2	129.1	-1.2		-38.2	-46	1821	No stop
07 53 10	---	19 27 57	73.7	131.2	-1.1		-36.8	194	1851	07 49 11
07 53 10	J2015+3710	19 27 57	72.1	147.4	-0.8		-24.0	-48	1851	No stop
07 55 00	=2013+370	19 29 48	72.2	148.4	-0.8		-23.2	62	1865	07 53 11
07 55 00	J2032+4127	19 29 48	74.3	131.2	-1.1		-37.1	-49	1865	No stop
07 59 00	---	19 33 48	74.8	133.5	-1.0		-35.6	191	1896	07 55 01
07 59 50	J2015+3710	19 34 39	72.6	151.4	-0.7		-21.2	-1	1896	07 59 50
08 01 40	=2013+370	19 36 29	72.7	152.5	-0.7		-20.3	109	1910	07 59 51
08 01 40	J2032+4127	19 36 29	75.0	135.1	-0.9		-34.5	-49	1910	No stop
08 05 40	---	19 40 30	75.5	137.5	-0.9		-32.8	191	1941	08 01 41
08 05 40	J2015+3710	19 40 30	73.0	155.1	-0.6		-18.5	-51	1941	No stop
08 07 30	=2013+370	19 42 20	73.1	156.3	-0.6		-17.7	59	1955	08 05 41
08 07 30	J2032+4127	19 42 20	75.6	138.7	-0.8		-32.0	-49	1955	No stop
08 11 30	---	19 46 20	76.0	141.3	-0.8		-30.1	191	1986	08 07 31

Schedule for TORUN (Code Tr) Page 8
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
08 12 20	J2015+3710	19 47 11	73.4	159.5	-0.5		-15.3	-1	1986	08 12 20
08 14 10	=2013+370	19 49 01	73.5	160.7	-0.5		-14.4	109	2000	08 12 21
08 14 10	J2032+4057	19 49 01	75.8	144.0	-0.7		-27.9	-48	2000	No stop
08 18 10	---	19 53 02	76.2	146.8	-0.7		-25.9	192	2031	08 14 11
08 18 10	J2015+3710	19 53 02	73.6	163.5	-0.4		-12.4	-49	2031	No stop
08 20 00	=2013+370	19 54 52	73.7	164.8	-0.4		-11.4	61	2045	08 18 11
08 20 00	J2032+4127	19 54 52	76.8	147.3	-0.6		-25.7	-49	2045	No stop
08 24 00	---	19 58 53	77.1	150.3	-0.6		-23.4	191	2076	08 20 01
08 24 50	J2015+3710	19 59 43	73.9	168.2	-0.3		-8.9	-1	2076	08 24 50
08 26 40	=2013+370	20 01 33	73.9	169.5	-0.2		-7.9	109	2090	08 24 51
08 26 40	J2032+4127	20 01 33	77.3	152.4	-0.5		-21.8	-48	2090	No stop
08 30 40	---	20 05 34	77.5	155.7	-0.5		-19.3	192	2121	08 26 41
08 30 40	J2015+3710	20 05 34	74.0	172.3	-0.2		-5.8	-49	2121	No stop
08 32 30	=2013+370	20 07 24	74.1	173.7	-0.1		-4.8	61	2135	08 30 41
08 32 30	J2032+4127	20 07 24	77.7	157.2	-0.4		-18.1	-47	2135	No stop
08 36 30	---	20 11 25	77.9	160.6	-0.4		-15.5	193	2165	08 32 31
08 37 20	J2015+3710	20 12 15	74.1	177.2	-0.1		-2.1	2	2165	08 37 20
08 39 10	=2013+370	20 14 05	74.1	178.5	-0.0		-1.1	110	2179	08 37 21
08 39 10	J2032+4057	20 14 05	77.5	163.2	-0.3		-13.3	-44	2179	No stop
08 43 10	---	20 18 06	77.7	166.7	-0.2		-10.6	196	2210	08 39 11
08 43 10	J2015+3710	20 18 06	74.1	181.4	0.0		1.1	-45	2210	No stop
08 45 00	=2013+370	20 19 56	74.1	182.8	0.1		2.1	65	2224	08 43 11
08 45 00	J2032+4127	20 19 56	78.2	168.1	-0.2		-9.5	-43	2224	No stop
08 49 00	---	20 23 57	78.3	171.7	-0.1		-6.6	197	2255	08 45 01
08 49 50	J2015+3710	20 24 47	74.1	186.3	0.1		4.7	6	2255	08 49 50
08 51 40	=2013+370	20 26 37	74.0	187.6	0.2		5.7	110	2269	08 49 51
08 51 40	J2032+4127	20 26 37	78.4	174.2	-0.1		-4.6	-41	2269	No stop
08 55 40	---	20 30 38	78.4	177.9	-0.0		-1.7	199	2300	08 51 41
08 55 40	J2015+3710	20 30 38	73.9	190.5	0.2		7.9	-41	2300	No stop
08 57 30	=2013+370	20 32 28	73.9	191.8	0.3		8.9	69	2314	08 55 41

Schedule for TORUN (Code Tr) Page 9
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
08 57 30	J2032+4127	20 32 28	78.4	179.7	-0.0		-0.3	-38	2314	No stop
09 01 30	---	20 36 29	78.4	183.4	0.1		2.7	202	2345	08 57 31
09 02 20	J2015+3710	20 37 19	73.7	195.2	0.4		11.4	12	2345	09 02 20
09 04 10	=2013+370	20 39 09	73.6	196.5	0.4		12.3	110	2359	09 02 21
09 04 10	J2032+4057	20 39 09	77.9	185.5	0.1		4.4	-36	2359	No stop
09 08 10	---	20 43 10	77.8	189.1	0.2		7.2	204	2390	09 04 11
09 08 10	J2015+3710	20 43 10	73.5	199.2	0.5		14.4	-36	2390	No stop
09 10 00	=2013+370	20 45 00	73.4	200.5	0.5		15.3	74	2404	09 08 11
09 10 00	J2032+4127	20 45 00	78.2	191.2	0.2		9.0	-33	2404	No stop
09 14 00	---	20 49 01	78.1	194.8	0.3		11.9	207	2435	09 10 01
09 14 50	J2015+3710	20 49 51	73.1	203.7	0.6		17.6	17	2435	09 14 50
09 16 40	=2013+370	20 51 41	73.0	204.9	0.6		18.5	110	2449	09 14 51
09 16 40	J2032+4127	20 51 41	78.0	197.2	0.3		13.7	-33	2449	No stop
09 20 40	---	20 55 42	77.8	200.7	0.4		16.4	207	2479	09 16 41
09 20 40	J2015+3710	20 55 42	72.7	207.4	0.7		20.3	-33	2479	No stop
09 22 30	=2013+370	20 57 32	72.6	208.6	0.7		21.1	77	2494	09 20 41
09 22 30	J2032+4127	20 57 32	77.7	202.2	0.4		17.6	-33	2494	No stop
09 26 30	---	21 01 33	77.5	205.5	0.5		20.2	207	2524	09 22 31
09 27 20	J2015+3710	21 02 23	72.2	211.5	0.8		23.2	17	2524	09 27 20
09 29 10	=2013+370	21 04 13	72.1	212.6	0.8		24.0	110	2538	09 27 21
09 29 10	J2032+4057	21 04 13	76.8	206.7	0.5		20.9	-32	2538	No stop
09 33 10	---	21 08 14	76.5	209.7	0.6		23.2	208	2569	09 29 11
09 33 10	J2015+3710	21 08 14	71.7	214.9	0.9		25.6	-32	2569	No stop
09 35 00	=2013+370	21 10 04	71.6	216.0	0.9		26.3	78	2583	09 33 11
09 35 00	J2032+4127	21 10 04	76.8	212.1	0.6		25.2	-33	2583	No stop
09 39 00	---	21 14 05	76.5	215.0	0.7		27.4	207	2614	09 35 01
09 39 50	J2015+3710	21 14 55	71.1	218.7	1.0		28.1	16	2614	09 39 50
09 41 40	=2013+370	21 16 45	71.0	219.7	1.0		28.8	110	2628	09 39 51
09 41 40	J2032+4127	21 16 45	76.3	216.9	0.7		28.8	-34	2628	No stop
09 45 40	---	21 20 46	75.9	219.6	0.8		30.8	206	2659	09 41 41

Schedule for TORUN (Code Tr) Page 10
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
09 45 40	J2015+3710	21 20 46	70.6	221.8	1.1		30.2	-34	2659	No stop
09 47 30	=2013+370	21 22 36	70.4	222.7	1.1		30.8	76	2673	09 45 41
09 47 30	J2032+4127	21 22 36	75.7	220.8	0.8		31.6	-34	2673	No stop
09 51 30	---	21 26 37	75.3	223.4	0.9		33.4	206	2704	09 47 31
09 52 20	J2015+3710	21 27 27	69.9	225.1	1.2		32.3	16	2704	09 52 20
09 54 10	=2013+370	21 29 17	69.7	226.0	1.2		32.9	110	2718	09 52 21
09 54 10	J2032+4057	21 29 17	74.6	223.8	0.9		33.4	-32	2718	No stop
09 58 10	---	21 33 18	74.2	226.1	1.0		35.0	208	2749	09 54 11
09 58 10	J2015+3710	21 33 18	69.2	227.9	1.3		34.0	-33	2749	No stop
10 00 00	=2013+370	21 35 08	69.0	228.8	1.3		34.6	77	2763	09 58 11
10 00 00	J2032+4127	21 35 08	74.4	228.4	1.0		36.8	-34	2763	No stop
10 04 00	---	21 39 09	73.9	230.5	1.1		38.3	206	2794	10 00 01
10 04 50	J2015+3710	21 39 59	68.5	230.9	1.4		35.9	16	2794	10 04 50
10 06 40	=2013+370	21 41 49	68.3	231.7	1.4		36.3	110	2808	10 04 51
10 06 40	J2032+4127	21 41 49	73.6	231.9	1.1		39.2	-34	2808	No stop
10 10 40	---	21 45 50	73.1	234.0	1.2		40.4	206	2838	10 06 41
10 10 40	J2015+3710	21 45 50	67.8	233.5	1.5		37.3	-34	2838	No stop
10 12 30	=2013+370	21 47 40	67.6	234.2	1.5		37.7	76	2853	10 10 41
10 12 30	J2032+4127	21 47 40	72.9	234.9	1.2		41.0	-34	2853	No stop
10 16 30	---	21 51 41	72.4	236.7	1.3		42.1	206	2883	10 12 31
10 17 20	J2015+3710	21 52 31	67.0	236.2	1.6		38.8	16	2883	10 17 20
10 19 10	=2013+370	21 54 21	66.7	236.9	1.6		39.2	110	2897	10 17 21
10 19 10	J2032+4057	21 54 21	71.7	236.8	1.4		41.7	-32	2897	No stop
10 23 10	---	21 58 22	71.2	238.5	1.4		42.8	208	2928	10 19 11
10 23 10	J2015+3710	21 58 22	66.2	238.4	1.7		40.0	-33	2928	No stop
10 25 00	=2013+370	22 00 12	66.0	239.1	1.7		40.3	77	2942	10 23 11
10 25 00	J2032+4127	22 00 12	71.3	240.5	1.5		44.3	-34	2942	No stop
10 29 00	---	22 04 13	70.8	242.1	1.5		45.1	206	2973	10 25 01
10 29 50	J2015+3710	22 05 03	65.4	240.9	1.8		41.2	16	2973	10 29 50
10 31 40	=2013+370	22 06 54	65.1	241.6	1.8		41.5	110	2987	10 29 51

Schedule for TORUN (Code Tr) Page 11
EM128D

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	 AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 25 Feb 2018 Day 56 ---										
10 31 40	J2032+4127	22 06 54	70.4	243.2	1.6		45.7	-34	2987	No stop
10 35 40	---	22 10 54	69.9	244.7	1.6		46.5	206	3018	10 31 41
10 35 40	J2015+3710	22 10 54	64.6	243.0	1.9		42.2	-34	3018	No stop
10 37 30	=2013+370	22 12 44	64.3	243.6	1.9		42.5	76	3032	10 35 41
10 37 30	J2032+4127	22 12 44	69.7	245.4	1.7		46.8	-34	3032	No stop
10 41 30	---	22 16 45	69.1	246.9	1.7		47.5	206	3063	10 37 31
10 42 20	J2015+3710	22 17 35	63.7	245.2	2.0		43.2	16	3063	10 42 20
10 44 10	=2013+370	22 19 26	63.4	245.8	2.1		43.5	110	3077	10 42 21
10 44 10	J2032+4057	22 19 26	68.4	246.7	1.8		47.0	-32	3077	No stop
10 48 10	---	22 23 26	67.9	248.1	1.8		47.6	208	3108	10 44 11
10 48 10	J2015+3710	22 23 26	62.9	247.1	2.1		44.0	-33	3108	No stop
10 50 00	=2013+370	22 25 17	62.6	247.7	2.2		44.2	77	3122	10 48 11
10 50 00	J2032+4127	22 25 17	67.9	249.8	1.9		48.8	-33	3122	No stop
10 54 00	---	22 29 17	67.3	251.1	1.9		49.3	207	3153	10 50 01
10 54 50	J2015+3710	22 30 07	61.9	249.1	2.2		44.8	16	3153	10 54 50
10 56 40	=2013+370	22 31 58	61.7	249.7	2.3		45.0	110	3167	10 54 51
10 56 40	J2032+4127	22 31 58	67.0	251.9	2.0		49.7	-33	3167	No stop
11 00 40	---	22 35 58	66.4	253.1	2.1		50.1	207	3197	10 56 41
11 00 40	J2015+3710	22 35 58	61.1	250.9	2.3		45.4	-34	3197	No stop
11 02 30	=2013+370	22 37 49	60.9	251.4	2.4		45.6	76	3212	11 00 41
11 02 30	J2032+4127	22 37 49	66.1	253.7	2.1		50.3	-33	3212	No stop
11 06 30	---	22 41 49	65.5	254.8	2.1		50.7	207	3242	11 02 31
11 07 20	J2015+3710	22 42 39	60.2	252.7	2.4		46.1	16	3242	11 07 20
11 09 10	=2013+370	22 44 30	59.9	253.3	2.5		46.2	110	3256	11 07 21
11 09 10	J2032+4057	22 44 30	64.9	254.6	2.2		50.1	-32	3256	No stop
11 13 10	---	22 48 30	64.3	255.7	2.3		50.5	208	3287	11 09 11
11 13 10	J2015+3710	22 48 30	59.3	254.3	2.5		46.6	-33	3287	No stop
11 15 00	=2013+370	22 50 21	59.1	254.8	2.6		46.7	77	3301	11 13 11
11 15 00	J2032+4057	22 50 21	64.0	256.2	2.3		50.6	-32	3301	No stop
11 19 00	---	22 54 21	63.4	257.3	2.4		50.9	208	3332	11 15 01

```
Schedule for TORUN     (Code Tr )                                Page  12
               EM128D
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Sun  25 Feb 2018   Day  56 ---

11 19 40  J2015+3710   22 55 01  58.4 256.1  2.6      47.1     7     3332   11 19 40
11 21 10  =2013+370    22 56 32  58.2 256.4  2.7      47.2    90     3344   11 19 41

11 21 10  J2032+4057   22 56 32  63.1 257.9  2.4      51.1   -32     3344   No stop
11 25 10  ---          23 00 32  62.5 258.9  2.5      51.4   208     3374   11 21 11

11 27 00  J2253+1608   23 02 23  53.1 183.0  0.1       1.9   -56     3374   11 27 00
11 30 00  =3C454.3     23 05 23  53.1 184.2  0.2       2.6   124     3397   11 27 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.L1024

   Setup group:   12         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         L         L         L         L         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         U         U         L         L         U         U         L         L
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
  BBC fr=    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=   2,  6, 10, 14,  4,  8, 12, 16
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* J2032+4127        20 30 25.750981   * 20 32 13.070000     20 32 50.192996       0.00
                    41 17 08.83719    * 41 27 23.40000      41 30 58.83114        0.00
                    This is our VLBI target pulsar

  2013+370          20 13 37.014511   * 20 15 28.729797     20 16 07.523339       0.13
* J2015+3710        37 01 44.45895    * 37 10 59.51482      37 14 13.39030        0.18
                    GSFC 2015a astro solution, unpublished    131 observations.

* J2032+4057        20 30 37.610625   * 20 32 25.770700     20 33 03.203093       2.50
                    40 47 12.64463    * 40 57 27.91500      41 01 03.62880        2.50
                    From rfc_2016c. 0.5 deg from PSR J2032+4127

* 3C345             16 41 17.606228   * 16 42 58.809966     16 43 34.759659       0.76
  J1642+3948        39 54 10.81496    * 39 48 36.99402      39 46 26.74078        0.52
  1641+399          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1642+39          GSFC 2015a astro solution, unpublished  53430 observations.

  3C454.3           22 51 29.519738   * 22 53 57.747938     22 54 49.683700       0.67
* J2253+1608        15 52 54.34810    * 16 08 53.56093      16 14 33.55825        0.70
  2251+158          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J2253+16          GSFC 2015a astro solution, unpublished  40748 observations.
```

em131atr

EVN: EM131A

PI: *Marcote*

```
Address:  JIVE

Observing mode: vlbi
Schedule for TORUN     (Code Tr )                                  Page   2
               EVN: EM131A
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Mon  26 Feb 2018   Day  57 ---
 Next scan frequencies:  1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 Next BBC frequencies:    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

02 30 00  J1743-0350   14 07 51  17.2 122.0 -3.6     -30.7     0        0   02 30 00
02 34 00  =1741-038    14 11 52  17.7 122.9 -3.6     -30.3   240       31   02 30 01

02 35 00  J1825-0737   14 12 52   9.2 116.1 -4.2     -33.0    14       31   02 35 00
02 37 00  =1822-076    14 14 52   9.5 116.5 -4.2     -32.8   120       46   02 35 01

02 37 00  HD168112     14 14 52   6.6 120.4 -4.1     -32.0   -25       46   No stop
02 41 00  ---          14 18 53   7.1 121.2 -4.0     -31.7   215       77   02 37 01

02 41 00  J1825-0737   14 18 53  10.0 117.4 -4.1     -32.6   -25       77   No stop
02 43 30  =1822-076    14 21 23  10.4 117.9 -4.1     -32.4   125       96   02 41 01

02 43 30  HD167971     14 21 23   7.4 121.9 -4.0     -31.4   -25       96   No stop
02 47 30  ---          14 25 24   7.9 122.8 -3.9     -31.1   215      127   02 43 31

02 48 10  J1825-0737   14 26 04  11.0 118.9 -4.0     -32.0    15      127   02 48 10
02 50 40  =1822-076    14 28 34  11.3 119.4 -4.0     -31.8   150      146   02 48 11

02 50 40  HD168112     14 28 34   8.4 123.3 -3.9     -30.9   -25      146   No stop
02 54 40  ---          14 32 35   8.9 124.1 -3.8     -30.6   215      177   02 50 41

02 54 40  J1825-0737   14 32 35  11.8 120.3 -3.9     -31.5   -25      177   No stop
02 57 10  =1822-076    14 35 05  12.2 120.8 -3.9     -31.3   125      196   02 54 41

02 57 10  HD167971     14 35 05   9.1 124.9 -3.7     -30.3   -25      196   No stop
03 01 10  ---          14 39 06   9.6 125.7 -3.7     -29.9   215      227   02 57 11

03 01 50  J1825-0737   14 39 46  12.8 121.8 -3.8     -31.0    15      227   03 01 50
03 04 20  =1822-076    14 42 17  13.1 122.4 -3.7     -30.8   150      246   03 01 51

03 04 20  HD168112     14 42 17  10.1 126.2 -3.6     -29.7   -25      246   No stop
03 08 20  ---          14 46 17  10.5 127.1 -3.6     -29.3   215      277   03 04 21

03 08 20  J1825-0737   14 46 17  13.6 123.3 -3.7     -30.4   -25      277   No stop
03 10 50  =1822-076    14 48 48  13.9 123.8 -3.6     -30.2   125      296   03 08 21

03 10 50  HD167971     14 48 48  10.8 127.8 -3.5     -29.0   -25      296   No stop
03 14 50  ---          14 52 48  11.3 128.7 -3.4     -28.7   215      327   03 10 51
```

Schedule for TORUN (Code Tr) Page 3

EVN: EM131A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 26 Feb 2018 Day 57 ---										
03 15 30	J1825-0737	14 53 28	14.5	124.9	-3.6		-29.8	14	327	03 15 30
03 18 00	=1822-076	14 55 59	14.8	125.4	-3.5		-29.6	150	346	03 15 31
03 18 00	HD168112	14 55 59	11.7	129.2	-3.4		-28.4	-25	346	No stop
03 22 00	---	14 59 59	12.1	130.1	-3.3		-28.0	215	377	03 18 01
03 22 00	J1825-0737	14 59 59	15.3	126.3	-3.4		-29.2	-26	377	No stop
03 24 30	=1822-076	15 02 30	15.6	126.9	-3.4		-29.0	124	396	03 22 01
03 24 30	HD167971	15 02 30	12.4	130.8	-3.3		-27.7	-26	396	No stop
03 28 30	---	15 06 31	12.8	131.7	-3.2		-27.3	214	427	03 24 31
03 29 10	J1825-0737	15 07 11	16.1	127.9	-3.3		-28.5	14	427	03 29 10
03 31 40	=1822-076	15 09 41	16.4	128.5	-3.3		-28.3	150	446	03 29 11
03 31 40	J1743-0350	15 09 41	24.4	136.6	-2.6		-24.4	-44	446	No stop
03 37 00	=1741-038	15 15 02	25.0	138.0	-2.5		-23.8	276	487	03 31 41
03 38 00	J1825-0737	15 16 02	17.2	130.0	-3.2		-27.7	17	487	03 38 00
03 40 00	=1822-076	15 18 02	17.4	130.4	-3.1		-27.5	120	503	03 38 01
03 40 00	HD168112	15 18 02	14.2	134.1	-3.0		-26.2	-26	503	No stop
03 44 00	---	15 22 03	14.6	135.0	-3.0		-25.7	214	533	03 40 01
03 44 00	J1825-0737	15 22 03	17.8	131.3	-3.1		-27.1	-26	533	No stop
03 46 30	=1822-076	15 24 34	18.1	131.9	-3.0		-26.8	124	553	03 44 01
03 46 30	HD167971	15 24 34	14.8	135.8	-2.9		-25.4	-26	553	No stop
03 50 30	---	15 28 34	15.2	136.7	-2.8		-24.9	214	583	03 46 31
03 51 10	J1825-0737	15 29 14	18.6	133.0	-3.0		-26.3	13	583	03 51 10
03 53 40	=1822-076	15 31 45	18.9	133.6	-2.9		-26.0	150	603	03 51 11
03 53 40	HD168112	15 31 45	15.6	137.2	-2.8		-24.6	-26	603	No stop
03 57 40	---	15 35 45	16.0	138.2	-2.7		-24.2	214	633	03 53 41
03 57 40	J1825-0737	15 35 45	19.4	134.6	-2.8		-25.6	-27	633	No stop
04 00 10	=1822-076	15 38 16	19.6	135.2	-2.8		-25.3	123	653	03 57 41
04 00 10	HD167971	15 38 16	16.2	138.9	-2.7		-23.8	-27	653	No stop
04 04 10	---	15 42 16	16.6	139.9	-2.6		-23.3	213	683	04 00 11
04 04 50	J1825-0737	15 42 57	20.1	136.3	-2.7		-24.8	13	683	04 04 50
04 07 20	=1822-076	15 45 27	20.4	136.9	-2.7		-24.5	150	703	04 04 51
04 07 20	HD168112	15 45 27	17.0	140.4	-2.6		-23.0	-27	703	No stop
04 11 20	---	15 49 28	17.3	141.4	-2.5		-22.5	213	733	04 07 21

Schedule for TORUN (Code Tr) Page 4

EVN: EM131A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 26 Feb 2018 Day 57 ---										
04 11 20	J1825-0737	15 49 28	20.8	137.8	-2.6		-24.0	-27	733	No stop
04 13 50	=1822-076	15 51 58	21.0	138.4	-2.6		-23.7	123	753	04 11 21
04 13 50	HD167971	15 51 58	17.5	142.2	-2.5		-22.1	-27	753	No stop
04 17 50	---	15 55 59	17.9	143.1	-2.4		-21.6	213	783	04 13 51
04 18 30	J1825-0737	15 56 39	21.5	139.6	-2.5		-23.1	13	783	04 18 30
04 21 00	=1822-076	15 59 09	21.7	140.2	-2.5		-22.8	150	803	04 18 31
04 21 00	HD168112	15 59 09	18.2	143.7	-2.3		-21.3	-27	803	No stop
04 25 00	---	16 03 10	18.6	144.6	-2.3		-20.8	213	833	04 21 01
04 25 00	J1825-0737	16 03 10	22.1	141.2	-2.4		-22.3	-27	833	No stop
04 27 30	=1822-076	16 05 40	22.3	141.8	-2.3		-22.0	123	853	04 25 01
04 27 30	HD167971	16 05 40	18.7	145.4	-2.2		-20.4	-27	853	No stop
04 31 30	---	16 09 41	19.0	146.4	-2.2		-19.9	213	883	04 27 31
04 32 10	J1825-0737	16 10 21	22.8	143.0	-2.3		-21.4	12	883	04 32 10
04 34 40	=1822-076	16 12 51	23.0	143.6	-2.2		-21.1	150	903	04 32 11
04 34 40	HD168112	16 12 51	19.4	147.0	-2.1		-19.5	-27	903	No stop
04 38 40	---	16 16 52	19.7	148.0	-2.0		-19.0	213	933	04 34 41
04 38 40	J1825-0737	16 16 52	23.4	144.6	-2.2		-20.5	-28	933	No stop
04 41 10	=1822-076	16 19 22	23.6	145.3	-2.1		-20.2	122	953	04 38 41
04 41 10	HD167971	16 19 22	19.8	148.8	-2.0		-18.6	-28	953	No stop
04 45 10	---	16 23 23	20.1	149.8	-1.9		-18.0	212	983	04 41 11
04 45 50	J1825-0737	16 24 03	24.0	146.4	-2.0		-19.6	12	983	04 45 50
04 48 20	=1822-076	16 26 34	24.2	147.1	-2.0		-19.2	150	1003	04 45 51
04 48 20	HD168112	16 26 34	20.5	150.4	-1.9		-17.7	-28	1003	No stop
04 52 20	---	16 30 34	20.7	151.4	-1.8		-17.1	212	1033	04 48 21
04 52 20	J1825-0737	16 30 34	24.5	148.1	-1.9		-18.7	-28	1033	No stop
04 54 50	=1822-076	16 33 05	24.7	148.8	-1.9		-18.3	122	1053	04 52 21
04 54 50	HD167971	16 33 05	20.8	152.2	-1.8		-16.7	-28	1053	No stop
04 58 50	---	16 37 05	21.1	153.2	-1.7		-16.1	212	1083	04 54 51
04 59 30	J1825-0737	16 37 45	25.0	150.0	-1.8		-17.6	11	1083	04 59 30
05 02 00	=1822-076	16 40 16	25.2	150.6	-1.8		-17.3	150	1103	04 59 31

Schedule for TORUN (Code Tr) Page 5

EVN: EM131A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 26 Feb 2018 Day 57 ---										
05 02 00	HD168112	16 40 16	21.4	153.8	-1.7		-15.7	-28	1103	No stop
05 06 00	---	16 44 17	21.7	154.8	-1.6		-15.1	212	1133	05 02 01
05 06 00	J1825-0737	16 44 17	25.5	151.7	-1.7		-16.7	-28	1133	No stop
05 08 30	=1822-076	16 46 47	25.7	152.4	-1.7		-16.3	122	1153	05 06 01
05 08 30	HD167971	16 46 47	21.7	155.6	-1.5		-14.7	-29	1153	No stop
05 12 30	---	16 50 48	22.0	156.7	-1.5		-14.1	211	1183	05 08 31
05 13 10	J1825-0737	16 51 28	26.0	153.6	-1.6		-15.6	11	1183	05 13 10
05 15 40	=1822-076	16 53 58	26.2	154.3	-1.5		-15.3	150	1203	05 13 11
05 15 40	HD168112	16 53 58	22.3	157.3	-1.4		-13.7	-28	1203	No stop
05 19 40	---	16 57 59	22.5	158.3	-1.4		-13.1	212	1233	05 15 41
05 19 40	J1825-0737	16 57 59	26.4	155.3	-1.5		-14.6	-29	1233	No stop
05 22 10	=1822-076	17 00 29	26.6	156.0	-1.4		-14.3	121	1253	05 19 41
05 22 10	HD167971	17 00 29	22.5	159.2	-1.3		-12.6	-29	1253	No stop
05 26 10	---	17 04 30	22.7	160.2	-1.2		-12.0	211	1283	05 22 11
05 26 50	J1825-0737	17 05 10	26.9	157.3	-1.4		-13.5	11	1283	05 26 50
05 29 20	=1822-076	17 07 40	27.0	157.9	-1.3		-13.2	150	1303	05 26 51
05 29 20	HD168112	17 07 40	23.0	160.8	-1.2		-11.6	-29	1303	No stop
05 33 20	---	17 11 41	23.2	161.9	-1.1		-11.0	211	1333	05 29 21
05 33 20	J1825-0737	17 11 41	27.2	159.0	-1.2		-12.5	-29	1333	No stop
05 35 50	=1822-076	17 14 11	27.4	159.7	-1.2		-12.1	121	1353	05 33 21
05 35 50	HD167971	17 14 11	23.2	162.7	-1.1		-10.5	-29	1353	No stop
05 39 50	---	17 18 12	23.4	163.8	-1.0		-9.9	211	1383	05 35 51
05 40 30	J1825-0737	17 18 52	27.6	161.0	-1.1		-11.4	10	1383	05 40 30
05 43 00	=1822-076	17 21 23	27.7	161.7	-1.1		-11.0	150	1403	05 40 31
05 43 00	HD168112	17 21 23	23.6	164.4	-1.0		-9.5	-29	1403	No stop
05 47 00	---	17 25 23	23.8	165.5	-0.9		-8.9	211	1433	05 43 01
05 47 00	J1825-0737	17 25 23	27.9	162.8	-1.0		-10.3	-29	1433	No stop
05 49 30	=1822-076	17 27 54	28.0	163.5	-1.0		-9.9	121	1453	05 47 01
05 49 30	HD167971	17 27 54	23.8	166.3	-0.9		-8.4	-30	1453	No stop
05 53 30	---	17 31 54	23.9	167.4	-0.8		-7.7	210	1483	05 49 31

Schedule for TORUN (Code Tr) Page 6

EVN: EM131A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 26 Feb 2018 Day 57 ---										
05 54 10	J1825-0737	17 32 34	28.2	164.8	-0.9		-9.2	10	1483	05 54 10
05 56 40	=1822-076	17 35 05	28.3	165.5	-0.9		-8.7	150	1503	05 54 11
05 56 40	HD168112	17 35 05	24.1	168.0	-0.7		-7.3	-30	1503	No stop
06 00 40	---	17 39 06	24.2	169.1	-0.7		-6.7	210	1533	05 56 41
06 00 40	J1825-0737	17 39 06	28.5	166.6	-0.8		-8.1	-30	1533	No stop
06 03 10	=1822-076	17 41 36	28.5	167.3	-0.7		-7.7	120	1553	06 00 41
06 03 10	HD167971	17 41 36	24.2	170.0	-0.6		-6.2	-30	1553	No stop
06 07 10	---	17 45 37	24.3	171.0	-0.6		-5.5	210	1583	06 03 11
06 07 50	J1825-0737	17 46 17	28.7	168.6	-0.7		-6.9	10	1583	06 07 50
06 10 20	=1822-076	17 48 47	28.8	169.3	-0.6		-6.5	150	1603	06 07 51
06 10 20	HD168112	17 48 47	24.5	171.7	-0.5		-5.1	-30	1603	No stop
06 14 20	---	17 52 48	24.6	172.8	-0.4		-4.4	210	1633	06 10 21
06 14 20	J1825-0737	17 52 48	28.9	170.4	-0.6		-5.8	-30	1633	No stop
06 16 50	=1822-076	17 55 18	28.9	171.1	-0.5		-5.4	120	1653	06 14 21
06 16 50	HD167971	17 55 18	24.5	173.6	-0.4		-3.9	-31	1653	No stop
06 20 50	---	17 59 19	24.5	174.7	-0.3		-3.3	209	1683	06 16 51
06 21 30	J1825-0737	17 59 59	29.0	172.5	-0.4		-4.6	9	1683	06 21 30
06 24 00	=1822-076	18 02 29	29.1	173.2	-0.4		-4.1	150	1703	06 21 31
06 24 00	HD168112	18 02 29	24.7	175.4	-0.3		-2.8	-30	1703	No stop
06 28 00	---	18 06 30	24.7	176.5	-0.2		-2.2	210	1733	06 24 01
06 28 00	J1825-0737	18 06 30	29.1	174.3	-0.3		-3.5	-30	1733	No stop
06 30 30	=1822-076	18 09 00	29.2	175.0	-0.3		-3.0	120	1753	06 28 01
06 30 30	HD167971	18 09 00	24.6	177.3	-0.2		-1.7	-31	1753	No stop
06 34 30	---	18 13 01	24.7	178.4	-0.1		-1.0	209	1783	06 30 31
06 35 10	J1825-0737	18 13 41	29.2	176.3	-0.2		-2.2	9	1783	06 35 10
06 37 40	=1822-076	18 16 12	29.3	177.0	-0.2		-1.8	150	1803	06 35 11
06 37 40	HD168112	18 16 12	24.8	179.1	-0.1		-0.6	-31	1803	No stop
06 41 40	---	18 20 12	24.8	180.1	0.0		0.1	209	1833	06 37 41
06 41 40	J1825-0737	18 20 12	29.3	178.2	-0.1		-1.1	-31	1833	No stop
06 44 10	=1822-076	18 22 43	29.3	178.9	-0.1		-0.7	119	1853	06 41 41

Schedule for TORUN (Code Tr) Page 7

EVN: EM131A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 26 Feb 2018 Day 57 ---										
06 44 10	HD167971	18 22 43	24.7	181.0	0.1		0.6	-31	1853	No stop
06 48 10	---	18 26 43	24.7	182.1	0.1		1.3	209	1883	06 44 11
06 48 50	J1825-0737	18 27 23	29.3	180.2	0.0		0.1	9	1883	06 48 50
06 51 20	=1822-076	18 29 54	29.3	180.9	0.1		0.6	150	1903	06 48 51
06 51 20	J1743-0350	18 29 54	32.3	193.3	0.7		8.0	-40	1903	No stop
06 55 20	=1741-038	18 33 55	32.1	194.5	0.8		8.7	200	1933	06 51 21
06 56 20	J1825-0737	18 34 55	29.3	182.4	0.1		1.4	21	1933	06 56 20
06 58 20	=1822-076	18 36 55	29.3	182.9	0.2		1.8	120	1949	06 56 21
06 58 20	HD168112	18 36 55	24.7	184.6	0.3		2.8	-31	1949	No stop
07 02 20	---	18 40 56	24.6	185.7	0.4		3.5	209	1979	06 58 21
07 02 20	J1825-0737	18 40 56	29.2	184.1	0.2		2.5	-31	1979	No stop
07 04 50	=1822-076	18 43 26	29.2	184.8	0.3		2.9	119	1999	07 02 21
07 04 50	HD167971	18 43 26	24.5	186.5	0.4		4.0	-32	1999	No stop
07 08 50	---	18 47 27	24.4	187.6	0.5		4.7	208	2029	07 04 51
07 09 30	J1825-0737	18 48 07	29.1	186.1	0.4		3.7	8	2029	07 09 30
07 12 00	=1822-076	18 50 37	29.1	186.8	0.4		4.1	150	2049	07 09 31
07 12 00	HD168112	18 50 37	24.5	188.3	0.5		5.1	-31	2049	No stop
07 16 00	---	18 54 38	24.4	189.4	0.6		5.7	209	2079	07 12 01
07 16 00	J1825-0737	18 54 38	29.0	188.0	0.5		4.8	-31	2079	No stop
07 18 30	=1822-076	18 57 08	28.9	188.7	0.5		5.2	119	2099	07 16 01
07 18 30	HD167971	18 57 08	24.2	190.2	0.6		6.2	-32	2099	No stop
07 22 30	---	19 01 09	24.1	191.3	0.7		6.9	208	2129	07 18 31
07 23 10	J1825-0737	19 01 49	28.8	190.0	0.6		6.0	8	2129	07 23 10
07 25 40	=1822-076	19 04 20	28.8	190.7	0.6		6.4	150	2149	07 23 11
07 25 40	HD168112	19 04 20	24.1	192.0	0.7		7.3	-31	2149	No stop
07 29 40	---	19 08 20	24.0	193.0	0.8		8.0	209	2179	07 25 41
07 29 40	J1825-0737	19 08 20	28.6	191.8	0.7		7.1	-31	2179	No stop
07 32 10	=1822-076	19 10 51	28.6	192.5	0.7		7.5	119	2199	07 29 41
07 32 10	HD167971	19 10 51	23.7	193.8	0.9		8.4	-32	2199	No stop
07 36 10	---	19 14 51	23.6	194.9	0.9		9.1	208	2229	07 32 11

Schedule for TORUN (Code Tr) Page 8

EVN: EM131A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 26 Feb 2018 Day 57 ---										
07 36 50	J1825-0737	19 15 31	28.4	193.8	0.8		8.3	8	2229	07 36 50
07 39 20	=1822-076	19 18 02	28.3	194.5	0.9		8.7	150	2249	07 36 51
07 39 20	HD168112	19 18 02	23.6	195.6	1.0		9.5	-32	2249	No stop
07 43 20	---	19 22 02	23.5	196.6	1.0		10.1	208	2279	07 39 21
07 43 20	J1825-0737	19 22 02	28.2	195.6	0.9		9.4	-31	2279	No stop
07 45 50	=1822-076	19 24 33	28.1	196.3	1.0		9.8	119	2299	07 43 21
07 45 50	HD167971	19 24 33	23.2	197.4	1.1		10.6	-32	2299	No stop
07 49 50	---	19 28 33	23.0	198.5	1.2		11.2	208	2329	07 45 51
07 50 30	J1825-0737	19 29 14	27.8	197.6	1.0		10.6	8	2329	07 50 30
07 53 00	=1822-076	19 31 44	27.7	198.3	1.1		11.0	150	2349	07 50 31
07 53 00	HD168112	19 31 44	23.0	199.2	1.2		11.6	-32	2349	No stop
07 57 00	---	19 35 45	22.8	200.2	1.3		12.3	208	2379	07 53 01
07 57 00	J1825-0737	19 35 45	27.5	199.4	1.2		11.6	-32	2379	No stop
07 59 30	=1822-076	19 38 15	27.4	200.1	1.2		12.0	118	2399	07 57 01
07 59 30	HD167971	19 38 15	22.5	201.0	1.3		12.7	-32	2399	No stop
08 03 30	---	19 42 16	22.3	202.0	1.4		13.3	208	2429	07 59 31
08 04 10	J1825-0737	19 42 56	27.2	201.4	1.3		12.7	8	2429	08 04 10
08 06 40	=1822-076	19 45 26	27.0	202.0	1.3		13.1	150	2449	08 04 11
08 06 40	HD168112	19 45 26	22.3	202.7	1.4		13.7	-32	2449	No stop
08 10 40	---	19 49 27	22.0	203.7	1.5		14.3	208	2479	08 06 41
08 10 40	J1825-0737	19 49 27	26.8	203.1	1.4		13.8	-32	2479	No stop
08 13 10	=1822-076	19 51 57	26.6	203.8	1.4		14.2	118	2499	08 10 41
08 13 10	HD167971	19 51 57	21.7	204.5	1.5		14.8	-33	2499	No stop
08 17 10	---	19 55 58	21.5	205.5	1.6		15.3	207	2529	08 13 11
08 17 50	J1825-0737	19 56 38	26.4	205.1	1.5		14.9	8	2529	08 17 50
08 20 20	=1822-076	19 59 08	26.2	205.7	1.5		15.2	150	2549	08 17 51
08 20 20	HD168112	19 59 08	21.4	206.2	1.7		15.7	-32	2549	No stop
08 24 20	---	20 03 09	21.1	207.2	1.7		16.3	208	2579	08 20 21
08 24 20	J1825-0737	20 03 09	25.9	206.8	1.6		15.8	-32	2579	No stop
08 26 50	=1822-076	20 05 40	25.8	207.5	1.7		16.2	118	2599	08 24 21

Schedule for TORUN (Code Tr) Page 9

EVN: EM131A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 26 Feb 2018 Day 57 ---										
08 26 50	HD167971	20 05 40	20.8	208.0	1.8		16.7	-33	2599	No stop
08 30 50	---	20 09 40	20.5	209.0	1.8		17.3	207	2629	08 26 51
08 31 30	J1825-0737	20 10 20	25.4	208.7	1.7		16.9	8	2629	08 31 30
08 34 00	=1822-076	20 12 51	25.2	209.3	1.8		17.3	150	2649	08 31 31
08 34 00	HD168112	20 12 51	20.5	209.6	1.9		17.7	-32	2649	No stop
08 38 00	---	20 16 51	20.1	210.6	2.0		18.2	208	2679	08 34 01
08 38 00	J1825-0737	20 16 51	24.9	210.4	1.8		17.8	-32	2679	No stop
08 40 30	=1822-076	20 19 22	24.7	211.0	1.9		18.2	118	2699	08 38 01
08 40 30	HD167971	20 19 22	19.8	211.4	2.0		18.6	-33	2699	No stop
08 44 30	---	20 23 22	19.5	212.3	2.1		19.2	207	2729	08 40 31
08 45 10	J1825-0737	20 24 03	24.4	212.2	2.0		18.9	8	2729	08 45 10
08 47 40	=1822-076	20 26 33	24.2	212.9	2.0		19.2	150	2749	08 45 11
08 47 40	HD168112	20 26 33	19.4	213.0	2.1		19.6	-32	2749	No stop
08 51 40	---	20 30 34	19.0	214.0	2.2		20.1	208	2779	08 47 41
08 51 40	J1825-0737	20 30 34	23.8	213.9	2.1		19.8	-32	2779	No stop
08 54 10	=1822-076	20 33 04	23.6	214.6	2.1		20.1	118	2799	08 51 41
08 54 10	HD167971	20 33 04	18.7	214.7	2.2		20.5	-33	2799	No stop
08 58 10	---	20 37 05	18.3	215.7	2.3		21.0	207	2829	08 54 11
08 58 50	J1825-0737	20 37 45	23.2	215.7	2.2		20.7	8	2829	08 58 50
09 01 20	=1822-076	20 40 15	23.0	216.4	2.2		21.1	150	2849	08 58 51
09 01 20	HD168112	20 40 15	18.2	216.3	2.3		21.3	-32	2849	No stop
09 05 20	---	20 44 16	17.9	217.3	2.4		21.8	208	2879	09 01 21
09 05 20	J1825-0737	20 44 16	22.6	217.4	2.3		21.6	-32	2879	No stop
09 07 50	=1822-076	20 46 46	22.4	218.0	2.3		21.9	118	2899	09 05 21
09 07 50	HD167971	20 46 46	17.4	218.0	2.5		22.2	-33	2899	No stop
09 11 50	---	20 50 47	17.1	218.9	2.5		22.7	207	2929	09 07 51
09 12 30	J1825-0737	20 51 27	22.0	219.2	2.4		22.5	8	2929	09 12 30
09 15 00	=1822-076	20 53 57	21.7	219.8	2.5		22.8	150	2949	09 12 31
09 15 00	HD168112	20 53 57	16.9	219.6	2.6		23.0	-32	2949	No stop
09 19 00	---	20 57 58	16.6	220.5	2.6		23.5	208	2979	09 15 01

```
Schedule for TORUN     (Code Tr )                                Page  10
               EVN: EM131A
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  26 Feb 2018   Day  57 ---

09 19 00  J1825-0737   20 57 58  21.3 220.8  2.5      23.3   -32     2979   No stop
09 21 30  =1822-076    21 00 29  21.1 221.4  2.6      23.6   118     2999   09 19 01

09 21 30  HD167971     21 00 29  16.1 221.2  2.7      23.9   -33     2999   No stop
09 25 30  ---          21 04 29  15.7 222.1  2.8      24.3   207     3029   09 21 31

09 26 10  J1825-0737   21 05 09  20.6 222.5  2.6      24.2     8     3029   09 26 10
09 28 40  =1822-076    21 07 40  20.4 223.1  2.7      24.5   150     3049   09 26 11

09 28 40  HD168112     21 07 40  15.6 222.8  2.8      24.7   -32     3049   No stop
09 32 40  ---          21 11 40  15.2 223.7  2.9      25.1   208     3079   09 28 41

09 32 40  J1825-0737   21 11 40  20.0 224.1  2.8      24.9   -32     3079   No stop
09 35 10  =1822-076    21 14 11  19.7 224.7  2.8      25.2   118     3099   09 32 41

09 35 10  HD167971     21 14 11  14.7 224.4  2.9      25.4   -33     3099   No stop
09 39 10  ---          21 18 11  14.3 225.3  3.0      25.9   207     3129   09 35 11

09 39 50  J1825-0737   21 18 52  19.2 225.8  2.9      25.7     8     3129   09 39 50
09 42 20  =1822-076    21 21 22  18.9 226.4  2.9      26.0   150     3149   09 39 51

09 42 20  HD168112     21 21 22  14.2 225.9  3.0      26.2   -32     3149   No stop
09 46 20  ---          21 25 23  13.7 226.8  3.1      26.6   208     3179   09 42 21

09 46 20  J1825-0737   21 25 23  18.5 227.3  3.0      26.4   -32     3179   No stop
09 48 50  =1822-076    21 27 53  18.2 227.9  3.0      26.7   118     3199   09 46 21

09 48 50  HD167971     21 27 53  13.3 227.4  3.1      26.9   -33     3199   No stop
09 52 50  ---          21 31 54  12.8 228.3  3.2      27.3   207     3229   09 48 51

09 53 30  J1825-0737   21 32 34  17.7 229.0  3.1      27.2     8     3229   09 53 30
09 56 00  =1822-076    21 35 04  17.4 229.6  3.1      27.5   150     3249   09 53 31

09 56 00  J1743-0350   21 35 04  15.5 240.9  3.8      31.7   -38     3249   No stop
10 00 00  =1741-038    21 39 05  15.0 241.8  3.9      32.0   202     3279   09 56 01

SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.L1024

   Setup group:   13         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         L         L         L         L         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         U         U         L         L         U         U         L         L
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
  BBC fr=    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=   2,  6, 10, 14,  4,  8, 12, 16
   barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)            (J2000)            (Date)             (mas)

* HD168112          18 15 52.776571   * 18 18 40.867489     18 19 40.435860       0.00
                   -12 07 38.87358    *-12 06 23.36548     -12 05 51.18557        0.00

* HD167971          18 15 17.635658   * 18 18 05.894503     18 19 05.526026       0.00
                   -12 15 46.25237    *-12 14 33.29240     -12 14 01.97323        0.00

  1741-038          17 41 20.616010   * 17 43 58.856135     17 44 55.108219       0.00
* J1743-0350       -03 48 48.89987    *-03 50 04.61667     -03 50 29.25328        0.00
  J1743-03          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished 175316 observations.

  1822-076          18 22 54.910246   * 18 25 37.609539     18 26 35.220110       0.14
* J1825-0737       -07 39 15.96691    *-07 37 30.01300     -07 36 48.46800        0.22
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    113 observations.
```

em131btr

EVN: EM131B

PI: *Marcote*

```
Address:  JIVE

Observing mode: vlbi
Schedule for TORUN     (Code Tr )                                  Page   2
               EVN: EM131B
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                   LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Mon  26 Feb 2018   Day  57 ---
 Next scan frequencies:  1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 Next BBC frequencies:    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

11 00 00  3C84         22 39 15  42.9  74.3 -4.7     -50.6     0        0   11 00 00
11 03 00  ---          22 42 15  43.4  74.8 -4.6     -50.8   180       23   11 00 01

11 06 10  J0207+6246   22 45 26  62.2  49.3 -3.4     -86.7   106       23   11 06 10
11 08 10  =0203+625    22 47 26  62.5  49.4 -3.3     -87.1   120       38   11 06 11

11 08 10  HD15558      22 47 26  59.3  51.3 -3.8     -79.7   -25       38   No stop
11 12 10  ---          22 51 27  59.8  51.5 -3.7     -80.5   215       69   11 08 11

11 12 10  J0207+6246   22 51 27  62.9  49.4 -3.3     -88.0   -26       69   No stop
11 14 40  =0203+625    22 53 57  63.2  49.4 -3.2     -88.5   124       88   11 12 11

11 14 40  HD15558      22 53 57  60.1  51.6 -3.7     -80.9   -25       88   No stop
11 18 40  ---          22 57 58  60.6  51.8 -3.6     -81.7   215      119   11 14 41

11 19 25  J0207+6246   22 58 43  63.8  49.4 -3.2     -89.6    19      119   11 19 25
11 21 50  =0203+625    23 01 08  64.0  49.4 -3.1     -90.1   145      138   11 19 26

11 21 50  HD15558      23 01 08  61.0  51.9 -3.5     -82.3   -25      138   No stop
11 25 50  ---          23 05 09  61.4  52.0 -3.5     -83.1   215      169   11 21 51

11 25 50  J0207+6246   23 05 09  64.5  49.4 -3.1     -91.0   -26      169   No stop
11 28 20  =0203+625    23 07 39  64.8  49.4 -3.0     -91.6   124      188   11 25 51

11 28 20  HD15558      23 07 39  61.7  52.1 -3.4     -83.5   -25      188   No stop
11 32 20  ---          23 11 40  62.2  52.2 -3.4     -84.3   215      219   11 28 21

11 33 05  J0207+6246   23 12 25  65.3  49.4 -2.9     -92.7    20      219   11 33 05
11 35 30  =0203+625    23 14 51  65.6  49.3 -2.9     -93.3   145      237   11 33 06

11 35 30  HD15558      23 14 51  62.6  52.2 -3.3     -85.0   -25      237   No stop
11 39 30  ---          23 18 51  63.1  52.3 -3.3     -85.8   215      268   11 35 31

11 39 30  J0207+6246   23 18 51  66.1  49.3 -2.8     -94.2   -25      268   No stop
11 42 00  =0203+625    23 21 22  66.3  49.2 -2.8     -94.8   125      287   11 39 31

11 42 00  HD15558      23 21 22  63.4  52.4 -3.2     -86.3   -25      287   No stop
11 46 00  ---          23 25 22  63.8  52.4 -3.1     -87.1   215      318   11 42 01
```

Schedule for TORUN (Code Tr) Page 3

EVN: EM131B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 26 Feb 2018 Day 57 ---										
11 46 45	J0207+6246	23 26 07	66.9	49.1	-2.7		-96.0	20	318	11 46 45
11 49 10	=0203+625	23 28 33	67.2	49.0	-2.7		-96.6	145	337	11 46 46
11 49 10	HD15558	23 28 33	64.2	52.5	-3.1		-87.8	-25	337	No stop
11 53 10	---	23 32 33	64.7	52.5	-3.0		-88.6	215	367	11 49 11
11 53 10	J0207+6246	23 32 33	67.6	48.8	-2.6		-97.7	-25	367	No stop
11 55 40	=0203+625	23 35 04	67.9	48.7	-2.6		-98.3	125	387	11 53 11
11 55 40	HD15558	23 35 04	65.0	52.5	-3.0		-89.2	-25	387	No stop
11 59 40	---	23 39 05	65.5	52.5	-2.9		-90.0	215	417	11 55 41
12 00 25	J0207+6246	23 39 50	68.4	48.5	-2.5		-99.6	20	417	12 00 25
12 02 50	=0203+625	23 42 15	68.7	48.4	-2.4		-100.2	145	436	12 00 26
12 02 50	HD15558	23 42 15	65.8	52.5	-2.9		-90.7	-24	436	No stop
12 06 50	---	23 46 16	66.3	52.5	-2.8		-91.6	216	467	12 02 51
12 06 50	J0207+6246	23 46 16	69.2	48.1	-2.4		-101.4	-25	467	No stop
12 09 20	=0203+625	23 48 46	69.4	48.0	-2.3		-102.1	125	486	12 06 51
12 09 20	HD15558	23 48 46	66.6	52.5	-2.8		-92.2	-24	486	No stop
12 13 20	---	23 52 47	67.1	52.4	-2.7		-93.1	216	517	12 09 21
12 14 05	J0207+6246	23 53 32	70.0	47.6	-2.2		-103.5	21	517	12 14 05
12 16 30	=0203+625	23 55 57	70.2	47.4	-2.2		-104.2	145	535	12 14 06
12 16 30	HD15558	23 55 57	67.5	52.4	-2.6		-93.9	-25	535	No stop
12 20 30	---	23 59 58	68.0	52.3	-2.6		-94.9	215	566	12 16 31
12 20 30	J0207+6246	23 59 58	70.7	47.1	-2.1		-105.4	-25	566	No stop
12 23 00	=0203+625	00 02 28	70.9	46.9	-2.1		-106.2	125	585	12 20 31
12 23 00	HD15558	00 02 28	68.2	52.2	-2.5		-95.5	-26	585	No stop
12 27 00	---	00 06 29	68.7	52.1	-2.5		-96.5	214	616	12 23 01
12 27 45	J0207+6246	00 07 14	71.5	46.4	-2.0		-107.7	19	616	12 27 45
12 30 10	=0203+625	00 09 40	71.7	46.1	-2.0		-108.5	145	635	12 27 46
12 30 10	HD15558	00 09 40	69.1	51.9	-2.4		-97.3	-27	635	No stop
12 34 10	---	00 13 40	69.6	51.7	-2.3		-98.4	213	665	12 30 11
12 34 10	J0207+6246	00 13 40	72.2	45.6	-1.9		-109.8	-27	665	No stop
12 36 40	=0203+625	00 16 11	72.4	45.3	-1.9		-110.7	123	685	12 34 11
12 36 40	HD15558	00 16 11	69.9	51.6	-2.3		-99.0	-28	685	No stop
12 40 40	---	00 20 11	70.3	51.4	-2.2		-100.1	212	715	12 36 41

Schedule for TORUN (Code Tr) Page 4

EVN: EM131B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 26 Feb 2018 Day 57 ---										
12 41 25	J0207+6246	00 20 56	72.9	44.6	-1.8		-112.4	17	715	12 41 25
12 43 50	=0203+625	00 23 22	73.2	44.2	-1.8		-113.3	145	734	12 41 26
12 43 50	HD15558	00 23 22	70.7	51.2	-2.2		-101.0	-29	734	No stop
12 47 50	---	00 27 22	71.2	50.9	-2.1		-102.2	211	765	12 43 51
12 47 50	J0207+6246	00 27 22	73.6	43.6	-1.7		-114.8	-30	765	No stop
12 50 20	=0203+625	00 29 53	73.9	43.2	-1.6		-115.8	120	784	12 47 51
12 50 20	HD15558	00 29 53	71.5	50.7	-2.1		-102.9	-30	784	No stop
12 54 20	---	00 33 53	71.9	50.3	-2.0		-104.2	210	815	12 50 21
12 55 05	J0207+6246	00 34 39	74.4	42.3	-1.6		-117.7	14	815	12 55 05
12 57 30	=0203+625	00 37 04	74.6	41.8	-1.5		-118.7	145	833	12 55 06
12 57 30	HD15558	00 37 04	72.3	50.0	-2.0		-105.2	-31	833	No stop
13 01 30	---	00 41 05	72.8	49.6	-1.9		-106.5	209	864	12 57 31
13 01 30	J0207+6246	00 41 05	75.0	40.9	-1.5		-120.5	-33	864	No stop
13 04 00	=0203+625	00 43 35	75.2	40.3	-1.4		-121.6	117	883	13 01 31
13 04 00	HD15558	00 43 35	73.0	49.3	-1.8		-107.3	-33	883	No stop
13 08 00	---	00 47 36	73.5	48.8	-1.8		-108.7	207	914	13 04 01
13 08 45	J0207+6246	00 48 21	75.7	39.2	-1.3		-123.8	11	914	13 08 45
13 11 10	=0203+625	00 50 46	75.9	38.5	-1.3		-124.9	145	933	13 08 46
13 11 10	HD15558	00 50 46	73.9	48.3	-1.7		-109.8	-34	933	No stop
13 15 10	---	00 54 47	74.3	47.7	-1.7		-111.2	206	963	13 11 11
13 15 10	J0207+6246	00 54 47	76.3	37.4	-1.2		-126.9	-36	963	No stop
13 17 40	=0203+625	00 57 17	76.5	36.7	-1.2		-128.2	114	983	13 15 11
13 17 40	HD15558	00 57 17	74.6	47.3	-1.6		-112.2	-36	983	No stop
13 21 40	---	01 01 18	75.0	46.6	-1.5		-113.8	204	1013	13 17 41
13 22 25	J0207+6246	01 02 03	76.9	35.2	-1.1		-130.7	7	1013	13 22 25
13 24 50	=0203+625	01 04 29	77.1	34.4	-1.1		-132.0	145	1032	13 22 26
13 24 50	HD15558	01 04 29	75.4	46.0	-1.5		-115.1	-38	1032	No stop
13 28 50	---	01 08 29	75.8	45.1	-1.4		-116.7	202	1063	13 24 51
13 28 50	J0207+6246	01 08 29	77.5	32.9	-1.0		-134.3	-40	1063	No stop
13 31 20	=0203+625	01 11 00	77.7	32.0	-1.0		-135.8	110	1082	13 28 51

Schedule for TORUN (Code Tr) Page 5

EVN: EM131B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 26 Feb 2018 Day 57 ---										
13 31 20	HD15558	01 11 00	76.1	44.6	-1.4		-117.8	-40	1082	No stop
13 35 20	---	01 15 00	76.5	43.6	-1.3		-119.7	200	1113	13 31 21
13 36 05	J0207+6246	01 15 45	78.1	30.1	-0.9		-138.7	3	1113	13 36 05
13 38 30	=0203+625	01 18 11	78.2	29.1	-0.8		-140.2	145	1131	13 36 06
13 38 30	HD15558	01 18 11	76.8	42.8	-1.3		-121.2	-42	1131	No stop
13 42 30	---	01 22 11	77.2	41.6	-1.2		-123.2	198	1162	13 38 31
13 42 30	J0207+6246	01 22 11	78.5	27.3	-0.8		-142.9	-44	1162	No stop
13 45 00	=0203+625	01 24 42	78.7	26.1	-0.7		-144.6	106	1181	13 42 31
13 45 00	HD15558	01 24 42	77.5	40.9	-1.2		-124.4	-44	1181	No stop
13 49 00	---	01 28 42	77.9	39.6	-1.1		-126.6	196	1212	13 45 01
13 49 45	J0207+6246	01 29 28	79.0	23.8	-0.6		-147.9	-2	1212	13 49 45
13 52 10	=0203+625	01 31 53	79.1	22.5	-0.6		-149.7	143	1231	13 49 46
13 55 50	3C84	01 35 34	68.9	112.5	-1.8		-47.9	25	1231	13 55 50
13 58 30	---	01 38 14	69.3	113.4	-1.7		-47.4	160	1251	13 55 51
14 02 30	J0207+6246	01 42 15	79.7	16.8	-0.4		-157.6	32	1251	14 02 30
14 04 30	=0203+625	01 44 15	79.7	15.6	-0.4		-159.3	120	1267	14 02 31
14 04 30	HD15558	01 44 15	79.2	33.4	-0.8		-136.1	-50	1267	No stop
14 08 30	---	01 48 16	79.6	31.5	-0.8		-138.8	190	1297	14 04 31
14 08 30	J0207+6246	01 48 16	79.9	13.2	-0.3		-162.6	-53	1297	No stop
14 11 00	=0203+625	01 50 46	80.0	11.6	-0.3		-164.7	97	1317	14 08 31
14 11 00	HD15558	01 50 46	79.8	30.2	-0.7		-140.6	-51	1317	No stop
14 15 00	---	01 54 47	80.1	28.1	-0.7		-143.6	189	1347	14 11 01
14 16 00	J0207+6246	01 55 47	80.1	8.4	-0.2		-168.9	6	1347	14 16 00
14 18 00	=0203+625	01 57 47	80.1	7.1	-0.2		-170.7	120	1363	14 16 01
14 18 00	HD15558	01 57 47	80.3	26.4	-0.6		-146.0	-53	1363	No stop
14 22 00	---	02 01 48	80.5	24.0	-0.5		-149.2	187	1394	14 18 01
14 22 00	J0207+6246	02 01 48	80.2	4.4	-0.1		-174.2	-55	1394	No stop
14 24 30	=0203+625	02 04 18	80.2	2.7	-0.1		-176.4	95	1413	14 22 01
14 24 30	HD15558	02 04 18	80.7	22.4	-0.5		-151.3	-53	1413	No stop
14 28 30	---	02 08 19	80.9	19.7	-0.4		-154.9	187	1444	14 24 31

Schedule for TORUN (Code Tr) Page 6

EVN: EM131B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 26 Feb 2018 Day 57 ---										
14 29 30	J0207+6246	02 09 19	80.2	-0.6	0.0		179.2	5	1444	14 29 30
14 31 30	=0203+625	02 11 19	80.2	-2.0	0.0		177.4	120	1459	14 29 31
14 31 30	HD15558	02 11 19	81.0	17.6	-0.4		-157.6	-53	1459	No stop
14 35 30	---	02 15 20	81.2	14.7	-0.3		-161.3	187	1490	14 31 31
14 35 30	J0207+6246	02 15 20	80.2	-4.7	0.1		173.8	-55	1490	No stop
14 38 00	=0203+625	02 17 51	80.2	-6.3	0.2		171.6	95	1509	14 35 31
14 38 00	HD15558	02 17 51	81.3	12.9	-0.3		-163.7	-52	1509	No stop
14 42 00	---	02 21 51	81.4	9.8	-0.2		-167.6	188	1540	14 38 01
14 43 00	J0207+6246	02 22 51	80.1	-9.6	0.2		167.3	6	1540	14 43 00
14 45 00	=0203+625	02 24 52	80.0	-10.9	0.3		165.6	120	1555	14 43 01
14 45 00	HD15558	02 24 52	81.5	7.4	-0.2		-170.6	-50	1555	No stop
14 49 00	---	02 28 52	81.5	4.2	-0.1		-174.7	190	1586	14 45 01
14 49 00	J0207+6246	02 28 52	79.9	-13.4	0.3		162.2	-51	1586	No stop
14 51 30	=0203+625	02 31 23	79.8	-14.9	0.4		160.2	99	1605	14 49 01
14 51 30	HD15558	02 31 23	81.6	2.2	-0.0		-177.2	-48	1605	No stop
14 55 30	---	02 35 23	81.6	-1.1	0.0		178.7	192	1636	14 51 31
14 56 30	J0207+6246	02 36 24	79.6	-17.9	0.5		156.1	12	1636	14 56 30
14 58 30	=0203+625	02 38 24	79.5	-19.0	0.5		154.6	120	1651	14 56 31
14 58 30	HD15558	02 38 24	81.5	-3.5	0.1		175.6	-45	1651	No stop
15 02 30	---	02 42 25	81.5	-6.7	0.1		171.5	195	1682	14 58 31
15 02 30	J0207+6246	02 42 25	79.3	-21.3	0.6		151.5	-45	1682	No stop
15 05 00	=0203+625	02 44 55	79.1	-22.6	0.6		149.6	105	1701	15 02 31
15 05 00	HD15558	02 44 55	81.4	-8.7	0.2		169.0	-42	1701	No stop
15 09 00	---	02 48 56	81.3	-11.8	0.2		165.1	198	1732	15 05 01
15 10 00	J0207+6246	02 49 56	78.8	-25.1	0.7		146.0	19	1732	15 10 00
15 12 00	=0203+625	02 51 56	78.7	-26.1	0.7		144.6	120	1747	15 10 01
15 12 00	HD15558	02 51 56	81.2	-14.1	0.3		162.2	-38	1747	No stop
15 16 00	---	02 55 57	81.1	-17.0	0.4		158.4	202	1778	15 12 01
15 16 00	J0207+6246	02 55 57	78.4	-27.9	0.8		141.9	-37	1778	No stop
15 18 30	=0203+625	02 58 27	78.2	-29.0	0.8		140.3	113	1797	15 16 01

Schedule for TORUN (Code Tr) Page 7

EVN: EM131B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 26 Feb 2018 Day 57 ---										
15 18 30	HD15558	02 58 27	80.9	-18.8	0.4		156.1	-35	1797	No stop
15 22 30	---	03 02 28	80.7	-21.5	0.5		152.5	205	1828	15 18 31
15 23 30	J0207+6246	03 03 28	77.9	-31.1	0.9		137.2	26	1828	15 23 30
15 25 30	=0203+625	03 05 28	77.7	-31.9	1.0		135.9	120	1844	15 23 31
15 25 30	HD15558	03 05 28	80.6	-23.4	0.5		150.0	-31	1844	No stop
15 29 30	---	03 09 29	80.3	-25.9	0.6		146.7	209	1874	15 25 31
15 29 30	J0207+6246	03 09 29	77.4	-33.4	1.0		133.6	-30	1874	No stop
15 32 00	=0203+625	03 11 59	77.2	-34.3	1.1		132.2	120	1894	15 29 31
15 32 00	HD15558	03 11 59	80.2	-27.3	0.6		144.7	-28	1894	No stop
15 36 00	---	03 16 00	79.9	-29.5	0.7		141.6	212	1924	15 32 01
15 37 00	J0207+6246	03 17 00	76.7	-35.9	1.1		129.4	33	1924	15 37 00
15 39 00	=0203+625	03 19 01	76.6	-36.5	1.2		128.4	120	1940	15 37 01
15 39 00	HD15558	03 19 01	79.6	-31.1	0.7		139.4	-26	1940	No stop
15 43 00	---	03 23 01	79.3	-33.0	0.8		136.6	214	1971	15 39 01
15 43 00	J0207+6246	03 23 01	76.2	-37.7	1.2		126.4	-26	1971	No stop
15 45 30	=0203+625	03 25 32	76.0	-38.4	1.3		125.1	124	1990	15 43 01
15 45 30	HD15558	03 25 32	79.1	-34.2	0.9		135.0	-26	1990	No stop
15 49 30	---	03 29 32	78.8	-35.9	0.9		132.4	214	2021	15 45 31
15 50 30	J0207+6246	03 30 32	75.5	-39.7	1.4		122.8	34	2021	15 50 30
15 52 30	=0203+625	03 32 33	75.3	-40.2	1.4		121.8	120	2036	15 50 31
15 52 30	HD15558	03 32 33	78.5	-37.1	1.0		130.6	-26	2036	No stop
15 56 30	---	03 36 33	78.1	-38.6	1.0		128.2	214	2067	15 52 31
15 56 30	J0207+6246	03 36 33	74.9	-41.1	1.5		120.1	-26	2067	No stop
15 59 00	=0203+625	03 39 04	74.7	-41.6	1.5		119.0	124	2086	15 56 31
15 59 00	HD15558	03 39 04	77.9	-39.5	1.1		126.8	-26	2086	No stop
16 03 00	---	03 43 04	77.5	-40.8	1.2		124.6	214	2117	15 59 01
16 04 00	J0207+6246	03 44 05	74.1	-42.6	1.6		116.9	34	2117	16 04 00
16 06 00	=0203+625	03 46 05	73.9	-43.0	1.6		116.1	120	2132	16 04 01
16 06 00	HD15558	03 46 05	77.2	-41.7	1.2		123.1	-26	2132	No stop
16 10 00	---	03 50 06	76.8	-42.8	1.3		121.1	214	2163	16 06 01

Schedule for TORUN (Code Tr) Page 8

EVN: EM131B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	 AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 26 Feb 2018 Day 57 ---										
16 10 00	J0207+6246	03 50 06	73.5	-43.7	1.7		114.5	-26	2163	No stop
16 12 30	=0203+625	03 52 36	73.3	-44.1	1.7		113.6	124	2182	16 10 01
16 12 30	HD15558	03 52 36	76.5	-43.5	1.3		119.9	-26	2182	No stop
16 16 30	---	03 56 37	76.1	-44.4	1.4		118.1	214	2213	16 12 31
16 17 30	J0207+6246	03 57 37	72.7	-44.9	1.8		111.8	34	2213	16 17 30
16 19 30	=0203+625	03 59 37	72.5	-45.2	1.9		111.0	120	2228	16 17 31
16 19 30	HD15558	03 59 37	75.8	-45.1	1.4		116.8	-26	2228	No stop
16 23 30	---	04 03 38	75.4	-46.0	1.5		115.1	214	2259	16 19 31
16 23 30	J0207+6246	04 03 38	72.1	-45.7	1.9		109.7	-26	2259	No stop
16 26 00	=0203+625	04 06 08	71.8	-46.0	2.0		108.8	124	2278	16 23 31
16 26 00	HD15558	04 06 08	75.1	-46.5	1.5		114.0	-26	2278	No stop
16 30 00	---	04 10 09	74.7	-47.2	1.6		112.5	214	2309	16 26 01
16 31 00	J0207+6246	04 11 09	71.3	-46.5	2.0		107.2	34	2309	16 31 00
16 33 00	=0203+625	04 13 09	71.1	-46.8	2.1		106.5	120	2324	16 31 01
16 33 00	HD15558	04 13 09	74.3	-47.7	1.7		111.3	-26	2324	No stop
16 37 00	---	04 17 10	73.9	-48.3	1.7		109.9	214	2355	16 33 01
16 37 00	J0207+6246	04 17 10	70.6	-47.1	2.1		105.3	-26	2355	No stop
16 39 30	=0203+625	04 19 40	70.4	-47.4	2.2		104.5	124	2374	16 37 01
16 39 30	HD15558	04 19 40	73.6	-48.6	1.8		109.0	-26	2374	No stop
16 43 30	---	04 23 41	73.1	-49.2	1.8		107.6	214	2405	16 39 31
16 44 30	J0207+6246	04 24 41	69.8	-47.8	2.3		103.0	34	2405	16 44 30
16 46 30	=0203+625	04 26 42	69.6	-47.9	2.3		102.4	120	2421	16 44 31
16 46 30	HD15558	04 26 42	72.8	-49.5	1.9		106.6	-26	2421	No stop
16 50 30	---	04 30 42	72.3	-50.0	1.9		105.3	214	2451	16 46 31
16 50 30	J0207+6246	04 30 42	69.1	-48.2	2.4		101.3	-26	2451	No stop
16 53 00	=0203+625	04 33 13	68.8	-48.3	2.4		100.6	124	2471	16 50 31
16 53 00	HD15558	04 33 13	72.1	-50.2	2.0		104.5	-26	2471	No stop
16 57 00	---	04 37 13	71.6	-50.6	2.1		103.3	214	2501	16 53 01
16 58 00	J0207+6246	04 38 14	68.3	-48.6	2.5		99.2	34	2501	16 58 00
17 00 00	=0203+625	04 40 14	68.1	-48.7	2.5		98.7	120	2517	16 58 01

SETUP FILE INFORMATION:

```
  NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


======== Setup file: sess118.L1024

  Setup group:   12         Station: TORUN            Total bit rate:  1024
  Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
  Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

  Disk used to record data.
```

```
 1st LO=   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00   2300.00
 Net SB=         L         L         U         U         L         L         U         U
 IF SB =         L         L         L         L         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         3         7         3         7
 BBC SB=         U         U         L         L         U         U         L         L
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

 Frequency Set:   8  Setup file default.  Used with PCAL = off
 LO sum=   1626.49  1626.49  1626.49  1626.49  1690.49  1690.49  1690.49  1690.49
 BBC fr=    673.51   673.51   673.51   673.51   609.51   609.51   609.51   609.51
 Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
  Matching frequency sets:   8

 Track assignments are:
  track1=   2,  6, 10, 14,  4,  8, 12, 16
  barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

 Source                          Source position (RA/Dec)                        Error
                      (B1950)            (J2000)            (Date)            (mas)

* HD15558           02 28 54.024035   * 02 32 42.536461     02 34 04.396720       0.00
                    61 14 08.93017    * 61 27 21.57661      61 32 11.07978        0.00

 0203+625           02 03 22.157594   * 02 07 03.016747     02 08 21.930109       0.12
* J0207+6246        62 31 56.07847    * 62 46 12.06753      62 51 24.66606        0.05
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    372 observations.

* 3C84              03 16 29.567263   * 03 19 48.160094     03 20 59.350246       1.30
 J0319+4130         41 19 51.91701    * 41 30 42.10413      41 34 34.58747        2.69
 0316+413           /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
 J0319+41           GSFC 2015a astro solution, unpublished  10208 observations.
```

rk18nrtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: L/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  26 Feb 2018   Day  57 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

17 15 00  0716+714     04 55 16  65.6  28.0 -2.5    -118.5     0        0   17 15 00
17 29 30  ---          05 09 49  66.6  26.5 -2.2    -123.3   870       28   17 15 01

17 30 00  0716+714     05 10 19  66.6  26.4 -2.2    -123.5    24       28   17 30 00
17 44 30  ---          05 24 51  67.6  24.7 -2.0    -128.5   870       56   17 30 01

17 45 00  0716+714     05 25 21  67.6  24.6 -2.0    -128.7    24       56   17 45 00
18 00 00  ---          05 40 24  68.5  22.5 -1.7    -134.3   900       84   17 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.175327       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 52.02057        0.00
                    fake circumpolar target for a TS to look at

* 0716+714          07 16 13.029739   * 07 21 53.448474     07 23 57.288621       0.00
  J0721+7120        71 26 15.17406    * 71 20 36.36340      71 18 33.91027        0.00
                    ./rk18nr_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0716+714           110.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18nstr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: L/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  27 Feb 2018   Day  58 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1641+399     11 41 23  38.8  72.8 -5.0     -48.3     0        0   00 00 00
00 19 30  ---          12 00 56  41.6  76.0 -4.7     -49.3  1170       37   00 00 01

00 20 00  1641+399     12 01 26  41.7  76.1 -4.7     -49.3    24       37   00 20 00
00 39 30  ---          12 20 59  44.6  79.4 -4.4     -50.2  1170       75   00 20 01

00 40 00  1641+399     12 21 29  44.7  79.5 -4.4     -50.2    24       75   00 40 00
01 00 00  ---          12 41 33  47.6  83.0 -4.0     -50.9  1200      113   00 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    5         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.218441       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 52.09672        0.00
                    fake circumpolar target for a TS to look at

* 1641+399          16 41 17.606226   * 16 42 58.809963     16 43 34.833794       0.00
  J1642+3948        39 54 10.81479    * 39 48 36.99385      39 46 26.53974        0.00
  3C345             ./rk18ns_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 51938 observations, RA-AO4-07, RA-AO3-0
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1641+399            94.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

n18m1tr

Network Monitoring Experiment

PI: *Katharina Immer*

```
Address:  JIVE

Schedule for TORUN     (Code Tr )                                    Page   2
               Network Monitoring Experiment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------
 --- Tue  27 Feb 2018   Day  58 ---
 Next scan frequencies:  6661.49  6661.49  6661.49  6661.49  6665.49  6665.49  6665.49  6665.49
                         6669.49  6669.49  6669.49  6669.49  6673.49  6673.49  6673.49  6673.49
 Next BBC frequencies:    761.49   761.49   761.49   761.49   765.49   765.49   765.49   765.49
                          769.49   769.49   769.49   769.49   773.49   773.49   773.49   773.49
 Next scan bandwidths:      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                            2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00

13 00 00  J0319+4130   00 43 31  61.4  97.7 -2.6     -52.7     0        0   13 00 00
13 10 00  =3C84        00 53 33  62.9 100.1 -2.5     -52.2   600       10   13 00 01

13 12 00  J0319+4130   00 55 33  63.2 100.6 -2.4     -52.1   114       10   13 12 00
13 17 00  =3C84        01 00 34  63.9 101.9 -2.3     -51.8   300       14   13 12 01

13 20 00  J0319+4130   01 03 34  64.4 102.7 -2.3     -51.5   173       14   13 20 00
13 32 00  =3C84        01 15 36  66.1 106.1 -2.1     -50.5   720       26   13 20 01

13 35 00  J0319+4130   01 18 37  66.5 107.0 -2.0     -50.1   173       26   13 35 00
13 47 00  =3C84        01 30 39  68.2 110.8 -1.8     -48.6   720       37   13 35 01

13 50 00  J0237+2848   01 33 39  63.0 147.2 -1.1     -21.8    94       37   13 50 00
14 02 00  =0234+285    01 45 41  63.9 152.7 -0.9     -18.3   720       49   13 50 01

14 05 00  J0237+2848   01 48 42  64.1 154.2 -0.8     -17.4   172       49   14 05 00
14 17 00  =0234+285    02 00 44  64.8 160.1 -0.6     -13.5   720       61   14 05 01

14 20 00  J0237+2848   02 03 44  64.9 161.6 -0.6     -12.5   172       61   14 20 00
14 32 00  =0234+285    02 15 46  65.4 167.7 -0.4      -8.4   720       72   14 20 01

14 35 00  J0319+4130   02 18 47  74.5 131.6 -1.0     -36.9    91       72   14 35 00
14 47 00  =3C84        02 30 49  75.7 138.8 -0.8     -31.9   720       84   14 35 01

14 50 00  J0319+4130   02 33 49  76.0 140.7 -0.8     -30.5   172       84   14 50 00
15 02 00  =3C84        02 45 51  77.1 149.3 -0.6     -24.2   720       95   14 50 01

15 05 00  J0319+4130   02 48 52  77.3 151.7 -0.5     -22.4   171       95   15 05 00
15 17 00  =3C84        03 00 53  78.0 161.6 -0.3     -14.6   720      107   15 05 01

15 20 00  J0319+4130   03 03 54  78.1 164.3 -0.3     -12.6   171      107   15 20 00
15 32 00  =3C84        03 15 56  78.4 175.3 -0.1      -3.8   720      118   15 20 01

15 35 00  J0319+4130   03 18 56  78.5 178.1 -0.0      -1.5   171      118   15 35 00
15 47 00  =3C84        03 30 58  78.4 189.3  0.2       7.4   720      130   15 35 01

15 50 00  J0319+4130   03 33 59  78.3 192.0  0.2       9.6   171      130   15 50 00
16 00 00  =3C84        03 44 01  77.8 200.9  0.4      16.6   600      139   15 50 01
```

```
SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.M128nme

   Setup group:    7         Station: TORUN            Total bit rate:   128
   Format: MARK5B            Bits per sample: 2        Sample rate:  4.000
   Number of channels: 16    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.

   1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
             5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
   Net SB=         L         L         U         U         L         L         U         U
                   L         L         U         U         L         L         U         U
   IF SB =         U         U         U         U         U         U         U         U
                   U         U         U         U         U         U         U         U
   Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
                 RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
   BBC   =         1         5         1         5         2         6         2         6
                   3         7         3         7         4         8         4         8
   BBC SB=         L         L         U         U         L         L         U         U
                   L         L         U         U         L         L         U         U
   IF    =        A1        B1        A1        B1        A1        B1        A1        B1
                  A1        B1        A1        B1        A1        B1        A1        B1

  The following frequency sets based on these setups were used.

   Frequency Set:   8  Setup file default.  Used with PCAL = off
   LO sum=   6661.49  6661.49  6661.49  6661.49  6665.49  6665.49  6665.49  6665.49
             6669.49  6669.49  6669.49  6669.49  6673.49  6673.49  6673.49  6673.49
   BBC fr=    761.49   761.49   761.49   761.49   765.49   765.49   765.49   765.49
              769.49   769.49   769.49   769.49   773.49   773.49   773.49   773.49
   Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
    Matching frequency sets:   8

   Track assignments are:
    track1=  18, 26,  2, 10, 20, 28,  4, 12, 22, 30,  6, 14, 24, 32,  8, 16
    barrel=roll_off



 POSITIONS OF SOURCES USED IN RECORDING SCANS

   Source                        Source position (RA/Dec)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

   0234+285           02 34 55.589590   * 02 37 52.405677     02 38 55.463966       0.00
 * J0237+2848         28 35 11.40776    * 28 48 08.99001      28 52 43.66182        0.00
   J0237+28           /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                      GSFC 2015a astro solution, unpublished  54650 observations.

   3C84               03 16 29.567263   * 03 19 48.160094     03 20 59.331794       1.30
 * J0319+4130         41 19 51.91701    * 41 30 42.10413      41 34 34.55387        2.69
   0316+413           /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
   J0319+41           GSFC 2015a astro solution, unpublished  10208 observations.
```

es085atr

Probing environment of protostars I. Second epoch observation of 6.

PI: *Rafal Sarniak*

```
Address:  Torun Centre for Astronomy

Observing mode: MKV, 128Mb/s
Schedule for TORUN     (Code Tr )                                    Page   2
               Probing environment of protostars I. Second epoch observation of 6.7GHz
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                  Early    Disk   TPStart
Stop UT                   LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Wed  28 Feb 2018   Day  59 ---
 Next scan frequencies:  6665.13  6665.13  6665.13  6665.13  6669.13  6669.13  6669.13  6669.13
                         6673.13  6673.13  6673.13  6673.13  6677.13  6677.13  6677.13  6677.13
 Next BBC frequencies:    765.13   765.13   765.13   765.13   769.13   769.13   769.13   769.13
                          773.13   773.13   773.13   773.13   777.13   777.13   777.13   777.13
 Next scan bandwidths:      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                            2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00

03 00 00  3C345        14 45 49  66.0 111.8 -2.0     -46.5     0        0   03 00 00
03 10 00  ---          14 55 51  67.4 115.2 -1.8     -45.0   600       10   03 00 01

03 10 20  3C345        14 56 11  67.4 115.3 -1.8     -44.9    14       10   03 10 20
03 20 00  ---          15 05 52  68.7 118.9 -1.6     -43.2   580       19   03 10 21

03 22 00  J1907+0127   15 07 53  18.7 113.9 -4.0     -33.3   -81       19   03 22 00
03 23 45  =1904+013    15 09 38  18.9 114.3 -4.0     -33.2    24       21   03 22 01

03 23 45  G38.038      15 09 38  22.1 113.7 -3.9     -33.5   -26       21   No stop
03 27 00  ---          15 12 53  22.6 114.5 -3.8     -33.2   169       24   03 23 46

03 27 45  J1907+0127   15 13 39  19.5 115.2 -3.9     -32.9    19       24   03 27 45
03 29 30  =1904+013    15 15 24  19.7 115.5 -3.9     -32.8   105       25   03 27 46

03 29 30  G36.705      15 15 24  22.6 116.5 -3.7     -32.6   -25       25   No stop
03 32 45  ---          15 18 39  23.0 117.2 -3.7     -32.3   170       29   03 29 31

03 32 45  J1907+0127   15 18 39  20.1 116.3 -3.8     -32.6   -25       29   No stop
03 34 30  =1904+013    15 20 25  20.4 116.7 -3.8     -32.5    80       30   03 32 46

03 34 30  G36.115      15 20 25  23.3 118.5 -3.6     -31.9   -25       30   No stop
03 37 45  ---          15 23 40  23.8 119.2 -3.5     -31.7   170       33   03 34 31

03 37 45  J1907+0127   15 23 40  20.8 117.4 -3.7     -32.2   -25       33   No stop
03 39 30  =1904+013    15 25 25  21.1 117.8 -3.7     -32.1    80       35   03 37 46

03 39 30  G35.793      15 25 25  23.2 119.5 -3.5     -31.5   -22       35   No stop
03 42 45  ---          15 28 41  23.6 120.3 -3.5     -31.3   173       38   03 39 31

03 43 30  J1907+0127   15 29 26  21.6 118.7 -3.6     -31.8    23       38   03 43 30
03 45 15  =1904+013    15 31 11  21.8 119.1 -3.6     -31.7   105       40   03 43 31

03 45 15  J1834-0301   15 31 11  22.0 129.2 -3.1     -27.8   -35       40   No stop
03 47 00  =1831-030    15 32 57  22.2 129.6 -3.0     -27.6    70       42   03 45 16
```

Schedule for TORUN (Code Tr) Page 3

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed	28 Feb 2018	Day 59 ---								
03 47 00	G30.317	15 32 57	21.4	126.4	-3.2		-28.9	-21	42	No stop
03 50 15	---	15 36 12	21.8	127.2	-3.2		-28.6	174	45	03 47 01
03 50 15	J1834-0301	15 36 12	22.6	130.4	-3.0		-27.2	-21	45	No stop
03 52 00	=1831-030	15 37 58	22.8	130.8	-3.0		-27.1	84	46	03 50 16
03 52 00	J1825-0737	15 37 58	19.6	135.1	-2.8		-25.3	-26	46	No stop
03 53 45	=1822-076	15 39 43	19.8	135.5	-2.8		-25.1	79	48	03 52 01
03 53 45	G23.707	15 39 43	18.1	133.5	-2.9		-26.1	-20	48	No stop
03 57 00	---	15 42 58	18.5	134.3	-2.9		-25.7	175	51	03 53 46
03 57 45	J1825-0737	15 43 43	20.2	136.5	-2.7		-24.7	25	51	03 57 45
03 59 30	=1822-076	15 45 29	20.4	136.9	-2.7		-24.5	105	53	03 57 46
04 03 22	3C345	15 49 22	73.8	139.8	-0.9		-30.3	18	53	04 03 22
04 06 32	---	15 52 32	74.1	141.7	-0.9		-28.9	190	56	04 03 23
04 06 32	3C345	15 52 32	74.1	141.7	-0.9		-28.9	-5	56	No stop
04 08 32	---	15 54 33	74.3	143.0	-0.8		-28.1	115	58	04 06 33
04 10 47	J1907+0127	15 56 48	25.1	125.1	-3.2		-29.4	-63	58	04 10 47
04 12 32	=1904+013	15 58 33	25.3	125.5	-3.2		-29.3	42	59	04 10 48
04 12 32	G38.038	15 58 33	28.5	125.2	-3.1		-29.5	-26	59	No stop
04 15 47	---	16 01 49	28.9	126.0	-3.0		-29.1	169	63	04 12 33
04 16 32	J1907+0127	16 02 34	25.8	126.5	-3.1		-28.9	19	63	04 16 32
04 18 17	=1904+013	16 04 19	26.0	126.9	-3.1		-28.7	105	64	04 16 33
04 18 17	G36.705	16 04 19	28.8	128.2	-2.9		-28.2	-25	64	No stop
04 21 32	---	16 07 35	29.2	129.0	-2.9		-27.9	170	67	04 18 18
04 21 32	J1907+0127	16 07 35	26.4	127.7	-3.0		-28.4	-24	67	No stop
04 23 17	=1904+013	16 09 20	26.6	128.2	-3.0		-28.2	81	69	04 21 33
04 23 17	G36.115	16 09 20	29.4	130.3	-2.8		-27.3	-25	69	No stop
04 26 32	---	16 12 36	29.8	131.1	-2.7		-26.9	170	72	04 23 18
04 26 32	J1907+0127	16 12 36	27.0	129.0	-2.9		-27.8	-24	72	No stop
04 28 17	=1904+013	16 14 21	27.2	129.4	-2.9		-27.6	81	74	04 26 33
04 28 17	G35.793	16 14 21	29.2	131.4	-2.7		-26.8	-22	74	No stop
04 31 32	---	16 17 36	29.6	132.2	-2.7		-26.4	173	77	04 28 18
04 32 17	J1907+0127	16 18 21	27.6	130.4	-2.8		-27.2	24	77	04 32 17
04 34 02	=1904+013	16 20 07	27.8	130.9	-2.8		-27.0	105	79	04 32 18

Schedule for TORUN (Code Tr) Page 4

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
04 34 02	J1834-0301	16 20 07	27.2	141.4	-2.3		-22.0	-36	79	No stop
04 35 47	=1831-030	16 21 52	27.3	141.9	-2.2		-21.8	69	80	04 34 03
04 35 47	G30.317	16 21 52	26.8	138.4	-2.4		-23.5	-21	80	No stop
04 39 02	---	16 25 08	27.2	139.2	-2.4		-23.1	174	83	04 35 48
04 39 02	J1834-0301	16 25 08	27.6	142.7	-2.2		-21.4	-22	83	No stop
04 40 47	=1831-030	16 26 53	27.8	143.2	-2.1		-21.1	83	85	04 39 03
04 40 47	J1825-0737	16 26 53	24.2	147.2	-2.0		-19.2	-27	85	No stop
04 42 32	=1822-076	16 28 38	24.3	147.6	-2.0		-18.9	78	87	04 40 48
04 42 32	G23.707	16 28 38	22.9	145.4	-2.1		-20.1	-19	87	No stop
04 45 47	---	16 31 54	23.2	146.2	-2.1		-19.7	176	90	04 42 33
04 46 32	J1825-0737	16 32 39	24.7	148.7	-1.9		-18.4	26	90	04 46 32
04 48 17	=1822-076	16 34 24	24.8	149.1	-1.9		-18.1	105	92	04 46 33
04 48 17	J1907+0127	16 34 24	29.4	134.5	-2.6		-25.4	-44	92	No stop
04 50 02	=1904+013	16 36 09	29.6	135.0	-2.5		-25.2	61	93	04 48 18
04 50 02	G38.038	16 36 09	32.8	134.9	-2.4		-25.2	-26	93	No stop
04 53 17	---	16 39 25	33.2	135.8	-2.4		-24.8	169	96	04 50 03
04 53 17	J1907+0127	16 39 25	29.9	135.8	-2.5		-24.7	-26	96	No stop
04 55 02	=1904+013	16 41 10	30.1	136.3	-2.4		-24.5	79	98	04 53 18
04 55 02	G36.705	16 41 10	32.8	137.8	-2.3		-23.8	-24	98	No stop
04 58 17	---	16 44 26	33.2	138.7	-2.2		-23.4	171	101	04 55 03
04 59 02	J1907+0127	16 45 11	30.5	137.3	-2.4		-24.0	21	101	04 59 02
05 00 47	=1904+013	16 46 56	30.7	137.8	-2.4		-23.8	105	103	04 59 03
05 00 47	G36.115	16 46 56	33.4	140.3	-2.2		-22.6	-24	103	No stop
05 04 02	---	16 50 12	33.7	141.2	-2.1		-22.1	171	106	05 00 48
05 04 02	J1907+0127	16 50 12	31.0	138.7	-2.3		-23.4	-24	106	No stop
05 05 47	=1904+013	16 51 57	31.2	139.1	-2.3		-23.1	81	108	05 04 03
05 05 47	G35.793	16 51 57	33.1	141.4	-2.1		-22.0	-21	108	No stop
05 09 02	---	16 55 13	33.4	142.3	-2.0		-21.6	174	111	05 05 48
05 09 47	J1907+0127	16 55 58	31.6	140.2	-2.2		-22.6	24	111	05 09 47
05 11 32	=1904+013	16 57 43	31.8	140.7	-2.2		-22.4	105	113	05 09 48

Schedule for TORUN (Code Tr) Page 5

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 28 Feb 2018 Day 59 ---										
05 11 32	J1834-0301	16 57 43	30.3	151.5	-1.6		-16.7	-37	113	No stop
05 13 17	=1831-030	16 59 28	30.4	152.0	-1.6		-16.4	68	114	05 11 33
05 13 17	G30.317	16 59 28	30.2	148.4	-1.8		-18.4	-22	114	No stop
05 16 32	---	17 02 44	30.5	149.3	-1.7		-17.9	173	117	05 13 18
05 16 32	J1834-0301	17 02 44	30.6	152.9	-1.5		-15.9	-22	117	No stop
05 18 17	=1831-030	17 04 29	30.8	153.4	-1.5		-15.6	83	119	05 16 33
05 18 17	J1825-0737	17 04 29	26.8	157.1	-1.4		-13.6	-28	119	No stop
05 20 02	=1822-076	17 06 14	26.9	157.6	-1.3		-13.4	77	121	05 18 18
05 20 02	G23.707	17 06 14	25.7	155.2	-1.5		-14.8	-19	121	No stop
05 23 17	---	17 09 30	25.9	156.0	-1.4		-14.3	176	124	05 20 03
05 24 02	J1825-0737	17 10 15	27.2	158.6	-1.3		-12.7	26	124	05 24 02
05 25 47	=1822-076	17 12 00	27.3	159.1	-1.2		-12.5	105	126	05 24 03
05 25 47	J1907+0127	17 12 00	33.1	144.6	-1.9		-20.3	-44	126	No stop
05 27 32	=1904+013	17 13 46	33.2	145.1	-1.9		-20.1	61	127	05 25 48
05 27 32	G38.038	17 13 46	36.4	145.4	-1.8		-20.0	-26	127	No stop
05 30 47	---	17 17 01	36.7	146.4	-1.8		-19.5	169	130	05 27 33
05 30 47	J1907+0127	17 17 01	33.5	146.0	-1.9		-19.6	-26	130	No stop
05 32 32	=1904+013	17 18 46	33.6	146.5	-1.8		-19.3	79	132	05 30 48
05 32 32	G36.705	17 18 46	36.2	148.4	-1.7		-18.4	-24	132	No stop
05 35 47	---	17 22 02	36.5	149.4	-1.6		-17.8	171	135	05 32 33
05 36 32	J1907+0127	17 22 47	34.0	147.7	-1.8		-18.7	22	135	05 36 32
05 38 17	=1904+013	17 24 32	34.1	148.2	-1.7		-18.5	105	137	05 36 33
05 38 17	G36.115	17 24 32	36.6	151.1	-1.5		-16.9	-23	137	No stop
05 41 32	---	17 27 48	36.8	152.0	-1.5		-16.4	172	140	05 38 18
05 41 32	J1907+0127	17 27 48	34.4	149.1	-1.7		-18.0	-23	140	No stop
05 43 17	=1904+013	17 29 33	34.5	149.6	-1.6		-17.7	82	142	05 41 33
05 43 17	G35.793	17 29 33	36.2	152.2	-1.5		-16.3	-20	142	No stop
05 46 32	---	17 32 49	36.4	153.1	-1.4		-15.8	175	145	05 43 18
05 47 17	J1907+0127	17 33 34	34.8	150.8	-1.6		-17.0	25	145	05 47 17
05 49 02	=1904+013	17 35 19	34.9	151.3	-1.5		-16.8	105	146	05 47 18

Schedule for TORUN (Code Tr) Page 6

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 28 Feb 2018 Day 59 ---										
05 49 02	J1834-0301	17 35 19	32.5	162.2	-1.0		-10.6	-37	146	No stop
05 50 47	=1831-030	17 37 04	32.6	162.7	-1.0		-10.3	68	148	05 49 03
05 50 47	G30.317	17 37 04	32.7	159.0	-1.2		-12.4	-22	148	No stop
05 54 02	---	17 40 20	32.9	159.9	-1.1		-11.9	173	151	05 50 48
05 54 02	J1834-0301	17 40 20	32.7	163.7	-0.9		-9.7	-22	151	No stop
05 55 47	=1831-030	17 42 05	32.8	164.2	-0.9		-9.4	83	153	05 54 03
05 55 47	J1825-0737	17 42 05	28.6	167.4	-0.7		-7.6	-30	153	No stop
05 57 32	=1822-076	17 43 50	28.6	167.9	-0.7		-7.3	75	155	05 55 48
05 57 32	G23.707	17 43 50	27.6	165.4	-0.9		-8.8	-19	155	No stop
06 00 47	---	17 47 06	27.7	166.3	-0.8		-8.3	176	158	05 57 33
06 01 32	J1825-0737	17 47 51	28.7	169.0	-0.6		-6.6	25	158	06 01 32
06 03 17	=1822-076	17 49 36	28.8	169.5	-0.6		-6.3	105	159	06 01 33
06 03 17	J1907+0127	17 49 36	35.9	155.5	-1.3		-14.4	-43	159	No stop
06 05 02	=1904+013	17 51 22	36.0	156.0	-1.3		-14.1	62	161	06 03 18
06 05 02	G38.038	17 51 22	39.2	156.8	-1.2		-13.7	-26	161	No stop
06 08 17	---	17 54 37	39.4	157.8	-1.1		-13.1	169	164	06 05 03
06 08 17	J1907+0127	17 54 37	36.2	157.0	-1.2		-13.6	-26	164	No stop
06 10 02	=1904+013	17 56 23	36.3	157.6	-1.2		-13.3	79	166	06 08 18
06 10 02	G36.705	17 56 23	38.7	159.9	-1.0		-12.0	-23	166	No stop
06 13 17	---	17 59 38	38.9	160.9	-1.0		-11.4	172	169	06 10 03
06 14 02	J1907+0127	18 00 23	36.5	158.8	-1.1		-12.6	22	169	06 14 02
06 15 47	=1904+013	18 02 08	36.6	159.3	-1.1		-12.3	105	171	06 14 03
06 15 47	G36.115	18 02 08	38.8	162.6	-0.9		-10.4	-22	171	No stop
06 19 02	---	18 05 24	38.9	163.6	-0.8		-9.8	173	174	06 15 48
06 19 02	J1907+0127	18 05 24	36.8	160.3	-1.0		-11.7	-22	174	No stop
06 20 47	=1904+013	18 07 09	36.9	160.8	-1.0		-11.4	83	176	06 19 03
06 20 47	G35.793	18 07 09	38.3	163.7	-0.9		-9.7	-20	176	No stop
06 24 02	---	18 10 25	38.4	164.7	-0.8		-9.1	175	179	06 20 48
06 24 47	J1907+0127	18 11 10	37.1	162.1	-0.9		-10.7	25	179	06 24 47
06 26 32	=1904+013	18 12 55	37.1	162.6	-0.9		-10.3	105	180	06 24 48

Schedule for TORUN (Code Tr) Page 7

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
06 26 32	J1834-0301	18 12 55	33.7	173.3	-0.4		-4.0	-37	180	No stop
06 28 17	=1831-030	18 14 41	33.7	173.8	-0.3		-3.7	68	182	06 26 33
06 28 17	G30.317	18 14 41	34.2	170.1	-0.5		-5.9	-22	182	No stop
06 31 32	---	18 17 56	34.3	171.1	-0.5		-5.3	173	185	06 28 18
06 31 32	J1834-0301	18 17 56	33.8	174.8	-0.3		-3.1	-22	185	No stop
06 33 17	=1831-030	18 19 41	33.8	175.3	-0.3		-2.8	83	187	06 31 33
06 33 17	J1825-0737	18 19 41	29.3	178.0	-0.1		-1.2	-31	187	No stop
06 35 02	=1822-076	18 21 27	29.3	178.5	-0.1		-0.9	74	189	06 33 18
06 35 02	G23.707	18 21 27	28.5	175.9	-0.2		-2.5	-19	189	No stop
06 38 17	---	18 24 42	28.6	176.8	-0.2		-2.0	176	192	06 35 03
06 39 02	J1825-0737	18 25 27	29.3	179.7	-0.0		-0.2	25	192	06 39 02
06 40 47	=1822-076	18 27 13	29.3	180.2	0.0		0.1	105	193	06 39 03
06 40 47	J1907+0127	18 27 13	37.7	167.0	-0.7		-7.7	-45	193	No stop
06 42 32	=1904+013	18 28 58	37.8	167.6	-0.7		-7.4	60	195	06 40 48
06 42 32	G38.038	18 28 58	40.8	168.8	-0.6		-6.7	-26	195	No stop
06 45 47	---	18 32 13	40.9	169.9	-0.5		-6.1	169	198	06 42 33
06 45 47	J1907+0127	18 32 13	37.9	168.6	-0.6		-6.8	-25	198	No stop
06 47 32	=1904+013	18 33 59	37.9	169.2	-0.6		-6.5	80	200	06 45 48
06 47 32	G36.705	18 33 59	40.1	171.9	-0.4		-4.9	-22	200	No stop
06 50 47	---	18 37 14	40.1	172.9	-0.4		-4.2	173	203	06 47 33
06 51 32	J1907+0127	18 37 59	38.0	170.4	-0.5		-5.7	23	203	06 51 32
06 53 17	=1904+013	18 39 45	38.1	171.0	-0.5		-5.4	105	205	06 51 33
06 53 17	G36.115	18 39 45	39.9	174.7	-0.3		-3.2	-22	205	No stop
06 56 32	---	18 43 00	39.9	175.7	-0.2		-2.6	173	208	06 53 18
06 56 32	J1907+0127	18 43 00	38.1	172.0	-0.4		-4.8	-22	208	No stop
06 58 17	=1904+013	18 44 45	38.2	172.6	-0.4		-4.5	83	209	06 56 33
06 58 17	G35.793	18 44 45	39.3	175.7	-0.2		-2.6	-21	209	No stop
07 01 32	---	18 48 01	39.4	176.7	-0.2		-2.0	174	213	06 58 18
07 02 17	J1907+0127	18 48 46	38.2	173.8	-0.3		-3.7	24	213	07 02 17
07 04 02	=1904+013	18 50 31	38.3	174.4	-0.3		-3.4	105	214	07 02 18

Schedule for TORUN (Code Tr) Page 8

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 28 Feb 2018 Day 59 ---										
07 04 02	J1834-0301	18 50 31	33.8	184.6	0.3		2.8	-36	214	No stop
07 05 47	=1831-030	18 52 17	33.8	185.1	0.3		3.1	69	216	07 04 03
07 05 47	G30.317	18 52 17	34.6	181.5	0.1		0.9	-22	216	No stop
07 09 02	---	18 55 32	34.6	182.5	0.1		1.5	173	219	07 05 48
07 09 02	J1834-0301	18 55 32	33.7	186.1	0.3		3.7	-22	219	No stop
07 10 47	=1831-030	18 57 18	33.7	186.6	0.4		4.0	83	221	07 09 03
07 10 47	J1825-0737	18 57 18	28.9	188.7	0.5		5.3	-32	221	No stop
07 12 32	=1822-076	18 59 03	28.9	189.2	0.5		5.6	73	222	07 10 48
07 12 32	G23.707	18 59 03	28.4	186.4	0.4		3.9	-20	222	No stop
07 15 47	---	19 02 18	28.4	187.4	0.4		4.5	175	226	07 12 33
07 16 32	J1825-0737	19 03 03	28.8	190.3	0.6		6.2	25	226	07 16 32
07 18 17	=1822-076	19 04 49	28.7	190.8	0.6		6.5	105	227	07 16 33
07 18 17	J1907+0127	19 04 49	38.4	179.0	-0.1		-0.6	-50	227	No stop
07 20 02	=1904+013	19 06 34	38.4	179.5	-0.0		-0.3	55	229	07 18 18
07 20 02	G38.038	19 06 34	41.3	181.3	0.1		0.8	-25	229	No stop
07 23 17	---	19 09 50	41.3	182.4	0.1		1.4	170	232	07 20 03
07 23 17	J1907+0127	19 09 50	38.4	180.6	0.0		0.3	-25	232	No stop
07 25 02	=1904+013	19 11 35	38.4	181.1	0.1		0.7	80	234	07 23 18
07 25 02	G36.705	19 11 35	40.3	184.2	0.2		2.5	-21	234	No stop
07 28 17	---	19 14 50	40.2	185.2	0.3		3.1	174	237	07 25 03
07 29 02	J1907+0127	19 15 36	38.4	182.4	0.1		1.4	24	237	07 29 02
07 30 47	=1904+013	19 17 21	38.3	182.9	0.2		1.8	105	239	07 29 03
07 30 47	G36.115	19 17 21	39.8	186.9	0.4		4.1	-23	239	No stop
07 34 02	---	19 20 36	39.8	187.9	0.4		4.8	172	242	07 30 48
07 34 02	J1907+0127	19 20 36	38.3	184.0	0.2		2.4	-23	242	No stop
07 35 47	=1904+013	19 22 22	38.3	184.5	0.2		2.7	82	243	07 34 03
07 35 47	G35.793	19 22 22	39.1	187.8	0.4		4.7	-21	243	No stop
07 39 02	---	19 25 37	39.1	188.8	0.5		5.3	174	246	07 35 48
07 39 47	J1907+0127	19 26 22	38.2	185.8	0.3		3.5	24	246	07 39 47
07 41 32	=1904+013	19 28 08	38.2	186.4	0.3		3.8	105	248	07 39 48

Schedule for TORUN (Code Tr) Page 9

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
07 41 32	J1834-0301	19 28 08	32.8	195.8	0.9		9.4	-34	248	No stop
07 43 17	=1831-030	19 29 53	32.7	196.3	0.9		9.7	71	250	07 41 33
07 43 17	G30.317	19 29 53	33.9	192.8	0.7		7.7	-21	250	No stop
07 46 32	---	19 33 08	33.8	193.8	0.8		8.2	174	253	07 43 18
07 46 32	J1834-0301	19 33 08	32.6	197.3	1.0		10.3	-22	253	No stop
07 48 17	=1831-030	19 34 54	32.5	197.8	1.0		10.6	83	255	07 46 33
07 48 17	J1825-0737	19 34 54	27.6	199.2	1.1		11.5	-32	255	No stop
07 50 02	=1822-076	19 36 39	27.5	199.7	1.2		11.8	73	256	07 48 18
07 50 02	G23.707	19 36 39	27.3	196.9	1.0		10.2	-20	256	No stop
07 53 17	---	19 39 54	27.1	197.8	1.1		10.7	175	259	07 50 03
07 54 02	J1825-0737	19 40 40	27.3	200.7	1.2		12.4	25	259	07 54 02
07 55 47	=1822-076	19 42 25	27.2	201.2	1.3		12.7	105	261	07 54 03
07 55 47	J1907+0127	19 42 25	37.9	190.9	0.6		6.5	-54	261	No stop
07 57 32	=1904+013	19 44 10	37.8	191.4	0.6		6.8	51	263	07 55 48
07 57 32	G38.038	19 44 10	40.6	193.7	0.7		8.2	-24	263	No stop
08 00 47	---	19 47 26	40.5	194.7	0.7		8.8	171	266	07 57 33
08 00 47	J1907+0127	19 47 26	37.7	192.5	0.7		7.5	-24	266	No stop
08 02 32	=1904+013	19 49 11	37.7	193.0	0.7		7.8	81	268	08 00 48
08 02 32	G36.705	19 49 11	39.3	196.3	0.8		9.7	-21	268	No stop
08 05 47	---	19 52 27	39.1	197.3	0.9		10.3	174	271	08 02 33
08 06 32	J1907+0127	19 53 12	37.5	194.3	0.8		8.5	24	271	08 06 32
08 08 17	=1904+013	19 54 57	37.5	194.8	0.8		8.8	105	272	08 06 33
08 08 17	G36.115	19 54 57	38.6	198.9	1.0		11.2	-23	272	No stop
08 11 32	---	19 58 12	38.4	199.9	1.0		11.8	172	276	08 08 18
08 11 32	J1907+0127	19 58 12	37.3	195.8	0.8		9.4	-23	276	No stop
08 13 17	=1904+013	19 59 58	37.3	196.4	0.9		9.7	82	277	08 11 33
08 13 17	G35.793	19 59 58	37.8	199.7	1.0		11.7	-21	277	No stop
08 16 32	---	20 03 13	37.6	200.7	1.1		12.3	174	280	08 13 18
08 17 17	J1907+0127	20 03 58	37.1	197.6	0.9		10.5	24	280	08 17 17
08 19 02	=1904+013	20 05 44	37.0	198.2	1.0		10.8	105	282	08 17 18

Schedule for TORUN (Code Tr) Page 10

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
08 19 02	J1834-0301	20 05 44	30.8	206.6	1.5		15.6	-37	282	No stop
08 20 47	=1831-030	20 07 29	30.6	207.1	1.5		15.9	68	284	08 19 03
08 20 47	G30.317	20 07 29	32.1	203.8	1.3		14.1	-21	284	No stop
08 24 02	---	20 10 45	31.9	204.8	1.4		14.6	174	287	08 20 48
08 24 02	J1834-0301	20 10 45	30.4	208.0	1.6		16.4	-21	287	No stop
08 25 47	=1831-030	20 12 30	30.3	208.5	1.6		16.7	84	289	08 24 03
08 25 47	J1825-0737	20 12 30	25.3	209.3	1.8		17.2	-33	289	No stop
08 27 32	=1822-076	20 14 15	25.1	209.7	1.8		17.5	72	290	08 25 48
08 27 32	G23.707	20 14 15	25.2	207.0	1.6		16.0	-20	290	No stop
08 30 47	---	20 17 31	25.0	207.8	1.7		16.5	175	293	08 27 33
08 31 32	J1825-0737	20 18 16	24.8	210.8	1.9		18.0	25	293	08 31 32
08 33 17	=1822-076	20 20 01	24.7	211.2	1.9		18.3	105	295	08 31 33
08 33 17	G23.707	20 20 01	24.8	208.5	1.7		16.8	-20	295	No stop
08 36 32	---	20 23 17	24.5	209.3	1.8		17.3	175	298	08 33 18
08 36 32	J1825-0737	20 23 17	24.4	212.1	1.9		18.8	-20	298	No stop
08 38 17	=1822-076	20 25 02	24.3	212.5	2.0		19.0	85	300	08 36 33
08 38 17	J1834-0301	20 25 02	29.3	211.9	1.8		18.5	-33	300	No stop
08 40 02	=1831-030	20 26 47	29.2	212.4	1.9		18.8	72	302	08 38 18
08 40 02	G30.317	20 26 47	30.8	209.3	1.7		17.1	-21	302	No stop
08 43 17	---	20 30 03	30.6	210.2	1.7		17.6	174	305	08 40 03
08 44 02	J1834-0301	20 30 48	28.9	213.5	1.9		19.4	24	305	08 44 02
08 45 47	=1831-030	20 32 33	28.7	213.9	2.0		19.6	105	306	08 44 03
08 49 31	3C345	20 36 17	49.0	275.3	3.9		51.1	86	306	08 49 31
08 52 41	---	20 39 28	48.5	275.8	3.9		51.0	190	309	08 49 32
08 52 41	3C345	20 39 28	48.5	275.8	3.9		51.0	-5	309	No stop
08 54 41	---	20 41 28	48.2	276.2	4.0		51.0	115	311	08 52 42
08 56 56	J1907+0127	20 43 44	34.7	209.5	1.6		17.2	-13	311	08 56 56
08 58 41	=1904+013	20 45 29	34.6	210.0	1.6		17.5	92	313	08 56 57
08 58 41	G38.038	20 45 29	37.0	212.7	1.7		19.0	-23	313	No stop
09 01 56	---	20 48 44	36.7	213.7	1.8		19.5	172	316	08 58 42

Schedule for TORUN (Code Tr) Page 11

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 28 Feb 2018 Day 59 ---										
09 02 41	J1907+0127	20 49 29	34.3	211.2	1.7		18.1	22	316	09 02 41
09 04 26	=1904+013	20 51 15	34.1	211.7	1.7		18.4	105	318	09 02 42
09 04 26	G36.705	20 51 15	35.2	215.1	1.9		20.2	-22	318	No stop
09 07 41	---	20 54 30	34.9	216.1	1.9		20.7	173	321	09 04 27
09 07 41	J1907+0127	20 54 30	33.9	212.6	1.8		18.9	-21	321	No stop
09 09 26	=1904+013	20 56 16	33.7	213.1	1.8		19.2	84	323	09 07 42
09 09 26	G36.115	20 56 16	34.2	217.2	2.0		21.3	-23	323	No stop
09 12 41	---	20 59 31	33.9	218.1	2.1		21.8	172	326	09 09 27
09 12 41	J1907+0127	20 59 31	33.5	214.0	1.9		19.7	-23	326	No stop
09 14 26	=1904+013	21 01 16	33.3	214.5	1.9		19.9	82	327	09 12 42
09 14 26	G35.793	21 01 16	33.4	217.7	2.1		21.6	-21	327	No stop
09 17 41	---	21 04 32	33.1	218.7	2.1		22.0	174	331	09 14 27
09 18 26	J1907+0127	21 05 17	33.0	215.7	2.0		20.5	24	331	09 18 26
09 20 11	=1904+013	21 07 02	32.8	216.2	2.0		20.8	105	332	09 18 27
09 20 11	J1834-0301	21 07 02	25.5	222.9	2.5		24.2	-41	332	No stop
09 21 56	=1831-030	21 08 48	25.3	223.3	2.6		24.4	64	334	09 20 12
09 21 56	G30.317	21 08 48	27.2	220.6	2.4		23.0	-21	334	No stop
09 25 11	---	21 12 03	26.9	221.4	2.4		23.4	174	337	09 21 57
09 25 11	J1834-0301	21 12 03	25.0	224.2	2.6		24.8	-21	337	No stop
09 26 56	=1831-030	21 13 48	24.8	224.6	2.6		25.0	84	339	09 25 12
09 26 56	J1825-0737	21 13 48	19.7	224.6	2.8		25.2	-33	339	No stop
09 28 41	=1822-076	21 15 34	19.6	225.0	2.8		25.4	72	340	09 26 57
09 28 41	G23.707	21 15 34	19.9	222.4	2.7		24.2	-19	340	No stop
09 31 56	---	21 18 49	19.6	223.2	2.7		24.5	176	344	09 28 42
09 32 41	J1825-0737	21 19 34	19.1	226.0	2.9		25.8	25	344	09 32 41
09 34 26	=1822-076	21 21 20	18.9	226.4	2.9		26.0	105	345	09 32 42
09 34 26	J1907+0127	21 21 20	31.5	220.1	2.2		22.7	-61	345	No stop
09 36 11	=1904+013	21 23 05	31.3	220.5	2.2		23.0	44	347	09 34 27
09 36 11	G38.038	21 23 05	33.5	223.4	2.3		24.4	-22	347	No stop
09 39 26	---	21 26 21	33.1	224.3	2.4		24.9	173	350	09 36 12

Schedule for TORUN (Code Tr) Page 12

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
09 39 26	J1907+0127	21 26 21	31.0	221.4	2.3		23.4	-22	350	No stop
09 41 11	=1904+013	21 28 06	30.8	221.9	2.3		23.6	83	352	09 39 27
09 41 11	G36.705	21 28 06	31.6	225.3	2.5		25.3	-22	352	No stop
09 44 26	---	21 31 21	31.3	226.1	2.5		25.7	173	355	09 41 12
09 45 11	J1907+0127	21 32 06	30.4	223.0	2.4		24.2	24	355	09 45 11
09 46 56	=1904+013	21 33 52	30.2	223.4	2.4		24.4	105	356	09 45 12
09 46 56	G36.115	21 33 52	30.4	227.3	2.6		26.2	-23	356	No stop
09 50 11	---	21 37 07	30.1	228.2	2.7		26.6	172	360	09 46 57
09 50 11	J1907+0127	21 37 07	29.9	224.3	2.5		24.8	-23	360	No stop
09 51 56	=1904+013	21 38 53	29.7	224.7	2.5		25.0	82	361	09 50 12
09 51 56	G35.793	21 38 53	29.5	227.8	2.7		26.4	-21	361	No stop
09 55 11	---	21 42 08	29.2	228.6	2.7		26.8	174	364	09 51 57
09 55 56	J1907+0127	21 42 53	29.3	225.8	2.6		25.5	25	364	09 55 56
09 57 41	=1904+013	21 44 39	29.1	226.2	2.6		25.7	105	366	09 55 57
09 57 41	J1834-0301	21 44 39	21.4	232.1	3.2		28.3	-43	366	No stop
09 59 26	=1831-030	21 46 24	21.1	232.5	3.2		28.5	62	368	09 57 42
09 59 26	G30.317	21 46 24	23.2	230.0	3.0		27.4	-21	368	No stop
10 02 41	---	21 49 39	22.8	230.8	3.0		27.7	174	371	09 59 27
10 02 41	J1834-0301	21 49 39	20.8	233.3	3.2		28.8	-22	371	No stop
10 04 26	=1831-030	21 51 25	20.5	233.7	3.3		29.0	83	373	10 02 42
10 04 26	J1825-0737	21 51 25	15.5	233.3	3.4		29.1	-33	373	No stop
10 06 11	=1822-076	21 53 10	15.3	233.7	3.4		29.2	72	374	10 04 27
10 06 11	G23.707	21 53 10	15.8	231.2	3.3		28.2	-19	374	No stop
10 09 26	---	21 56 25	15.4	231.9	3.3		28.5	176	377	10 06 12
10 10 11	J1825-0737	21 57 11	14.8	234.6	3.5		29.6	26	377	10 10 11
10 11 56	=1822-076	21 58 56	14.6	235.0	3.5		29.7	105	379	10 10 12
10 11 56	J1907+0127	21 58 56	27.5	229.9	2.8		27.3	-62	379	No stop
10 13 41	=1904+013	22 00 41	27.3	230.3	2.9		27.5	43	381	10 11 57
10 13 41	G38.038	22 00 41	29.3	233.2	3.0		28.8	-21	381	No stop
10 16 56	---	22 03 57	28.9	234.0	3.0		29.2	174	384	10 13 42

Schedule for TORUN (Code Tr) Page 13

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
10 16 56	J1907+0127	22 03 57	26.9	231.1	2.9		27.9	-21	384	No stop
10 18 41	=1904+013	22 05 42	26.7	231.5	3.0		28.1	84	386	10 16 57
10 18 41	G36.705	22 05 42	27.3	234.9	3.1		29.5	-21	386	No stop
10 21 56	---	22 08 58	26.9	235.7	3.2		29.8	174	389	10 18 42
10 22 41	J1907+0127	22 09 43	26.2	232.5	3.0		28.5	24	389	10 22 41
10 24 26	=1904+013	22 11 28	26.0	233.0	3.1		28.6	105	390	10 22 42
10 24 26	G36.115	22 11 28	26.0	236.7	3.3		30.2	-23	390	No stop
10 27 41	---	22 14 43	25.6	237.5	3.3		30.5	172	394	10 24 27
10 27 41	J1907+0127	22 14 43	25.6	233.7	3.1		29.0	-22	394	No stop
10 29 26	=1904+013	22 16 29	25.4	234.2	3.1		29.1	83	395	10 27 42
10 29 26	G35.793	22 16 29	25.1	237.1	3.3		30.3	-20	395	No stop
10 32 41	---	22 19 44	24.7	237.9	3.4		30.6	175	398	10 29 27
10 33 26	J1907+0127	22 20 29	24.9	235.1	3.2		29.5	25	398	10 33 26
10 35 11	=1904+013	22 22 15	24.7	235.6	3.2		29.7	105	400	10 33 27
10 35 11	J1834-0301	22 22 15	16.7	240.7	3.8		31.6	-44	400	No stop
10 36 56	=1831-030	22 24 00	16.4	241.1	3.8		31.8	61	402	10 35 12
10 36 56	G30.317	22 24 00	18.6	238.7	3.6		30.9	-22	402	No stop
10 40 11	---	22 27 16	18.2	239.5	3.7		31.2	173	405	10 36 57
10 40 11	J1834-0301	22 27 16	16.0	241.8	3.9		32.0	-22	405	No stop
10 41 56	=1831-030	22 29 01	15.8	242.2	3.9		32.1	83	406	10 40 12
10 41 56	J1825-0737	22 29 01	10.7	241.5	4.0		32.2	-33	406	No stop
10 43 41	=1822-076	22 30 46	10.5	241.9	4.1		32.3	72	408	10 41 57
10 43 41	G23.707	22 30 46	11.2	239.5	3.9		31.5	-19	408	No stop
10 46 56	---	22 34 02	10.8	240.2	4.0		31.8	176	411	10 43 42
10 47 41	J1825-0737	22 34 47	10.0	242.7	4.1		32.6	26	411	10 47 41
10 49 26	=1822-076	22 36 32	9.7	243.1	4.2		32.7	105	413	10 47 42
10 49 26	J1907+0127	22 36 32	22.9	238.9	3.5		31.0	-63	413	No stop
10 51 11	=1904+013	22 38 17	22.7	239.3	3.5		31.1	42	415	10 49 27
10 51 11	G38.038	22 38 17	24.5	242.3	3.6		32.2	-20	415	No stop
10 54 26	---	22 41 33	24.1	243.0	3.6		32.5	175	418	10 51 12

Schedule for TORUN (Code Tr) Page 14

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 28 Feb 2018 Day 59 ---										
10 54 26	J1907+0127	22 41 33	22.3	240.1	3.6		31.4	-21	418	No stop
10 56 11	=1904+013	22 43 18	22.0	240.5	3.6		31.5	84	419	10 54 27
10 56 11	G36.705	22 43 18	22.5	243.7	3.7		32.6	-21	419	No stop
10 59 26	---	22 46 34	22.0	244.5	3.8		32.9	174	423	10 56 12
11 00 11	J1907+0127	22 47 19	21.5	241.4	3.7		31.8	24	423	11 00 11
11 01 56	=1904+013	22 49 04	21.3	241.8	3.7		32.0	105	424	11 00 12
11 01 56	G36.115	22 49 04	21.0	245.4	3.9		33.2	-22	424	No stop
11 05 11	---	22 52 20	20.6	246.2	3.9		33.4	173	427	11 01 57
11 05 11	J1907+0127	22 52 20	20.8	242.5	3.7		32.2	-22	427	No stop
11 06 56	=1904+013	22 54 05	20.6	242.9	3.8		32.3	83	429	11 05 12
11 06 56	G35.793	22 54 05	20.1	245.8	3.9		33.2	-20	429	No stop
11 10 11	---	22 57 20	19.7	246.5	4.0		33.4	175	432	11 06 57
11 10 56	J1907+0127	22 58 06	20.1	243.8	3.8		32.6	25	432	11 10 56
11 12 41	=1904+013	22 59 51	19.8	244.2	3.9		32.8	105	434	11 10 57
11 12 41	J1834-0301	22 59 51	11.6	248.8	4.4		34.1	-45	434	No stop
11 14 26	=1831-030	23 01 36	11.3	249.2	4.4		34.2	60	436	11 12 42
11 14 26	G30.317	23 01 36	13.6	247.0	4.2		33.6	-22	436	No stop
11 17 41	---	23 04 52	13.2	247.7	4.3		33.8	173	439	11 14 27
11 17 41	J1834-0301	23 04 52	10.9	249.9	4.5		34.4	-23	439	No stop
11 19 26	=1831-030	23 06 37	10.6	250.2	4.5		34.5	82	440	11 17 42
11 19 26	J1825-0737	23 06 37	5.6	249.4	4.7		34.5	-33	440	No stop
11 21 11	=1822-076	23 08 22	5.4	249.7	4.7		34.6	72	442	11 19 27
11 21 11	G23.707	23 08 22	6.1	247.4	4.5		34.1	-19	442	No stop
11 24 26	---	23 11 38	5.7	248.1	4.6		34.3	176	445	11 21 12
11 25 11	J1825-0737	23 12 23	4.8	250.6	4.8		34.8	26	445	11 25 11
11 26 56	=1822-076	23 14 08	4.5	250.9	4.8		34.9	105	447	11 25 12
11 26 56	G23.707	23 14 08	5.3	248.6	4.6		34.4	-19	447	No stop
11 30 11	---	23 17 24	4.9	249.2	4.7		34.6	176	450	11 26 57
11 30 11	J1825-0737	23 17 24	4.1	251.6	4.8		35.1	-19	450	No stop
11 31 56	=1822-076	23 19 09	3.8	251.9	4.9		35.2	86	452	11 30 12

Schedule for TORUN (Code Tr) Page 15

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
11 31 56	J1834-0301	23 19 09	8.8	252.8	4.7		35.1	-32	452	No stop
11 33 41	=1831-030	23 20 54	8.6	253.2	4.8		35.1	73	453	11 31 57
11 33 41	G30.317	23 20 54	10.9	251.1	4.6		34.6	-23	453	No stop
11 36 56	---	23 24 10	10.4	251.8	4.6		34.8	172	456	11 33 42
11 37 41	J1834-0301	23 24 55	8.0	254.0	4.8		35.3	22	456	11 37 41
11 39 26	=1831-030	23 26 40	7.7	254.4	4.9		35.4	105	458	11 37 42
11 46 11	J1834-0301	23 33 26	6.8	255.8	5.0		35.7	398	458	11 46 11
11 47 56	=1831-030	23 35 12	6.5	256.1	5.0		35.7	105	460	11 46 12
11 47 56	G30.317	23 35 12	8.9	254.1	4.8		35.3	-23	460	No stop
11 51 11	---	23 38 27	8.4	254.7	4.9		35.4	172	463	11 47 57
11 51 56	J1834-0301	23 39 12	5.9	257.0	5.1		35.9	22	463	11 51 56
11 53 41	=1831-030	23 40 58	5.7	257.3	5.1		35.9	105	465	11 51 57
11 53 41	J1907+0127	23 40 58	14.1	253.2	4.5		35.1	-45	465	No stop
11 55 26	=1904+013	23 42 43	13.8	253.5	4.6		35.2	60	466	11 53 42
11 55 26	G35.793	23 42 43	13.2	256.2	4.7		35.7	-20	466	No stop
11 58 41	---	23 45 58	12.7	256.9	4.8		35.8	175	469	11 55 27
11 58 41	J1907+0127	23 45 58	13.4	254.2	4.6		35.3	-19	469	No stop
12 00 26	=1904+013	23 47 44	13.1	254.6	4.7		35.4	86	471	11 58 42
12 00 26	G36.115	23 47 44	12.7	258.0	4.9		36.0	-22	471	No stop
12 03 41	---	23 50 59	12.2	258.7	4.9		36.1	173	474	12 00 27
12 04 26	J1907+0127	23 51 44	12.5	255.4	4.7		35.5	24	474	12 04 26
12 06 11	=1904+013	23 53 30	12.3	255.8	4.8		35.6	105	476	12 04 27
12 06 11	G36.705	23 53 30	12.5	258.9	4.9		36.2	-21	476	No stop
12 09 26	---	23 56 45	12.0	259.5	5.0		36.3	174	479	12 06 12
12 09 26	J1907+0127	23 56 45	11.8	256.5	4.8		35.7	-21	479	No stop
12 11 11	=1904+013	23 58 30	11.5	256.8	4.8		35.8	84	481	12 09 27
12 11 11	G38.038	23 58 30	13.1	259.7	4.9		36.3	-20	481	No stop
12 14 26	---	00 01 46	12.7	260.4	5.0		36.4	175	484	12 11 12
12 15 11	J1907+0127	00 02 31	11.0	257.6	4.9		35.9	25	484	12 15 11
12 16 56	=1904+013	00 04 16	10.7	258.0	4.9		36.0	105	486	12 15 12

Schedule for TORUN (Code Tr) Page 16

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 28 Feb 2018 Day 59 ---										
12 16 56	G35.793	00 04 16	10.1	260.6	5.1		36.4	-20	486	No stop
12 20 11	---	00 07 32	9.6	261.3	5.2		36.5	175	489	12 16 57
12 20 11	J1907+0127	00 07 32	10.2	258.7	5.0		36.1	-19	489	No stop
12 21 56	=1904+013	00 09 17	10.0	259.0	5.0		36.1	86	490	12 20 12
12 21 56	G36.115	00 09 17	9.5	262.4	5.2		36.6	-22	490	No stop
12 25 11	---	00 12 33	9.0	263.1	5.3		36.7	173	494	12 21 57
12 25 56	J1907+0127	00 13 18	9.4	259.9	5.1		36.2	24	494	12 25 56
12 27 41	=1904+013	00 15 03	9.1	260.2	5.1		36.3	105	495	12 25 57
12 27 41	G36.705	00 15 03	9.3	263.3	5.3		36.7	-21	495	No stop
12 30 56	---	00 18 19	8.8	263.9	5.3		36.7	174	498	12 27 42
12 30 56	J1907+0127	00 18 19	8.6	260.9	5.2		36.4	-20	498	No stop
12 32 41	=1904+013	00 20 04	8.4	261.2	5.2		36.4	85	500	12 30 57
12 32 41	G38.038	00 20 04	9.9	264.1	5.3		36.8	-20	500	No stop
12 35 56	---	00 23 20	9.4	264.8	5.3		36.9	175	503	12 32 42
12 36 41	J1907+0127	00 24 05	7.8	262.0	5.3		36.5	25	503	12 36 41
12 38 26	=1904+013	00 25 50	7.5	262.4	5.3		36.5	105	505	12 36 42
12 38 26	G35.793	00 25 50	6.8	265.0	5.5		36.8	-20	505	No stop
12 41 41	---	00 29 05	6.4	265.7	5.5		36.8	175	508	12 38 27
12 41 41	J1907+0127	00 29 05	7.0	263.1	5.3		36.6	-19	508	No stop
12 43 26	=1904+013	00 30 51	6.8	263.4	5.4		36.6	86	510	12 41 42
12 43 26	G36.115	00 30 51	6.3	266.8	5.6		36.9	-22	510	No stop
12 46 41	---	00 34 06	5.8	267.5	5.6		36.9	173	513	12 43 27
12 47 26	J1907+0127	00 34 51	6.2	264.2	5.4		36.7	24	513	12 47 26
12 49 11	=1904+013	00 36 37	5.9	264.6	5.5		36.7	105	514	12 47 27
12 49 11	G36.705	00 36 37	6.1	267.6	5.6		36.9	-21	514	No stop
12 52 26	---	00 39 52	5.6	268.3	5.7		37.0	174	518	12 49 12
12 52 26	J1907+0127	00 39 52	5.4	265.2	5.5		36.8	-20	518	No stop
12 54 11	=1904+013	00 41 38	5.2	265.6	5.6		36.8	85	519	12 52 27
12 54 11	G38.038	00 41 38	6.7	268.4	5.6		37.0	-20	519	No stop
12 57 26	---	00 44 53	6.2	269.1	5.7		37.0	175	522	12 54 12

```
Schedule for TORUN     (Code Tr )                                  Page  17
               Probing environment of protostars I. Second epoch observation of 6.7GHz
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed  28 Feb 2018   Day  59 ---

12 58 11  J1907+0127   00 45 38   4.6 266.4  5.6      36.8    25      522   12 58 11
12 59 56  =1904+013    00 47 23   4.3 266.7  5.7      36.8   105      524   12 58 12




SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.M128

   Setup group:    7         Station: TORUN            Total bit rate:   128
   Format: MARK5B            Bits per sample: 2        Sample rate:  4.000
   Number of channels: 16    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
           5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
 Net SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF SB =         U         U         U         U         U         U         U         U
                 U         U         U         U         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
               RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         2         6         2         6
                 3         7         3         7         4         8         4         8
 BBC SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1
                A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

 Frequency Set:   5  Based on FREQ, BW, and/or DOPPLER in schedule.  Used with PCAL = off
  LO sum=   6665.13  6665.13  6665.13  6665.13  6669.13  6669.13  6669.13  6669.13
            6673.13  6673.13  6673.13  6673.13  6677.13  6677.13  6677.13  6677.13
  BBC fr=    765.13   765.13   765.13   765.13   769.13   769.13   769.13   769.13
             773.13   773.13   773.13   773.13   777.13   777.13   777.13   777.13
  Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
               2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
   Matching frequency sets:   5

  Track assignments are:
   track1=  18, 26,  2, 10, 20, 28,  4, 12, 22, 30,  6, 14, 24, 32,  8, 16
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* G23.707           18 32 28.920087   * 18 35 12.366000     18 36 10.255819       0.00
                   -08 20 06.83364    *-08 17 39.35770     -08 16 42.96841        0.00
                    Doppler based on other sources.

* G30.317           18 43 48.581580   * 18 46 25.026210     18 47 20.365040       0.00
                   -02 20 56.77520    *-02 17 40.75390     -02 16 28.94639        0.00
                    Doppler based on other sources.

* G35.793           18 54 45.859548   * 18 57 16.894000     18 58 10.251199       0.00
                    02 23 55.34676    * 02 27 57.91000      02 29 24.93711        0.00
                    Doppler based on other sources.

* G36.115           18 52 46.469340   * 18 55 16.793450     18 56 09.906285       0.00
                    03 01 11.32713    * 03 05 05.41400      03 06 29.24221        0.00
                    Doppler based on other sources.

* G36.705           18 55 29.146223   * 18 57 59.122880     18 58 52.099165       0.00
                    03 20 00.52724    * 03 24 06.11240      03 25 33.95900        0.00
                    Doppler based on other sources.

* G38.038           18 59 21.608170   * 19 01 50.469470     19 02 43.029910       0.00
                    04 19 57.02188    * 04 24 18.95590      04 25 52.36805        0.00
                    Doppler based on LSR frame and radio definition.  Velocities:
                        55.70    55.70    55.70    55.70    55.70    55.70    55.70    55.70
```

```
                    55.70    55.70    55.70    55.70    55.70    55.70

* 3C345            16 41 17.606228   * 16 42 58.809966     16 43 34.876556       0.76
  J1642+3948       39 54 10.81496    * 39 48 36.99402      39 46 26.40751        0.52
  1641+399         /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1642+39         GSFC 2015a astro solution, unpublished  53430 observations.
                   Doppler based on other sources.

  1822-076         18 22 54.910246   * 18 25 37.609539     18 26 35.286784       0.14
* J1825-0737       -07 39 15.96691    *-07 37 30.01300     -07 36 48.62177        0.22
                   /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                   GSFC 2015a astro solution, unpublished    113 observations.
                   Doppler based on other sources.

  1831-030         18 31 36.772725   * 18 34 14.074666     18 35 09.781465       0.24
* J1834-0301       -03 03 43.12330    *-03 01 19.62711     -03 00 26.32345        0.32
                   /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                   GSFC 2015a astro solution, unpublished     77 observations.
                   Doppler based on other sources.

  1904+013         19 04 39.788413   * 19 07 11.996171     19 08 05.726591       0.23
* J1907+0127       01 22 24.60022    * 01 27 08.96219      01 28 51.17486        0.30
                   /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                   GSFC 2015a astro solution, unpublished     92 observations.
                   Doppler based on other sources.
```

rk18nutr

RadioAstron AGN Monitoring

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```
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```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  28 Feb 2018   Day  59 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 00 00  0716+714     06 48 27  71.4   8.9 -0.6    -163.1     0        0   19 00 00
19 14 30  ---          07 02 59  71.6   5.3 -0.3    -170.0   870       28   19 00 01

19 15 00  0716+714     07 03 29  71.6   5.2 -0.3    -170.2    24       28   19 15 00
19 29 30  ---          07 18 02  71.8   1.5 -0.1    -177.2   870       56   19 15 01

19 30 00  0716+714     07 18 32  71.8   1.4 -0.1    -177.4    24       56   19 30 00
19 44 30  ---          07 33 04  71.8  -2.3  0.2     175.6   870       84   19 30 01

19 45 00  0716+714     07 33 34  71.8  -2.5  0.2     175.4    24       84   19 45 00
20 00 00  ---          07 48 37  71.6  -6.3  0.4     168.2   900      112   19 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.474517       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 52.58285        0.00
                    fake circumpolar target for a TS to look at

* 0716+714          07 16 13.029739   * 07 21 53.448474     07 23 57.221619       0.00
  J0721+7120        71 26 15.17406    * 71 20 36.36340      71 18 34.40465        0.00
                    ./rk18nu_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0716+714           109.2

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18nvtr

RadioAstron AGN Monitoring

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```
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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  28 Feb 2018   Day  59 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  1641+399     10 49 06  31.5  64.3 -5.9     -44.8     0        0   23 00 00
23 19 30  ---          11 08 39  34.2  67.5 -5.6     -46.2  1170       37   23 00 01

23 20 00  1641+399     11 09 09  34.3  67.5 -5.6     -46.2    24       37   23 20 00
23 39 30  ---          11 28 43  37.0  70.7 -5.2     -47.5  1170       75   23 20 01

23 40 00  1641+399     11 29 13  37.1  70.8 -5.2     -47.5    24       75   23 40 00
23 59 59  ---          11 49 15  39.9  74.1 -4.9     -48.7  1199      113   23 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    9         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   7  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   7

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.498007       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 52.63319        0.00
                    fake circumpolar target for a TS to look at

* 1641+399          16 41 17.606226   * 16 42 58.809963     16 43 34.906884       0.00
  J1642+3948        39 54 10.81479    * 39 48 36.99385      39 46 26.31391        0.00
  3C345             ./rk18nv_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 51938 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1641+399            95.6

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

es085btr

Probing environment of protostars I. Second epoch observation of 6.

PI: *Rafal Sarniak*


```
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```


```
Observing mode: MKV, 128Mb/s

Schedule for TORUN     (Code Tr )                                    Page   2
               Probing environment of protostars I. Second epoch observation of 6.7GHz
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu   1 Mar 2018   Day  60 ---

 Next scan frequencies:  6664.22  6664.22  6664.22  6664.22  6668.22  6668.22  6668.22  6668.22
                         6672.22  6672.22  6672.22  6672.22  6676.22  6676.22  6676.22  6676.22
 Next BBC frequencies:    764.22   764.22   764.22   764.22   768.22   768.22   768.22   768.22
                          772.22   772.22   772.22   772.22   776.22   776.22   776.22   776.22
 Next scan bandwidths:      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                            2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00

03 00 00  3C345        14 49 46  66.5 113.1 -1.9     -45.9     0        0   03 00 00
03 10 00  ---          14 59 47  67.9 116.6 -1.7     -44.3   600       10   03 00 01

03 10 25  3C345        15 00 12  68.0 116.8 -1.7     -44.2    19       10   03 10 25
03 20 00  ---          15 09 49  69.2 120.4 -1.6     -42.3   575       19   03 10 26

03 22 00  J1856+0610   15 11 49  24.6 114.4 -3.8     -33.4   -61       19   03 22 00
03 23 45  =1854+061    15 13 34  24.9 114.8 -3.7     -33.3    44       21   03 22 01

03 23 45  G38.203      15 13 34  22.9 114.6 -3.8     -33.2   -21       21   No stop
03 27 00  ---          15 16 50  23.4 115.3 -3.8     -33.0   174       24   03 23 46

03 27 45  J1856+0610   15 17 35  25.4 115.7 -3.7     -33.0    24       24   03 27 45
03 29 30  =1854+061    15 19 20  25.6 116.1 -3.6     -32.8   105       25   03 27 46

03 29 30  G37.030      15 19 20  23.2 117.0 -3.7     -32.4   -23       25   No stop
03 32 45  ---          15 22 36  23.6 117.8 -3.6     -32.2   172       28   03 29 31

03 32 45  J1856+0610   15 22 36  26.1 116.9 -3.6     -32.6   -23       28   No stop
03 34 30  =1854+061    15 24 21  26.3 117.3 -3.6     -32.5    82       30   03 32 46

03 34 30  J1834-0301   15 24 21  21.2 127.6 -3.2     -28.4   -36       30   No stop
03 36 15  =1831-030    15 26 06  21.4 128.0 -3.2     -28.3    69       32   03 34 31

03 36 15  G31.047      15 26 06  21.2 124.3 -3.4     -29.7   -22       32   No stop
03 39 30  ---          15 29 22  21.6 125.1 -3.3     -29.5   173       35   03 36 16
```

03 40 15	J1834-0301	15 30 07	21.9	129.0	-3.1	-27.9	23	35	03 40 15
03 42 00	=1831-030	15 31 52	22.1	129.4	-3.1	-27.7	105	37	03 40 16
03 42 00	G30.400	15 31 52	21.0	125.8	-3.3	-29.2	-22	37	No stop
03 45 15	---	15 35 08	21.4	126.6	-3.2	-28.8	173	40	03 42 01
03 45 15	J1834-0301	15 35 08	22.5	130.2	-3.0	-27.4	-22	40	No stop
03 47 00	=1831-030	15 36 53	22.7	130.6	-3.0	-27.2	83	41	03 45 16
03 47 00	G27.221	15 36 53	20.2	130.1	-3.1	-27.5	-23	41	No stop
03 50 15	---	15 40 09	20.5	130.8	-3.0	-27.1	172	45	03 47 01

Schedule for TORUN (Code Tr) Page 3

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 1 Mar 2018 Day 60 ---										
03 50 15	J1834-0301	15 40 09	23.0	131.4	-2.9		-26.8	-23	45	No stop
03 52 00	=1831-030	15 41 54	23.2	131.8	-2.9		-26.6	82	46	03 50 16
03 52 50	J1825-0737	15 42 44	20.1	136.2	-2.7		-24.8	24	46	03 52 50
03 54 35	=1822-076	15 44 29	20.3	136.6	-2.7		-24.6	105	48	03 52 51
03 54 35	G24.541	15 44 29	19.6	134.3	-2.9		-25.7	-19	48	No stop
03 57 50	---	15 47 45	19.9	135.1	-2.8		-25.3	176	51	03 54 36
03 57 50	J1825-0737	15 47 45	20.6	137.4	-2.6		-24.2	-19	51	No stop
03 59 35	=1822-076	15 49 30	20.8	137.9	-2.6		-24.0	86	53	03 57 51
04 03 28	3C345	15 53 24	74.2	142.3	-0.8		-28.6	19	53	04 03 28
04 06 38	---	15 56 34	74.5	144.3	-0.8		-27.2	190	56	04 03 29
04 06 38	3C345	15 56 34	74.5	144.3	-0.8		-27.2	-5	56	No stop
04 10 38	---	16 00 35	74.8	146.9	-0.7		-25.3	235	60	04 06 39
04 12 38	J1856+0610	16 02 35	31.2	126.6	-2.9		-29.0	-57	60	04 12 38
04 14 23	=1854+061	16 04 20	31.4	127.0	-2.9		-28.8	48	61	04 12 39
04 14 23	G38.203	16 04 20	29.5	126.7	-3.0		-28.9	-21	61	No stop
04 17 38	---	16 07 36	29.9	127.5	-2.9		-28.6	174	64	04 14 24
04 18 23	J1856+0610	16 08 21	31.9	128.1	-2.8		-28.4	24	64	04 18 23
04 20 08	=1854+061	16 10 06	32.1	128.5	-2.8		-28.2	105	66	04 18 24
04 20 08	G37.030	16 10 06	29.5	129.3	-2.8		-27.8	-23	66	No stop
04 23 23	---	16 13 22	29.9	130.1	-2.8		-27.4	172	69	04 20 09
04 23 23	J1856+0610	16 13 22	32.5	129.4	-2.7		-27.8	-24	69	No stop
04 25 08	=1854+061	16 15 07	32.7	129.8	-2.7		-27.6	81	71	04 23 24
04 25 08	J1834-0301	16 15 07	26.7	140.1	-2.3		-22.7	-36	71	No stop
04 26 53	=1831-030	16 16 52	26.9	140.6	-2.3		-22.5	69	73	04 25 09
04 26 53	G31.047	16 16 52	27.0	136.7	-2.5		-24.3	-22	73	No stop
04 30 08	---	16 20 08	27.3	137.5	-2.5		-23.9	173	76	04 26 54
04 30 53	J1834-0301	16 20 53	27.2	141.6	-2.2		-21.9	22	76	04 30 53
04 32 38	=1831-030	16 22 38	27.4	142.1	-2.2		-21.7	105	77	04 30 54
04 32 38	G30.400	16 22 38	26.7	138.3	-2.4		-23.6	-22	77	No stop
04 35 53	---	16 25 54	27.0	139.1	-2.4		-23.2	173	81	04 32 39

Schedule for TORUN (Code Tr) Page 4

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
04 35 53	J1834-0301	16 25 54	27.7	142.9	-2.2		-21.3	-23	81	No stop
04 37 38	=1831-030	16 27 39	27.9	143.4	-2.1		-21.0	82	82	04 35 54
04 37 38	G27.221	16 27 39	25.4	142.6	-2.2		-21.5	-23	82	No stop
04 40 53	---	16 30 55	25.7	143.4	-2.2		-21.1	172	85	04 37 39
04 41 38	J1834-0301	16 31 40	28.2	144.4	-2.1		-20.5	22	85	04 41 38
04 43 23	=1831-030	16 33 25	28.4	144.9	-2.0		-20.2	105	87	04 41 39
04 43 23	J1825-0737	16 33 25	24.7	148.9	-1.9		-18.3	-27	87	No stop
04 45 08	=1822-076	16 35 10	24.9	149.3	-1.9		-18.0	78	89	04 43 24
04 45 08	G24.541	16 35 10	24.4	146.8	-2.0		-19.4	-19	89	No stop
04 48 23	---	16 38 26	24.7	147.6	-2.0		-18.9	176	92	04 45 09
04 48 23	J1825-0737	16 38 26	25.1	150.2	-1.8		-17.5	-19	92	No stop
04 50 08	=1822-076	16 40 11	25.2	150.6	-1.8		-17.3	86	94	04 48 24
04 50 08	J1856+0610	16 40 11	35.4	136.6	-2.3		-24.5	-52	94	No stop
04 51 53	=1854+061	16 41 57	35.6	137.1	-2.3		-24.3	53	95	04 50 09
04 51 53	G38.203	16 41 57	33.7	136.5	-2.3		-24.5	-21	95	No stop
04 55 08	---	16 45 12	34.1	137.4	-2.3		-24.1	174	98	04 51 54
04 55 53	J1856+0610	16 45 57	36.0	138.2	-2.2		-23.7	24	98	04 55 53
04 57 38	=1854+061	16 47 42	36.2	138.7	-2.2		-23.5	105	100	04 55 54
04 57 38	G37.030	16 47 42	33.6	139.2	-2.2		-23.2	-23	100	No stop
05 00 53	---	16 50 58	33.9	140.1	-2.1		-22.7	172	103	04 57 39
05 00 53	J1856+0610	16 50 58	36.5	139.6	-2.1		-23.0	-24	103	No stop
05 02 38	=1854+061	16 52 43	36.7	140.1	-2.1		-22.8	81	105	05 00 54
05 02 38	J1834-0301	16 52 43	29.9	150.1	-1.7		-17.4	-39	105	No stop
05 04 23	=1831-030	16 54 29	30.1	150.6	-1.7		-17.2	66	106	05 02 39
05 04 23	G31.047	16 54 29	30.5	146.6	-1.9		-19.3	-23	106	No stop
05 07 38	---	16 57 44	30.8	147.5	-1.8		-18.8	172	110	05 04 24
05 08 23	J1834-0301	16 58 29	30.3	151.7	-1.6		-16.6	22	110	05 08 23
05 10 08	=1831-030	17 00 15	30.5	152.2	-1.6		-16.3	105	111	05 08 24
05 10 08	G30.400	17 00 15	30.1	148.2	-1.8		-18.4	-23	111	No stop
05 13 23	---	17 03 30	30.3	149.1	-1.8		-18.0	172	114	05 10 09

Schedule for TORUN (Code Tr) Page 5

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
05 13 23	J1834-0301	17 03 30	30.7	153.1	-1.5		-15.8	-23	114	No stop
05 15 08	=1831-030	17 05 15	30.8	153.6	-1.5		-15.5	82	116	05 13 24
05 15 08	G27.221	17 05 15	28.5	152.5	-1.6		-16.2	-23	116	No stop
05 18 23	---	17 08 31	28.7	153.4	-1.5		-15.7	172	119	05 15 09
05 19 08	J1834-0301	17 09 16	31.1	154.7	-1.4		-14.9	22	119	05 19 08
05 20 53	=1831-030	17 11 01	31.2	155.2	-1.4		-14.6	105	121	05 19 09
05 20 53	J1825-0737	17 11 01	27.2	158.8	-1.3		-12.6	-29	121	No stop
05 22 38	=1822-076	17 12 47	27.3	159.3	-1.2		-12.4	76	123	05 20 54
05 22 38	G24.541	17 12 47	27.1	156.7	-1.4		-13.8	-19	123	No stop
05 25 53	---	17 16 02	27.3	157.6	-1.3		-13.3	176	126	05 22 39
05 25 53	J1825-0737	17 16 02	27.5	160.2	-1.2		-11.8	-20	126	No stop
05 27 38	=1822-076	17 17 47	27.6	160.7	-1.1		-11.6	85	127	05 25 54
05 27 38	J1856+0610	17 17 47	38.9	147.5	-1.7		-19.0	-57	127	No stop
05 29 23	=1854+061	17 19 33	39.0	148.0	-1.6		-18.7	48	129	05 27 39
05 29 23	G38.203	17 19 33	37.2	147.2	-1.7		-19.1	-20	129	No stop
05 32 38	---	17 22 48	37.5	148.2	-1.7		-18.5	175	132	05 29 24
05 33 23	J1856+0610	17 23 33	39.3	149.2	-1.6		-18.0	24	132	05 33 23
05 35 08	=1854+061	17 25 19	39.5	149.8	-1.5		-17.7	105	134	05 33 24
05 35 08	G37.030	17 25 19	36.9	150.0	-1.6		-17.5	-24	134	No stop
05 38 23	---	17 28 34	37.1	150.9	-1.5		-17.0	171	137	05 35 09
05 38 23	J1856+0610	17 28 34	39.7	150.8	-1.5		-17.2	-24	137	No stop
05 40 08	=1854+061	17 30 19	39.8	151.3	-1.5		-16.9	81	139	05 38 24
05 40 08	J1834-0301	17 30 19	32.3	160.8	-1.1		-11.4	-42	139	No stop
05 41 53	=1831-030	17 32 05	32.4	161.3	-1.1		-11.1	63	140	05 40 09
05 41 53	G31.047	17 32 05	33.2	157.3	-1.3		-13.4	-23	140	No stop
05 45 08	---	17 35 20	33.4	158.2	-1.2		-12.9	172	144	05 41 54
05 45 53	J1834-0301	17 36 05	32.5	162.4	-1.0		-10.5	22	144	05 45 53
05 47 38	=1831-030	17 37 51	32.6	162.9	-1.0		-10.2	105	145	05 45 54
05 47 38	G30.400	17 37 51	32.6	158.8	-1.2		-12.5	-23	145	No stop
05 50 53	---	17 41 06	32.7	159.8	-1.1		-12.0	172	148	05 47 39

Schedule for TORUN (Code Tr) Page 6

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
05 50 53	J1834-0301	17 41 06	32.8	163.9	-0.9		-9.6	-23	148	No stop
05 52 38	=1831-030	17 42 52	32.8	164.4	-0.9		-9.3	82	150	05 50 54
05 52 38	G27.221	17 42 52	30.6	163.0	-1.0		-10.2	-22	150	No stop
05 55 53	---	17 46 07	30.7	163.9	-0.9		-9.6	173	153	05 52 39
05 56 38	J1834-0301	17 46 52	33.0	165.6	-0.8		-8.6	23	153	05 56 38
05 58 23	=1831-030	17 48 37	33.1	166.1	-0.8		-8.3	105	155	05 56 39
05 58 23	J1825-0737	17 48 37	28.8	169.3	-0.6		-6.5	-30	155	No stop
06 00 08	=1822-076	17 50 23	28.8	169.7	-0.6		-6.2	75	156	05 58 24
06 00 08	G24.541	17 50 23	28.8	167.1	-0.8		-7.8	-19	156	No stop
06 03 23	---	17 53 38	28.9	168.0	-0.7		-7.2	176	160	06 00 09
06 03 23	J1825-0737	17 53 38	28.9	170.7	-0.5		-5.6	-20	160	No stop
06 05 08	=1822-076	17 55 24	28.9	171.2	-0.5		-5.3	85	161	06 03 24
06 05 08	J1856+0610	17 55 24	41.4	159.2	-1.0		-12.4	-61	161	No stop
06 06 53	=1854+061	17 57 09	41.5	159.8	-1.0		-12.0	44	163	06 05 09
06 06 53	G38.203	17 57 09	39.8	158.7	-1.1		-12.6	-20	163	No stop
06 10 08	---	18 00 24	40.0	159.7	-1.0		-12.0	175	166	06 06 54
06 10 53	J1856+0610	18 01 10	41.7	161.1	-0.9		-11.3	25	166	06 10 53
06 12 38	=1854+061	18 02 55	41.8	161.7	-0.9		-10.9	105	168	06 10 54
06 12 38	G37.030	18 02 55	39.2	161.5	-1.0		-11.0	-24	168	No stop
06 15 53	---	18 06 10	39.3	162.5	-0.9		-10.4	171	171	06 12 39
06 15 53	J1856+0610	18 06 10	41.9	162.8	-0.9		-10.3	-24	171	No stop
06 17 38	=1854+061	18 07 56	42.0	163.3	-0.8		-10.0	81	173	06 15 54
06 17 38	J1834-0301	18 07 56	33.6	171.8	-0.5		-4.9	-45	173	No stop
06 19 23	=1831-030	18 09 41	33.6	172.4	-0.4		-4.6	60	174	06 17 39
06 19 23	G31.047	18 09 41	34.8	168.4	-0.6		-6.9	-23	174	No stop
06 22 38	---	18 12 56	34.9	169.4	-0.6		-6.3	172	177	06 19 24
06 23 23	J1834-0301	18 13 42	33.7	173.6	-0.4		-3.9	22	177	06 23 23
06 25 08	=1831-030	18 15 27	33.7	174.1	-0.3		-3.6	105	179	06 23 24
06 25 08	G30.400	18 15 27	34.1	169.9	-0.6		-6.0	-23	179	No stop
06 28 23	---	18 18 42	34.2	170.9	-0.5		-5.5	172	182	06 25 09

Schedule for TORUN (Code Tr) Page 7

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 1 Mar 2018 Day 60 ---										
06 28 23	J1834-0301	18 18 42	33.8	175.1	-0.3		-3.0	-23	182	No stop
06 30 08	=1831-030	18 20 28	33.8	175.6	-0.2		-2.7	82	184	06 28 24
06 30 08	G27.221	18 20 28	31.7	173.9	-0.3		-3.7	-22	184	No stop
06 33 23	---	18 23 43	31.8	174.8	-0.3		-3.1	173	187	06 30 09
06 34 08	J1834-0301	18 24 28	33.9	176.8	-0.2		-1.9	23	187	06 34 08
06 35 53	=1831-030	18 26 14	33.9	177.3	-0.1		-1.6	105	189	06 34 09
06 35 53	J1825-0737	18 26 14	29.3	179.9	-0.0		-0.1	-31	189	No stop
06 37 38	=1822-076	18 27 59	29.3	180.4	0.0		0.2	74	190	06 35 54
06 37 38	G24.541	18 27 59	29.6	177.7	-0.1		-1.4	-19	190	No stop
06 40 53	---	18 31 14	29.6	178.7	-0.1		-0.8	176	194	06 37 39
06 40 53	J1825-0737	18 31 14	29.3	181.3	0.1		0.8	-20	194	No stop
06 42 38	=1822-076	18 33 00	29.3	181.8	0.1		1.1	85	195	06 40 54
06 42 38	J1856+0610	18 33 00	42.8	171.7	-0.4		-5.0	-65	195	No stop
06 44 23	=1854+061	18 34 45	42.9	172.3	-0.4		-4.6	40	197	06 42 39
06 44 23	G38.203	18 34 45	41.3	170.9	-0.5		-5.5	-20	197	No stop
06 47 38	---	18 38 01	41.3	172.0	-0.4		-4.8	175	200	06 44 24
06 48 23	J1856+0610	18 38 46	42.9	173.7	-0.3		-3.8	25	200	06 48 23
06 50 08	=1854+061	18 40 31	43.0	174.3	-0.3		-3.5	105	202	06 48 24
06 50 08	G37.030	18 40 31	40.4	173.6	-0.3		-3.8	-24	202	No stop
06 53 23	---	18 43 47	40.4	174.7	-0.3		-3.2	171	205	06 50 09
06 53 23	J1856+0610	18 43 47	43.0	175.4	-0.2		-2.8	-24	205	No stop
06 55 08	=1854+061	18 45 32	43.0	176.0	-0.2		-2.4	81	206	06 53 24
06 55 08	J1834-0301	18 45 32	33.9	183.1	0.2		1.9	-48	206	No stop
06 56 53	=1831-030	18 47 17	33.8	183.6	0.2		2.2	57	208	06 55 09
06 56 53	G31.047	18 47 17	35.4	179.9	-0.0		-0.1	-22	208	No stop
07 00 08	---	18 50 33	35.4	180.9	0.0		0.5	173	211	06 56 54
07 00 53	J1834-0301	18 51 18	33.8	184.8	0.3		2.9	23	211	07 00 53
07 02 38	=1831-030	18 53 03	33.8	185.4	0.3		3.2	105	213	07 00 54
07 02 38	G30.400	18 53 03	34.5	181.3	0.1		0.8	-23	213	No stop
07 05 53	---	18 56 19	34.5	182.3	0.1		1.4	172	216	07 02 39

Schedule for TORUN (Code Tr) Page 8

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
07 05 53	J1834-0301	18 56 19	33.7	186.4	0.4		3.8	-23	216	No stop
07 07 38	=1831-030	18 58 04	33.7	186.9	0.4		4.1	82	218	07 05 54
07 07 38	G27.221	18 58 04	31.8	184.9	0.3		2.9	-21	218	No stop
07 10 53	---	19 01 19	31.8	185.8	0.3		3.5	174	221	07 07 39
07 11 38	J1834-0301	19 02 05	33.6	188.1	0.4		4.8	24	221	07 11 38
07 13 23	=1831-030	19 03 50	33.6	188.6	0.5		5.2	105	223	07 11 39
07 13 23	J1825-0737	19 03 50	28.8	190.5	0.6		6.4	-32	223	No stop
07 15 08	=1822-076	19 05 35	28.7	191.0	0.6		6.7	73	224	07 13 24
07 15 08	G24.541	19 05 35	29.3	188.4	0.5		5.1	-19	224	No stop
07 18 23	---	19 08 51	29.2	189.4	0.5		5.7	176	227	07 15 09
07 18 23	J1825-0737	19 08 51	28.6	191.9	0.7		7.2	-20	227	No stop
07 20 08	=1822-076	19 10 36	28.6	192.4	0.7		7.5	85	229	07 18 24
07 20 08	J1856+0610	19 10 36	43.0	184.5	0.2		2.7	-68	229	No stop
07 21 53	=1854+061	19 12 21	43.0	185.1	0.2		3.1	37	231	07 20 09
07 21 53	G38.203	19 12 21	41.5	183.4	0.2		2.0	-19	231	No stop
07 25 08	---	19 15 37	41.5	184.5	0.2		2.7	176	234	07 21 54
07 25 53	J1856+0610	19 16 22	42.9	186.4	0.3		3.9	26	234	07 25 53
07 27 38	=1854+061	19 18 07	42.9	187.0	0.3		4.2	105	236	07 25 54
07 27 38	G37.030	19 18 07	40.4	186.0	0.3		3.6	-23	236	No stop
07 30 53	---	19 21 23	40.4	187.0	0.4		4.2	172	239	07 27 39
07 30 53	J1856+0610	19 21 23	42.8	188.1	0.4		4.9	-23	239	No stop
07 32 38	=1854+061	19 23 08	42.8	188.7	0.4		5.3	82	240	07 30 54
07 32 38	J1834-0301	19 23 08	33.0	194.3	0.8		8.6	-51	240	No stop
07 34 23	=1831-030	19 24 53	32.9	194.8	0.8		8.9	54	242	07 32 39
07 34 23	G31.047	19 24 53	34.9	191.4	0.6		6.8	-21	242	No stop
07 37 38	---	19 28 09	34.8	192.4	0.7		7.4	174	245	07 34 24
07 38 23	J1834-0301	19 28 54	32.8	196.0	0.9		9.6	23	245	07 38 23
07 40 08	=1831-030	19 30 39	32.7	196.5	0.9		9.9	105	247	07 38 24
07 40 08	G30.400	19 30 39	33.8	192.6	0.7		7.5	-22	247	No stop
07 43 23	---	19 33 55	33.7	193.6	0.8		8.1	173	250	07 40 09

Schedule for TORUN (Code Tr) Page 9

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 1 Mar 2018 Day 60 ---										
07 43 23	J1834-0301	19 33 55	32.6	197.5	1.0		10.4	-23	250	No stop
07 45 08	=1831-030	19 35 40	32.5	198.0	1.0		10.7	82	252	07 43 24
07 45 08	G27.221	19 35 40	30.8	195.8	0.9		9.4	-20	252	No stop
07 48 23	---	19 38 56	30.6	196.7	1.0		10.0	175	255	07 45 09
07 49 08	J1834-0301	19 39 41	32.3	199.2	1.1		11.4	25	255	07 49 08
07 50 53	=1831-030	19 41 26	32.2	199.7	1.1		11.7	105	256	07 49 09
07 50 53	J1825-0737	19 41 26	27.2	201.0	1.2		12.5	-33	256	No stop
07 52 38	=1822-076	19 43 11	27.1	201.4	1.3		12.8	72	258	07 50 54
07 52 38	G24.541	19 43 11	27.9	199.0	1.1		11.3	-19	258	No stop
07 55 53	---	19 46 27	27.8	199.9	1.2		11.9	176	261	07 52 39
07 55 53	J1825-0737	19 46 27	27.0	202.3	1.3		13.3	-19	261	No stop
07 57 38	=1822-076	19 48 12	26.9	202.8	1.4		13.6	86	263	07 55 54
07 57 38	J1856+0610	19 48 12	42.0	197.1	0.8		10.2	-70	263	No stop
07 59 23	=1854+061	19 49 57	41.9	197.7	0.9		10.6	35	265	07 57 39
07 59 23	G38.203	19 49 57	40.6	195.8	0.8		9.4	-18	265	No stop
08 02 38	---	19 53 13	40.5	196.8	0.9		10.0	177	268	07 59 24
08 03 23	J1856+0610	19 53 58	41.7	199.0	0.9		11.3	27	268	08 03 23
08 05 08	=1854+061	19 55 43	41.6	199.6	1.0		11.7	105	269	08 03 24
08 05 08	G37.030	19 55 43	39.2	198.1	0.9		10.8	-23	269	No stop
08 08 23	---	19 58 59	39.1	199.1	1.0		11.4	172	273	08 05 09
08 08 23	J1856+0610	19 58 59	41.4	200.6	1.0		12.3	-23	273	No stop
08 10 08	=1854+061	20 00 44	41.3	201.2	1.1		12.6	82	274	08 08 24
08 10 08	J1834-0301	20 00 44	31.1	205.2	1.4		14.8	-53	274	No stop
08 11 53	=1831-030	20 02 29	31.0	205.7	1.5		15.1	52	276	08 10 09
08 11 53	G31.047	20 02 29	33.2	202.5	1.2		13.3	-22	276	No stop
08 15 08	---	20 05 45	33.0	203.5	1.3		13.8	173	279	08 11 54
08 15 53	J1834-0301	20 06 30	30.7	206.8	1.5		15.7	23	279	08 15 53
08 17 38	=1831-030	20 08 15	30.6	207.3	1.6		16.0	105	281	08 15 54
08 17 38	G30.400	20 08 15	32.1	203.6	1.3		13.9	-22	281	No stop
08 20 53	---	20 11 31	31.9	204.6	1.4		14.5	173	284	08 17 39

Schedule for TORUN (Code Tr) Page 10

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
08 20 53	J1834-0301	20 11 31	30.4	208.2	1.6		16.5	-22	284	No stop
08 22 38	=1831-030	20 13 16	30.2	208.7	1.6		16.8	83	286	08 20 54
08 22 38	G27.221	20 13 16	28.8	206.3	1.5		15.5	-19	286	No stop
08 25 53	---	20 16 32	28.5	207.2	1.6		16.0	176	289	08 22 39
08 26 38	J1834-0301	20 17 17	29.9	209.8	1.7		17.4	26	289	08 26 38
08 28 23	=1831-030	20 19 02	29.8	210.3	1.7		17.6	105	290	08 26 39
08 28 23	J1825-0737	20 19 02	24.8	211.0	1.9		18.2	-33	290	No stop
08 30 08	=1822-076	20 20 47	24.6	211.4	1.9		18.4	72	292	08 28 24
08 30 08	G24.541	20 20 47	25.6	209.1	1.7		17.1	-18	292	No stop
08 33 23	---	20 24 03	25.4	209.9	1.8		17.6	177	295	08 30 09
08 33 23	J1825-0737	20 24 03	24.4	212.3	2.0		18.9	-19	295	No stop
08 35 08	=1822-076	20 25 48	24.2	212.7	2.0		19.1	86	297	08 33 24
08 35 08	J1825-0737	20 25 48	24.2	212.7	2.0		19.1	-5	297	No stop
08 36 53	=1822-076	20 27 34	24.1	213.2	2.0		19.3	100	299	08 35 09
08 36 53	G24.541	20 27 34	25.1	210.9	1.9		18.1	-18	299	No stop
08 40 08	---	20 30 49	24.9	211.7	1.9		18.6	177	302	08 36 54
08 40 53	J1825-0737	20 31 34	23.8	214.2	2.1		19.9	26	302	08 40 53
08 42 38	=1822-076	20 33 19	23.6	214.6	2.1		20.1	105	303	08 40 54
08 42 38	J1834-0301	20 33 19	28.7	214.1	2.0		19.7	-33	303	No stop
08 44 23	=1831-030	20 35 05	28.5	214.6	2.0		20.0	72	305	08 42 39
08 44 23	G27.221	20 35 05	27.2	212.2	1.9		18.7	-19	305	No stop
08 47 38	---	20 38 20	26.9	213.0	1.9		19.2	176	308	08 44 24
08 47 38	J1834-0301	20 38 20	28.2	215.5	2.1		20.4	-19	308	No stop
08 49 23	=1831-030	20 40 06	28.1	215.9	2.1		20.7	86	310	08 47 39
08 53 05	3C345	20 43 49	47.9	276.6	4.0		50.9	87	310	08 53 05
08 56 15	---	20 46 59	47.4	277.2	4.1		50.8	190	313	08 53 06
08 56 15	3C345	20 46 59	47.4	277.2	4.1		50.8	-5	313	No stop
09 00 15	---	20 51 00	46.8	277.9	4.1		50.7	235	317	08 56 16
09 02 15	J1856+0610	20 53 00	37.5	217.3	1.9		21.5	-16	317	09 02 15
09 04 00	=1854+061	20 54 46	37.4	217.8	2.0		21.7	89	318	09 02 16

Schedule for TORUN (Code Tr) Page 11

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 1 Mar 2018 Day 60 ---										
09 04 00	G38.203	20 54 46	36.4	215.7	1.9		20.6	-18	318	No stop
09 07 15	---	20 58 01	36.1	216.7	1.9		21.1	177	322	09 04 01
09 08 00	J1856+0610	20 58 46	37.0	219.0	2.0		22.3	27	322	09 08 00
09 09 45	=1854+061	21 00 32	36.8	219.5	2.1		22.6	105	323	09 08 01
09 09 45	G37.030	21 00 32	34.7	217.6	2.0		21.5	-22	323	No stop
09 13 00	---	21 03 47	34.4	218.5	2.1		22.0	173	326	09 09 46
09 13 00	J1856+0610	21 03 47	36.5	220.4	2.1		23.0	-22	326	No stop
09 14 45	=1854+061	21 05 32	36.3	220.9	2.1		23.3	83	328	09 13 01
09 14 45	J1834-0301	21 05 32	25.7	222.5	2.5		24.0	-54	328	No stop
09 16 30	=1831-030	21 07 18	25.5	223.0	2.5		24.2	51	330	09 14 46
09 16 30	G31.047	21 07 18	28.1	220.4	2.3		22.9	-24	330	No stop
09 19 45	---	21 10 33	27.8	221.3	2.4		23.4	171	333	09 16 31
09 20 30	J1834-0301	21 11 18	25.1	224.0	2.6		24.7	21	333	09 20 30
09 22 15	=1831-030	21 13 04	24.9	224.4	2.6		24.9	105	335	09 20 31
09 22 15	G30.400	21 13 04	26.9	221.3	2.4		23.3	-21	335	No stop
09 25 30	---	21 16 19	26.5	222.1	2.5		23.8	174	338	09 22 16
09 25 30	J1834-0301	21 16 19	24.5	225.2	2.7		25.3	-21	338	No stop
09 27 15	=1831-030	21 18 04	24.4	225.7	2.7		25.5	84	339	09 25 31
09 27 15	G27.221	21 18 04	23.2	223.2	2.6		24.4	-19	339	No stop
09 30 30	---	21 21 20	22.9	224.0	2.7		24.8	176	342	09 27 16
09 31 15	J1834-0301	21 22 05	23.9	226.7	2.8		25.9	26	342	09 31 15
09 33 00	=1831-030	21 23 50	23.7	227.1	2.8		26.1	105	344	09 31 16
09 33 00	J1825-0737	21 23 50	18.7	227.0	3.0		26.3	-33	344	No stop
09 34 45	=1822-076	21 25 36	18.5	227.4	3.0		26.5	72	346	09 33 01
09 34 45	G24.541	21 25 36	19.8	225.3	2.8		25.5	-18	346	No stop
09 38 00	---	21 28 51	19.4	226.1	2.9		25.9	177	349	09 34 46
09 38 00	J1825-0737	21 28 51	18.1	228.1	3.0		26.8	-18	349	No stop
09 39 45	=1822-076	21 30 37	17.9	228.5	3.1		27.0	87	351	09 38 01
09 39 45	J1856+0610	21 30 37	33.7	227.8	2.6		26.6	-73	351	No stop
09 41 30	=1854+061	21 32 22	33.5	228.3	2.6		26.8	32	352	09 39 46

Schedule for TORUN (Code Tr) Page 12

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 1 Mar 2018 Day 60 ---										
09 41 30	G38.203	21 32 22	32.7	226.2	2.5		25.8	-18	352	No stop
09 44 45	---	21 35 37	32.3	227.0	2.6		26.2	177	355	09 41 31
09 45 30	J1856+0610	21 36 22	33.0	229.3	2.6		27.3	27	355	09 45 30
09 47 15	=1854+061	21 38 08	32.8	229.8	2.7		27.5	105	357	09 45 31
09 47 15	G37.030	21 38 08	30.9	227.8	2.6		26.5	-21	357	No stop
09 50 30	---	21 41 23	30.5	228.6	2.7		26.8	174	360	09 47 16
09 50 30	J1856+0610	21 41 23	32.5	230.6	2.7		27.8	-21	360	No stop
09 52 15	=1854+061	21 43 09	32.3	231.1	2.8		28.0	84	362	09 50 31
09 52 15	J1834-0301	21 43 09	21.5	231.7	3.1		28.2	-54	362	No stop
09 54 00	=1831-030	21 44 54	21.3	232.1	3.2		28.3	51	364	09 52 16
09 54 00	G31.047	21 44 54	24.1	229.9	3.0		27.4	-24	364	No stop
09 57 15	---	21 48 09	23.7	230.7	3.0		27.7	171	367	09 54 01
09 58 00	J1834-0301	21 48 55	20.8	233.1	3.2		28.7	20	367	09 58 00
09 59 45	=1831-030	21 50 40	20.6	233.5	3.3		28.9	105	368	09 58 01
09 59 45	G30.400	21 50 40	22.8	230.6	3.0		27.7	-22	368	No stop
10 03 00	---	21 53 55	22.4	231.4	3.1		28.0	173	372	09 59 46
10 03 00	J1834-0301	21 53 55	20.2	234.3	3.3		29.2	-22	372	No stop
10 04 45	=1831-030	21 55 41	20.0	234.7	3.3		29.4	83	373	10 03 01
10 04 45	G27.221	21 55 41	19.0	232.2	3.2		28.4	-19	373	No stop
10 08 00	---	21 58 56	18.7	232.9	3.3		28.8	176	376	10 04 46
10 08 45	J1834-0301	21 59 41	19.5	235.6	3.4		29.7	26	376	10 08 45
10 10 30	=1831-030	22 01 27	19.3	236.0	3.4		29.9	105	378	10 08 46
10 10 30	J1825-0737	22 01 27	14.3	235.5	3.6		30.0	-33	378	No stop
10 12 15	=1822-076	22 03 12	14.0	235.9	3.6		30.1	72	380	10 10 31
10 12 15	G24.541	22 03 12	15.5	234.0	3.5		29.3	-19	380	No stop
10 15 30	---	22 06 27	15.1	234.7	3.5		29.6	176	383	10 12 16
10 15 30	J1825-0737	22 06 27	13.6	236.6	3.7		30.4	-19	383	No stop
10 17 15	=1822-076	22 08 13	13.4	237.0	3.7		30.5	86	385	10 15 31
10 17 15	J1856+0610	22 08 13	29.2	237.4	3.2		30.6	-73	385	No stop
10 19 00	=1854+061	22 09 58	29.0	237.8	3.2		30.8	32	386	10 17 16

Schedule for TORUN (Code Tr) Page 13

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 1 Mar 2018 Day 60 ---										
10 19 00	G38.203	22 09 58	28.3	235.8	3.1		29.9	-18	386	No stop
10 22 15	---	22 13 13	27.9	236.6	3.2		30.2	177	389	10 19 01
10 23 00	J1856+0610	22 13 59	28.5	238.8	3.3		31.1	27	389	10 23 00
10 24 45	=1854+061	22 15 44	28.3	239.2	3.3		31.3	105	391	10 23 01
10 24 45	G37.030	22 15 44	26.4	237.2	3.3		30.4	-21	391	No stop
10 28 00	---	22 18 59	26.0	237.9	3.3		30.7	174	394	10 24 46
10 28 00	J1856+0610	22 18 59	27.8	240.0	3.4		31.5	-21	394	No stop
10 29 45	=1854+061	22 20 45	27.6	240.4	3.4		31.7	84	396	10 28 01
10 29 45	J1834-0301	22 20 45	16.9	240.3	3.8		31.5	-55	396	No stop
10 31 30	=1831-030	22 22 30	16.6	240.7	3.8		31.6	50	398	10 29 46
10 31 30	G31.047	22 22 30	19.5	238.8	3.6		30.9	-25	398	No stop
10 34 45	---	22 25 46	19.1	239.5	3.6		31.2	170	401	10 31 31
10 35 30	J1834-0301	22 26 31	16.1	241.6	3.9		31.9	20	401	10 35 30
10 37 15	=1831-030	22 28 16	15.9	242.0	3.9		32.1	105	402	10 35 31
10 37 15	G30.400	22 28 16	18.2	239.3	3.7		31.1	-22	402	No stop
10 40 30	---	22 31 31	17.8	240.1	3.7		31.4	173	405	10 37 16
10 40 30	J1834-0301	22 31 31	15.4	242.7	3.9		32.3	-23	405	No stop
10 42 15	=1831-030	22 33 17	15.2	243.1	4.0		32.4	82	407	10 40 31
10 42 15	G27.221	22 33 17	14.3	240.6	3.9		31.7	-19	407	No stop
10 45 30	---	22 36 32	13.9	241.4	3.9		31.9	176	410	10 42 16
10 46 15	J1834-0301	22 37 17	14.7	244.0	4.0		32.7	26	410	10 46 15
10 48 00	=1831-030	22 39 03	14.4	244.4	4.1		32.8	105	412	10 46 16
10 48 00	J1825-0737	22 39 03	9.4	243.6	4.2		32.9	-33	412	No stop
10 49 45	=1822-076	22 40 48	9.2	244.0	4.2		33.0	72	414	10 48 01
10 49 45	G24.541	22 40 48	10.7	242.2	4.1		32.4	-19	414	No stop
10 53 00	---	22 44 04	10.2	242.9	4.1		32.6	176	417	10 49 46
10 53 00	J1825-0737	22 44 04	8.7	244.7	4.3		33.2	-19	417	No stop
10 54 45	=1822-076	22 45 49	8.5	245.1	4.3		33.3	86	418	10 53 01
10 54 45	J1856+0610	22 45 49	24.2	246.3	3.8		33.6	-72	418	No stop
10 56 30	=1854+061	22 47 34	24.0	246.7	3.8		33.7	33	420	10 54 46

Schedule for TORUN (Code Tr) Page 14

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
10 56 30	G38.203	22 47 34	23.4	244.7	3.8		33.0	-17	420	No stop
10 59 45	---	22 50 50	22.9	245.4	3.8		33.2	178	423	10 56 31
11 00 30	J1856+0610	22 51 35	23.4	247.6	3.9		33.9	27	423	11 00 30
11 02 15	=1854+061	22 53 20	23.2	248.0	3.9		34.0	105	425	11 00 31
11 02 15	G37.030	22 53 20	21.4	245.9	3.9		33.3	-20	425	No stop
11 05 30	---	22 56 36	21.0	246.6	3.9		33.5	175	428	11 02 16
11 05 30	J1856+0610	22 56 36	22.7	248.7	4.0		34.2	-20	428	No stop
11 07 15	=1854+061	22 58 21	22.5	249.1	4.0		34.3	85	430	11 05 31
11 07 15	J1834-0301	22 58 21	11.8	248.5	4.4		34.0	-55	430	No stop
11 09 00	=1831-030	23 00 06	11.5	248.9	4.4		34.1	50	431	11 07 16
11 09 00	G31.047	23 00 06	14.5	247.1	4.2		33.6	-25	431	No stop
11 12 15	---	23 03 22	14.1	247.8	4.3		33.8	170	435	11 09 01
11 13 00	J1834-0301	23 04 07	11.0	249.7	4.5		34.3	20	435	11 13 00
11 14 45	=1831-030	23 05 52	10.7	250.1	4.5		34.4	105	436	11 13 01
11 14 45	G30.400	23 05 52	13.1	247.6	4.3		33.7	-23	436	No stop
11 18 00	---	23 09 08	12.7	248.3	4.3		33.9	172	439	11 14 46
11 18 00	J1834-0301	23 09 08	10.2	250.8	4.6		34.6	-23	439	No stop
11 19 45	=1831-030	23 10 53	10.0	251.1	4.6		34.7	82	441	11 18 01
11 19 45	G27.221	23 10 53	9.2	248.7	4.5		34.2	-19	441	No stop
11 23 00	---	23 14 08	8.8	249.3	4.5		34.3	176	444	11 19 46
11 23 45	J1834-0301	23 14 54	9.4	252.0	4.7		34.9	26	444	11 23 45
11 25 30	=1831-030	23 16 39	9.2	252.3	4.7		35.0	105	446	11 23 46
11 25 30	J1825-0737	23 16 39	4.2	251.4	4.8		35.0	-33	446	No stop
11 27 15	=1822-076	23 18 24	3.9	251.8	4.9		35.1	72	448	11 25 31
11 27 15	G24.541	23 18 24	5.5	250.1	4.7		34.7	-19	448	No stop
11 30 30	---	23 21 40	5.0	250.7	4.8		34.9	176	451	11 27 16
11 30 30	J1825-0737	23 21 40	3.5	252.4	4.9		35.3	-20	451	No stop
11 32 15	=1822-076	23 23 25	3.2	252.8	4.9		35.4	85	452	11 30 31
11 32 15	J1856+0610	23 23 25	18.9	254.5	4.4		35.6	-72	452	No stop
11 34 00	=1854+061	23 25 10	18.7	254.9	4.5		35.7	33	454	11 32 16

Schedule for TORUN (Code Tr) Page 15

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
11 34 00	G38.203	23 25 10	18.1	253.0	4.4		35.2	-17	454	No stop
11 37 15	---	23 28 26	17.7	253.7	4.4		35.3	178	457	11 34 01
11 38 00	J1856+0610	23 29 11	18.1	255.8	4.5		35.8	27	457	11 38 00
11 39 45	=1854+061	23 30 56	17.8	256.1	4.6		35.9	105	459	11 38 01
11 39 45	G37.030	23 30 56	16.1	254.1	4.5		35.3	-20	459	No stop
11 43 00	---	23 34 12	15.7	254.7	4.6		35.5	175	462	11 39 46
11 43 00	J1856+0610	23 34 12	17.4	256.8	4.6		36.0	-20	462	No stop
11 44 45	=1854+061	23 35 57	17.1	257.2	4.6		36.1	85	464	11 43 01
11 44 45	J1834-0301	23 35 57	6.4	256.3	5.0		35.7	-54	464	No stop
11 46 30	=1831-030	23 37 42	6.1	256.6	5.0		35.8	51	465	11 44 46
11 46 30	G31.047	23 37 42	9.2	255.0	4.8		35.5	-25	465	No stop
11 49 45	---	23 40 58	8.7	255.7	4.9		35.6	170	468	11 46 31
11 50 30	J1834-0301	23 41 43	5.5	257.5	5.1		35.9	19	468	11 50 30
11 52 15	=1831-030	23 43 28	5.3	257.8	5.1		36.0	105	470	11 50 31
11 52 15	G30.400	23 43 28	7.8	255.4	4.9		35.6	-23	470	No stop
11 55 30	---	23 46 44	7.3	256.1	5.0		35.7	172	473	11 52 16
11 55 30	J1834-0301	23 46 44	4.8	258.5	5.2		36.1	-23	473	No stop
11 57 15	=1831-030	23 48 29	4.6	258.8	5.2		36.2	82	475	11 55 31
11 57 15	G27.221	23 48 29	3.9	256.4	5.1		35.9	-19	475	No stop
12 00 30	---	23 51 45	3.4	257.0	5.2		36.0	176	478	11 57 16
12 01 15	J1834-0301	23 52 30	4.0	259.6	5.3		36.3	26	478	12 01 15
12 03 00	=1831-030	23 54 15	3.7	260.0	5.3		36.3	105	480	12 01 16
12 09 45	J1856+0610	00 01 01	13.4	262.4	5.1		36.8	351	480	12 09 45
12 11 30	=1854+061	00 02 46	13.1	262.8	5.1		36.8	105	481	12 09 46
12 11 30	G37.030	00 02 46	11.5	260.7	5.0		36.4	-20	481	No stop
12 14 45	---	00 06 02	11.0	261.3	5.1		36.5	175	485	12 11 31
12 15 30	J1856+0610	00 06 47	12.5	263.6	5.2		36.9	25	485	12 15 30
12 17 15	=1854+061	00 08 32	12.3	263.9	5.2		36.9	105	486	12 15 31
12 17 15	G38.203	00 08 32	11.8	262.0	5.1		36.6	-17	486	No stop
12 20 30	---	00 11 48	11.3	262.7	5.2		36.7	178	489	12 17 16

Schedule for TORUN (Code Tr) Page 16

Probing environment of protostars I. Second epoch observation of 6.7GHz

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 1 Mar 2018 Day 60 ---										
12 20 30	J1856+0610	00 11 48	11.8	264.6	5.2		37.0	-17	489	No stop
12 22 15	=1854+061	00 13 33	11.5	264.9	5.3		37.0	88	491	12 20 31
12 22 15	G37.030	00 13 33	9.9	262.9	5.2		36.7	-20	491	No stop
12 25 30	---	00 16 49	9.4	263.5	5.3		36.7	175	494	12 22 16
12 26 15	J1856+0610	00 17 34	10.9	265.8	5.3		37.0	25	494	12 26 15
12 28 00	=1854+061	00 19 19	10.7	266.1	5.4		37.1	105	496	12 26 16
12 28 00	G38.203	00 19 19	10.2	264.2	5.3		36.8	-17	496	No stop
12 31 15	---	00 22 35	9.7	264.9	5.3		36.9	178	499	12 28 01
12 31 15	J1856+0610	00 22 35	10.2	266.8	5.4		37.1	-17	499	No stop
12 33 00	=1854+061	00 24 20	9.9	267.1	5.4		37.1	88	501	12 31 16
12 33 00	G37.030	00 24 20	8.3	265.1	5.4		36.8	-20	501	No stop
12 36 15	---	00 27 36	7.8	265.7	5.5		36.9	175	504	12 33 01
12 37 00	J1856+0610	00 28 21	9.3	267.9	5.5		37.1	25	504	12 37 00
12 38 45	=1854+061	00 30 06	9.0	268.3	5.5		37.1	105	505	12 37 01
12 38 45	G38.203	00 30 06	8.6	266.4	5.5		37.0	-17	505	No stop
12 42 00	---	00 33 21	8.1	267.1	5.5		37.0	178	509	12 38 46
12 42 00	J1856+0610	00 33 21	8.6	268.9	5.6		37.2	-17	509	No stop
12 43 45	=1854+061	00 35 07	8.3	269.3	5.6		37.2	88	510	12 42 01
12 43 45	G37.030	00 35 07	6.6	267.2	5.6		36.9	-20	510	No stop
12 47 00	---	00 38 22	6.2	267.9	5.6		37.0	175	513	12 43 46
12 47 45	J1856+0610	00 39 07	7.7	270.1	5.7		37.2	25	513	12 47 45
12 49 30	=1854+061	00 40 53	7.4	270.4	5.7		37.2	105	515	12 47 46
12 49 30	G38.203	00 40 53	6.9	268.6	5.6		37.0	-17	515	No stop
12 52 45	---	00 44 08	6.5	269.2	5.7		37.0	178	518	12 49 31
12 52 45	J1856+0610	00 44 08	6.9	271.1	5.8		37.1	-17	518	No stop
12 54 30	=1854+061	00 45 54	6.7	271.4	5.8		37.1	88	520	12 52 46
12 54 30	G37.030	00 45 54	5.0	269.4	5.8		37.0	-20	520	No stop
12 58 15	---	00 49 39	4.5	270.1	5.8		37.0	205	523	12 54 31
12 58 15	J1856+0610	00 49 39	6.1	272.2	5.9		37.1	-20	523	No stop
13 00 00	=1854+061	00 51 24	5.8	272.5	5.9		37.1	85	525	12 58 16

SETUP FILE INFORMATION:

```
  NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


======== Setup file: sess118.M128

  Setup group:    7         Station: TORUN            Total bit rate:   128
  Format: MARK5B            Bits per sample: 2        Sample rate:  4.000
  Number of channels: 16    DBE type: DBBC_DDC        Speedup factor:   1.00

  Disk used to record data.
```

```
 1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
           5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
 Net SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF SB =         U         U         U         U         U         U         U         U
                 U         U         U         U         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
               RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         2         6         2         6
                 3         7         3         7         4         8         4         8
 BBC SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1
                A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

 Frequency Set:   5  Based on FREQ, BW, and/or DOPPLER in schedule.  Used with PCAL = off
  LO sum=   6664.22  6664.22  6664.22  6664.22  6668.22  6668.22  6668.22  6668.22
            6672.22  6672.22  6672.22  6672.22  6676.22  6676.22  6676.22  6676.22
  BBC fr=    764.22   764.22   764.22   764.22   768.22   768.22   768.22   768.22
             772.22   772.22   772.22   772.22   776.22   776.22   776.22   776.22
  Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
               2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
   Matching frequency sets:   5

  Track assignments are:
   track1=  18, 26,  2, 10, 20, 28,  4, 12, 22, 30,  6, 14, 24, 32,  8, 16
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* G24.541           18 32 13.421048   * 18 34 55.721520     18 35 53.233064       0.00
                   -07 21 32.96805    *-07 19 06.65040     -07 18 11.07202        0.00
                    Doppler based on other sources.

* G27.221           18 37 50.949680   * 18 40 30.546080     18 41 27.064883       0.00
                   -05 03 55.90496    *-05 01 05.39470     -05 00 01.93406        0.00
                    Doppler based on other sources.

* G30.400           18 45 15.751001   * 18 47 52.299760     18 48 47.695010       0.00
                   -02 26 38.30501    *-02 23 16.05390     -02 22 02.09612        0.00
                    Doppler based on LSR frame and radio definition.  Velocities:
                        98.50    98.50    98.50    98.50    98.50    98.50    98.50    98.50
                        98.50    98.50    98.50    98.50    98.50    98.50

* G31.047           18 44 08.303243   * 18 46 43.855060     18 47 38.900729       0.00
                   -01 34 11.55385    *-01 30 54.15510     -01 29 42.18988        0.00
                    Doppler based on other sources.

* G37.030           18 56 33.918203   * 18 59 03.642330     18 59 56.549145       0.00
                    03 33 34.93626    * 03 37 45.08610      03 39 14.38589        0.00
                    Doppler based on other sources.

* G38.203           18 58 50.162561   * 19 01 18.732350     19 02 11.216458       0.00
                    04 35 14.58278    * 04 39 34.29380      04 41 06.72579        0.00
```

```
                    Doppler based on other sources.

* 3C345             16 41 17.606228   * 16 42 58.809966     16 43 34.912474       0.76
  J1642+3948        39 54 10.81496    * 39 48 36.99402      39 46 26.29755        0.52
  1641+399          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1642+39          GSFC 2015a astro solution, unpublished  53430 observations.
                    Doppler based on other sources.

  1822-076          18 22 54.910246   * 18 25 37.609539     18 26 35.314893       0.14
* J1825-0737       -07 39 15.96691    *-07 37 30.01300     -07 36 48.71104        0.22
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    113 observations.
                    Doppler based on other sources.

  1831-030          18 31 36.772725   * 18 34 14.074666     18 35 09.808776       0.24
* J1834-0301       -03 03 43.12330    *-03 01 19.62711     -03 00 26.42264        0.32
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished     77 observations.
                    Doppler based on other sources.

  1854+061          18 54 05.027113   * 18 56 31.838775     18 57 23.715909       0.67
* J1856+0610        06 06 17.24104    * 06 10 16.76554      06 11 41.56716        0.87
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished     32 observations.
                    Doppler based on other sources.
```

EFFECT OF SOLAR CORONA

```
  The solar corona can cause unstable phases for sources too close to the Sun.
  SCHED provides warnings at individual scans for distances less than 10 degrees.
  The distance from the Sun to each source in this schedule is:
    Source         Sun distance (deg)
   G24.541             62.6
   G27.221             61.5
   G30.400             59.9
   G31.047             60.3
   G37.030             58.2
   G38.203             57.8
   3C345               95.8
   J1825-0737          64.9
   J1834-0301          63.2
   J1856+0610          59.3

  Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
  that the Sun will cause amplitude reductions on the  longest VLBA baselines
  at a solar distance of 60deg F^(-0.6) where F is in GHz.
  For common VLBI bands, this is:
       1.6 GHz         45. deg
       2.3 GHz         36. deg
       5.0 GHz         23. deg
       8.4 GHz         17. deg
      15.0 GHz         12. deg
      22.0 GHz          9. deg
```

rk18nytr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*

```
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Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   2 Mar 2018   Day  61 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1226+023     12 53 22  38.6 187.5  0.4       4.5     0        0   01 00 00
01 14 30  ---          13 07 55  38.3 192.1  0.6       7.2   870       28   01 00 01

01 15 00  1226+023     13 08 25  38.2 192.2  0.6       7.3    24       28   01 15 00
01 29 30  ---          13 22 57  37.7 196.8  0.9      10.0   870       56   01 15 01

01 30 00  1226+023     13 23 27  37.7 197.0  0.9      10.1    24       56   01 30 00
01 44 30  ---          13 38 00  37.0 201.4  1.1      12.7   870       84   01 30 01

01 45 00  1226+023     13 38 30  36.9 201.6  1.1      12.8    24       84   01 45 00
02 00 00  ---          13 53 32  36.0 206.1  1.4      15.3   900      112   01 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    9         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.637477       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 52.96832        0.00
                    fake circumpolar target for a TS to look at

* 1226+023          12 26 33.245835   * 12 29 06.699731     12 30 02.849640       0.00
  J1229+0203        02 19 43.30547    * 02 03 08.59797      01 57 04.84641        0.00
  3C273B            ./rk18ny_sources.radioastron
  3C273             AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-AO4-07, RA-AO3-0



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1226+023           154.9

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

em117mtr

A 3-D View of high-mass star formation: gas Kinematics and Magnetic

PI: *L. Moscadelli*


```
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          Italy

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Phone during observation: +39 055 2752220
```


```
Observing mode: Polarization observations of 1 source at 6.7 GHz (128 Mb/s

Schedule for TORUN     (Code Tr )                                    Page   2
               A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Fri   2 Mar 2018   Day  61 ---

 Next scan frequencies:  6665.15  6665.15  6665.15  6665.15  6669.15  6669.15  6669.15  6669.15
                         6673.15  6673.15  6673.15  6673.15  6677.15  6677.15  6677.15  6677.15
 Next BBC frequencies:    765.15   765.15   765.15   765.15   769.15   769.15   769.15   769.15
                          773.15   773.15   773.15   773.15   777.15   777.15   777.15   777.15
 Next scan bandwidths:      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                            2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00

02 30 00  J1331+3030   14 23 37  65.4 207.6  0.9      18.8     0        0   02 30 00
02 40 00  =3C286       14 33 39  64.7 212.4  1.0      21.9   600       10   02 30 01

02 40 30  J1331+3030   14 34 09  64.7 212.7  1.0      22.1    23       10   02 40 30
02 50 30  =3C286       14 44 11  63.8 217.2  1.2      24.9   600       19   02 40 31

02 54 50  3C345        14 48 31  66.4 112.7 -1.9     -46.1    35       19   02 54 50
03 04 50  ---          14 58 33  67.7 116.2 -1.8     -44.5   600       29   02 54 51

03 05 20  3C345        14 59 03  67.8 116.3 -1.7     -44.4    24       29   03 05 20
03 15 20  ---          15 09 05  69.1 120.1 -1.6     -42.5   600       38   03 05 21

03 20 40  J1331+3030   15 14 25  60.7 229.5  1.7      32.0    87       38   03 20 40
03 29 50  =3C286       15 23 37  59.6 232.9  1.9      33.7   550       47   03 20 41

03 34 20  J1832-2039   15 28 08   6.1 137.1 -3.1     -25.9    55       47   03 34 20
03 39 20  =1829-207    15 33 09   6.6 138.2 -3.0     -25.3   300       52   03 34 21

03 39 20 G012.68-0.18  15 33 09  10.8 141.1 -2.7     -23.4   -30       52   No stop
03 41 20  ---          15 35 09  11.0 141.5 -2.7     -23.1    90       54   03 39 21

03 42 10  J1832-2039   15 35 59   6.9 138.8 -3.0     -25.0    21       54   03 42 10
03 45 00  =1829-207    15 38 49   7.2 139.4 -2.9     -24.7   170       57   03 42 11

03 45 00 G012.68-0.18  15 38 49  11.3 142.4 -2.6     -22.7   -30       57   No stop
03 47 00  ---          15 40 50  11.5 142.8 -2.6     -22.4    90       59   03 45 01
```

03 47 00	J1832-2039	15 40 50	7.4	139.9	-2.9	-24.4	-29	59	No stop
03 50 00	=1829-207	15 43 50	7.7	140.5	-2.8	-24.1	151	62	03 47 01
03 50 00	G012.68-0.18	15 43 50	11.8	143.5	-2.5	-22.1	-29	62	No stop
03 52 00	---	15 45 51	11.9	143.9	-2.5	-21.8	91	63	03 50 01
03 52 50	J1832-2039	15 46 41	7.9	141.1	-2.8	-23.8	21	63	03 52 50
03 55 40	=1829-207	15 49 31	8.2	141.7	-2.7	-23.4	170	66	03 52 51
03 55 40	G012.68-0.18	15 49 31	12.3	144.8	-2.4	-21.4	-29	66	No stop
03 57 40	---	15 51 32	12.4	145.2	-2.4	-21.1	91	68	03 55 41

Schedule for TORUN (Code Tr) Page 3

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 2 Mar 2018 Day 61 ---										
03 57 40	J1832-2039	15 51 32	8.4	142.2	-2.7		-23.2	-29	68	No stop
04 00 40	=1829-207	15 54 32	8.7	142.8	-2.6		-22.8	151	71	03 57 41
04 00 40	G012.68-0.18	15 54 32	12.7	145.9	-2.3		-20.7	-29	71	No stop
04 02 40	---	15 56 32	12.9	146.4	-2.3		-20.5	91	73	04 00 41
04 02 40	J1832-2039	15 56 32	8.8	143.3	-2.6		-22.6	-29	73	No stop
04 05 40	=1829-207	15 59 33	9.1	143.9	-2.6		-22.2	151	76	04 02 41
04 05 40	G012.68-0.18	15 59 33	13.1	147.1	-2.3		-20.1	-29	76	No stop
04 07 40	---	16 01 33	13.3	147.5	-2.2		-19.8	91	78	04 05 41
04 08 30	J1832-2039	16 02 23	9.4	144.5	-2.5		-21.9	21	78	04 08 30
04 11 20	=1829-207	16 05 14	9.6	145.2	-2.5		-21.5	170	80	04 08 31
04 11 20	G012.68-0.18	16 05 14	13.6	148.4	-2.2		-19.3	-29	80	No stop
04 13 20	---	16 07 14	13.7	148.8	-2.1		-19.1	91	82	04 11 21
04 13 20	J1832-2039	16 07 14	9.8	145.6	-2.4		-21.3	-29	82	No stop
04 16 20	=1829-207	16 10 15	10.0	146.3	-2.4		-20.9	151	85	04 13 21
04 21 35	J1331+3030	16 15 30	52.8	248.9	2.7		40.5	96	85	04 21 35
04 29 35	=3C286	16 23 32	51.7	251.1	2.9		41.2	480	93	04 21 36
04 38 45	J2202+4216	16 32 43	36.5	425.8	-5.5		-47.8	187	93	04 38 45
04 48 15	=VR422201	16 42 15	37.8	427.3	-5.4		-48.6	570	102	04 38 46
04 57 45	J1832-2039	16 51 46	13.0	155.7	-1.7		-15.3	12	102	04 57 45
05 00 45	=1829-207	16 54 47	13.2	156.4	-1.6		-14.9	180	105	04 57 46
05 00 45	G012.68-0.18	16 54 47	16.8	160.1	-1.3		-12.4	-27	105	No stop
05 02 45	---	16 56 47	16.9	160.6	-1.3		-12.1	93	107	05 00 46
05 02 45	J1832-2039	16 56 47	13.4	156.9	-1.6		-14.6	-27	107	No stop
05 05 45	=1829-207	16 59 48	13.5	157.6	-1.6		-14.2	153	110	05 02 46
05 05 45	G012.68-0.18	16 59 48	17.0	161.3	-1.3		-11.7	-27	110	No stop
05 07 45	---	17 01 48	17.1	161.8	-1.2		-11.4	93	112	05 05 46
05 07 45	J1832-2039	17 01 48	13.6	158.0	-1.5		-13.9	-27	112	No stop
05 10 45	=1829-207	17 04 49	13.8	158.7	-1.5		-13.5	153	115	05 07 46
05 10 45	G012.68-0.18	17 04 49	17.3	162.5	-1.2		-10.9	-27	115	No stop
05 12 45	---	17 06 49	17.4	163.0	-1.1		-10.6	93	117	05 10 46

Schedule for TORUN (Code Tr) Page 4

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 2 Mar 2018 Day 61 ---										
05 13 35	J1832-2039	17 07 39	14.0	159.4	-1.4		-13.0	23	117	05 13 35
05 16 25	=1829-207	17 10 29	14.1	160.1	-1.4		-12.6	170	119	05 13 36
05 16 25	G012.68-0.18	17 10 29	17.5	163.9	-1.1		-10.1	-27	119	No stop
05 18 25	---	17 12 30	17.6	164.4	-1.0		-9.8	93	121	05 16 26
05 18 25	J1832-2039	17 12 30	14.2	160.5	-1.3		-12.3	-27	121	No stop
05 21 25	=1829-207	17 15 30	14.4	161.3	-1.3		-11.9	153	124	05 18 26
05 27 05	J1331+3030	17 21 11	43.2	264.6	3.8		43.9	119	124	05 27 05
05 34 35	=3C286	17 28 42	42.1	266.2	3.9		44.0	450	131	05 27 06
05 40 05	J1832-2039	17 34 13	15.2	165.7	-1.0		-9.1	113	131	05 40 05
05 43 05	=1829-207	17 37 14	15.3	166.4	-0.9		-8.7	180	134	05 40 06
05 43 05	G012.68-0.18	17 37 14	18.4	170.5	-0.6		-6.0	-26	134	No stop
05 45 05	---	17 39 14	18.5	171.0	-0.6		-5.6	94	136	05 43 06
05 45 05	J1832-2039	17 39 14	15.3	166.9	-0.9		-8.4	-26	136	No stop
05 48 05	=1829-207	17 42 15	15.4	167.6	-0.8		-7.9	154	139	05 45 06
05 48 05	G012.68-0.18	17 42 15	18.5	171.8	-0.5		-5.2	-26	139	No stop
05 50 05	---	17 44 15	18.6	172.3	-0.5		-4.9	94	141	05 48 06
05 50 05	J1832-2039	17 44 15	15.5	168.1	-0.8		-7.6	-25	141	No stop
05 53 05	=1829-207	17 47 16	15.6	168.8	-0.8		-7.1	155	144	05 50 06
05 53 05	G012.68-0.18	17 47 16	18.6	173.1	-0.5		-4.4	-25	144	No stop
05 55 05	---	17 49 16	18.7	173.6	-0.4		-4.1	95	146	05 53 06
05 55 55	J1832-2039	17 50 06	15.7	169.5	-0.7		-6.7	25	146	05 55 55
05 58 45	=1829-207	17 52 56	15.7	170.2	-0.7		-6.3	170	148	05 55 56
05 58 45	G012.68-0.18	17 52 56	18.7	174.5	-0.4		-3.5	-25	148	No stop
06 00 45	---	17 54 57	18.8	175.0	-0.3		-3.2	95	150	05 58 46
06 00 45	J1832-2039	17 54 57	15.8	170.7	-0.6		-6.0	-25	150	No stop
06 03 45	=1829-207	17 57 57	15.9	171.4	-0.6		-5.5	155	153	06 00 46
06 03 45	G012.68-0.18	17 57 57	18.8	175.7	-0.3		-2.7	-25	153	No stop
06 05 45	---	17 59 58	18.8	176.2	-0.2		-2.4	95	155	06 03 46
06 05 45	J1832-2039	17 59 58	15.9	171.9	-0.6		-5.2	-25	155	No stop
06 08 45	=1829-207	18 02 58	16.0	172.6	-0.5		-4.7	155	158	06 05 46

Schedule for TORUN (Code Tr) Page 5

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 2 Mar 2018 Day 61 ---										
06 08 45	G012.68-0.18	18 02 58	18.8	177.0	-0.2		-1.9	-25	158	No stop
06 10 45	---	18 04 58	18.8	177.5	-0.2		-1.6	95	160	06 08 46
06 11 35	J1832-2039	18 05 49	16.0	173.3	-0.5		-4.3	25	160	06 11 35
06 14 25	=1829-207	18 08 39	16.1	174.0	-0.4		-3.8	170	163	06 11 36
06 14 25	G012.68-0.18	18 08 39	18.9	178.4	-0.1		-1.0	-24	163	No stop
06 16 25	---	18 10 39	18.9	178.9	-0.1		-0.7	96	165	06 14 26
06 16 25	J1832-2039	18 10 39	16.1	174.5	-0.4		-3.5	-24	165	No stop
06 19 25	=1829-207	18 13 40	16.1	175.2	-0.3		-3.1	156	167	06 16 26
06 19 25	G012.68-0.18	18 13 40	18.9	179.7	-0.0		-0.2	-24	167	No stop
06 21 25	---	18 15 40	18.9	180.2	0.0		0.1	96	169	06 19 26
06 21 25	J1832-2039	18 15 40	16.2	175.7	-0.3		-2.7	-24	169	No stop
06 24 25	=1829-207	18 18 41	16.2	176.5	-0.2		-2.3	156	172	06 21 26
06 24 25	G012.68-0.18	18 18 41	18.9	180.9	0.1		0.6	-24	172	No stop
06 26 25	---	18 20 41	18.9	181.4	0.1		0.9	96	174	06 24 26
06 27 15	J1832-2039	18 21 31	16.2	177.1	-0.2		-1.8	26	174	06 27 15
06 30 05	=1829-207	18 24 22	16.2	177.8	-0.1		-1.4	170	177	06 27 16
06 35 50	J1331+3030	18 30 08	32.9	278.2	5.0		43.6	130	177	06 35 50
06 43 50	=3C286	18 38 09	31.7	279.7	5.1		43.3	480	185	06 35 51
06 49 30	J1832-2039	18 43 50	16.2	182.6	0.2		1.7	130	185	06 49 30
06 52 20	=1829-207	18 46 40	16.2	183.3	0.2		2.1	170	187	06 49 31
06 52 20	G012.68-0.18	18 46 40	18.6	188.0	0.5		5.0	-25	187	No stop
06 54 20	---	18 48 41	18.5	188.5	0.6		5.3	95	189	06 52 21
06 54 20	J1832-2039	18 48 41	16.2	183.8	0.3		2.4	-24	189	No stop
06 57 20	=1829-207	18 51 41	16.1	184.5	0.3		2.9	156	192	06 54 21
06 57 20	G012.68-0.18	18 51 41	18.4	189.2	0.6		5.8	-25	192	No stop
06 59 20	---	18 53 41	18.4	189.7	0.6		6.1	95	194	06 57 21
06 59 20	J1832-2039	18 53 41	16.1	185.0	0.3		3.2	-24	194	No stop
07 02 20	=1829-207	18 56 42	16.1	185.7	0.4		3.7	156	197	06 59 21
07 02 20	G012.68-0.18	18 56 42	18.3	190.5	0.7		6.6	-25	197	No stop
07 04 20	---	18 58 42	18.3	191.0	0.7		6.9	95	199	07 02 21

Schedule for TORUN (Code Tr) Page 6

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	 AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 2 Mar 2018 Day 61 ---										
07 05 10	J1832-2039	18 59 32	16.0	186.4	0.4		4.1	26	199	07 05 10
07 08 00	=1829-207	19 02 23	16.0	187.1	0.5		4.5	170	202	07 05 11
07 08 00	G012.68-0.18	19 02 23	18.1	191.9	0.8		7.5	-25	202	No stop
07 10 00	---	19 04 23	18.1	192.4	0.8		7.8	95	204	07 08 01
07 10 00	J1832-2039	19 04 23	15.9	187.6	0.5		4.9	-24	204	No stop
07 13 00	=1829-207	19 07 24	15.9	188.3	0.6		5.3	156	206	07 10 01
07 13 00	G012.68-0.18	19 07 24	18.0	193.1	0.9		8.2	-25	206	No stop
07 15 00	---	19 09 24	17.9	193.6	0.9		8.5	95	208	07 13 01
07 15 00	J1832-2039	19 09 24	15.8	188.8	0.6		5.6	-24	208	No stop
07 18 00	=1829-207	19 12 24	15.8	189.5	0.7		6.1	156	211	07 15 01
07 18 00	G012.68-0.18	19 12 24	17.8	194.3	1.0		9.0	-25	211	No stop
07 20 00	---	19 14 25	17.7	194.8	1.0		9.3	95	213	07 18 01
07 20 50	J1832-2039	19 15 15	15.7	190.2	0.7		6.5	25	213	07 20 50
07 23 40	=1829-207	19 18 05	15.6	190.9	0.7		7.0	170	216	07 20 51
07 23 40	G012.68-0.18	19 18 05	17.6	195.7	1.1		9.9	-25	216	No stop
07 25 40	---	19 20 06	17.5	196.2	1.1		10.2	95	218	07 23 41
07 25 40	J1832-2039	19 20 06	15.6	191.4	0.8		7.3	-25	218	No stop
07 28 40	=1829-207	19 23 06	15.5	192.1	0.8		7.7	155	221	07 25 41
07 28 40	G012.68-0.18	19 23 06	17.4	197.0	1.1		10.6	-25	221	No stop
07 30 40	---	19 25 07	17.3	197.5	1.2		10.9	95	223	07 28 41
07 30 40	J1832-2039	19 25 07	15.4	192.6	0.9		8.0	-25	223	No stop
07 33 40	=1829-207	19 28 07	15.3	193.3	0.9		8.5	155	225	07 30 41
07 39 20	J1331+3030	19 33 48	23.6	289.7	6.0		40.9	133	225	07 39 20
07 47 20	=3C286	19 41 49	22.5	291.2	6.2		40.5	480	233	07 39 21
07 52 50	J1832-2039	19 47 20	14.5	197.9	1.2		11.4	127	233	07 52 50
07 55 50	=1829-207	19 50 21	14.4	198.6	1.3		11.8	180	236	07 52 51
07 55 50	G012.68-0.18	19 50 21	16.0	203.6	1.6		14.6	-25	236	No stop
07 57 50	---	19 52 21	15.8	204.1	1.6		14.9	95	238	07 55 51
07 57 50	J1832-2039	19 52 21	14.3	199.1	1.3		12.1	-25	238	No stop
08 00 50	=1829-207	19 55 22	14.1	199.8	1.4		12.5	155	241	07 57 51

```
Schedule for TORUN     (Code Tr )                                  Page   7
              A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Fri   2 Mar 2018   Day  61 ---

08 00 50 G012.68-0.18  19 55 22  15.6 204.8  1.7      15.3   -25      241   No stop
08 02 50  ---          19 57 22  15.5 205.2  1.7      15.6    95      243   08 00 51

08 02 50  J1832-2039   19 57 22  14.0 200.3  1.4      12.8   -25      243   No stop
08 05 50  =1829-207    20 00 22  13.9 201.0  1.5      13.3   155      246   08 02 51

08 05 50 G012.68-0.18  20 00 22  15.3 206.0  1.8      16.0   -25      246   No stop
08 07 50  ---          20 02 23  15.2 206.4  1.8      16.3    95      248   08 05 51

08 08 40  J1832-2039   20 03 13  13.7 201.6  1.5      13.7    25      248   08 08 40
08 11 30  =1829-207    20 06 03  13.6 202.3  1.5      14.1   170      250   08 08 41

08 11 30 G012.68-0.18  20 06 03  14.9 207.3  1.9      16.8   -25      250   No stop
08 13 30  ---          20 08 04  14.8 207.8  1.9      17.1    95      252   08 11 31

08 13 30  J1832-2039   20 08 04  13.4 202.8  1.6      14.4   -25      252   No stop
08 16 30  =1829-207    20 11 04  13.3 203.5  1.6      14.8   155      255   08 13 31

08 16 30 G012.68-0.18  20 11 04  14.6 208.5  1.9      17.5   -25      255   No stop
08 18 30  ---          20 13 04  14.4 208.9  2.0      17.8    95      257   08 16 31

08 18 30  J1832-2039   20 13 04  13.1 203.9  1.7      15.1   -25      257   No stop
08 21 30  =1829-207    20 16 05  13.0 204.6  1.7      15.5   155      260   08 18 31

08 21 30 G012.68-0.18  20 16 05  14.2 209.6  2.0      18.2   -25      260   No stop
08 23 30  ---          20 18 05  14.1 210.1  2.1      18.5    95      262   08 21 31

08 24 20  J1832-2039   20 18 55  12.8 205.3  1.8      15.9    25      262   08 24 20
08 27 10  =1829-207    20 21 46  12.6 205.9  1.8      16.3   170      265   08 24 21

08 27 10 G012.68-0.18  20 21 46  13.8 211.0  2.1      19.0   -25      265   No stop
08 29 10  ---          20 23 46  13.6 211.4  2.1      19.2    95      267   08 27 11

08 29 10  J1832-2039   20 23 46  12.5 206.4  1.8      16.6   -25      267   No stop
08 32 10  =1829-207    20 26 47  12.3 207.1  1.9      17.0   155      269   08 29 11

08 32 10 G012.68-0.18  20 26 47  13.4 212.1  2.2      19.6   -25      269   No stop
08 34 10  ---          20 28 47  13.2 212.6  2.2      19.9    95      271   08 32 11

08 35 00  J1832-2039   20 29 37  12.1 207.7  1.9      17.4    25      271   08 35 00
08 37 50  =1829-207    20 32 28  11.9 208.4  2.0      17.8   170      274   08 35 01

08 43 20  J1331+3030   20 37 58  14.9 301.2  7.1      36.6   130      274   08 43 20
08 51 10  =3C286       20 45 50  13.9 302.6  7.2      35.9   470      282   08 43 21
```

Schedule for TORUN (Code Tr) Page 8

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Fri 2 Mar 2018 Day 61 ---										
08 56 30	J1832-2039	20 51 11	10.4	212.6	2.3		20.2	124	282	08 56 30
08 59 20	=1829-207	20 54 01	10.2	213.2	2.3		20.6	170	284	08 56 31
08 59 20	G012.68-0.18	20 54 01	11.0	218.3	2.7		23.0	-25	284	No stop
09 01 20	---	20 56 01	10.9	218.7	2.7		23.3	95	286	08 59 21
09 01 20	J1832-2039	20 56 01	10.0	213.7	2.4		20.8	-25	286	No stop
09 04 20	=1829-207	20 59 02	9.8	214.3	2.4		21.2	155	289	09 01 21
09 04 20	G012.68-0.18	20 59 02	10.6	219.4	2.7		23.6	-25	289	No stop
09 06 20	---	21 01 02	10.4	219.9	2.8		23.9	95	291	09 04 21
09 06 20	J1832-2039	21 01 02	9.6	214.8	2.5		21.5	-25	291	No stop
09 09 20	=1829-207	21 04 03	9.4	215.4	2.5		21.8	155	294	09 06 21
09 09 20	G012.68-0.18	21 04 03	10.1	220.5	2.8		24.2	-25	294	No stop
09 11 20	---	21 06 03	9.9	221.0	2.9		24.5	95	296	09 09 21
09 12 10	J1832-2039	21 06 53	9.1	216.1	2.6		22.2	25	296	09 12 10
09 15 00	=1829-207	21 09 44	8.9	216.7	2.6		22.5	170	299	09 12 11
09 15 00	G012.68-0.18	21 09 44	9.5	221.8	2.9		24.9	-25	299	No stop
09 17 00	---	21 11 44	9.3	222.2	2.9		25.1	95	300	09 15 01
09 17 00	J1832-2039	21 11 44	8.7	217.1	2.6		22.8	-25	300	No stop
09 20 00	=1829-207	21 14 45	8.4	217.8	2.7		23.2	155	303	09 17 01
09 20 00	G012.68-0.18	21 14 45	9.0	222.9	3.0		25.4	-25	303	No stop
09 22 00	---	21 16 45	8.8	223.3	3.0		25.7	95	305	09 20 01
09 22 00	J1832-2039	21 16 45	8.2	218.2	2.7		23.4	-25	305	No stop
09 25 00	=1829-207	21 19 45	7.9	218.9	2.8		23.8	155	308	09 22 01
09 25 00	G012.68-0.18	21 19 45	8.5	223.9	3.1		26.0	-25	308	No stop
09 27 00	---	21 21 46	8.3	224.4	3.1		26.2	95	310	09 25 01
09 27 50	J1832-2039	21 22 36	7.7	219.5	2.8		24.1	25	310	09 27 50
09 30 40	=1829-207	21 25 26	7.4	220.1	2.9		24.4	170	313	09 27 51
09 30 40	G012.68-0.18	21 25 26	7.9	225.2	3.2		26.6	-25	313	No stop
09 32 40	---	21 27 27	7.7	225.6	3.2		26.8	95	315	09 30 41
09 32 40	J1832-2039	21 27 27	7.2	220.5	2.9		24.6	-25	315	No stop
09 35 40	=1829-207	21 30 27	6.9	221.2	3.0		25.0	155	318	09 32 41

```
Schedule for TORUN     (Code Tr )                                  Page   9
              A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Fri   2 Mar 2018   Day  61 ---

09 35 40 G012.68-0.18  21 30 27   7.4 226.2  3.3      27.1   -25      318   No stop
09 37 40  ---          21 32 27   7.1 226.7  3.3      27.3    95      320   09 35 41

09 38 30  J1832-2039   21 33 18   6.6 221.8  3.0      25.3    25      320   09 38 30
09 41 20  =1829-207    21 36 08   6.3 222.4  3.0      25.6   170      322   09 38 31

09 46 40  J1331+3030   21 41 29   7.3 312.7  8.2      30.8   125      322   09 46 40
09 53 40  =3C286       21 48 30   6.6 314.1  8.3      30.0   420      329   09 46 41

09 58 50  J1832-2039   21 53 41   4.5 226.1  3.3      27.5   118      329   09 58 50
10 01 40  =1829-207    21 56 31   4.2 226.7  3.4      27.8   170      332   09 58 51

10 01 40 G012.68-0.18  21 56 31   4.4 231.7  3.7      29.7   -25      332   No stop
10 03 40  ---          21 58 32   4.2 232.1  3.7      29.9    95      334   10 01 41

10 03 40  J1832-2039   21 58 32   4.0 227.1  3.4      28.0   -25      334   No stop
10 06 40  =1829-207    22 01 32   3.6 227.7  3.5      28.3   155      337   10 03 41

10 06 40 G012.68-0.18  22 01 32   3.8 232.8  3.8      30.2   -25      337   No stop
10 08 40  ---          22 03 33   3.6 233.2  3.8      30.4    95      338   10 06 41

10 08 40  J1832-2039   22 03 33   3.4 228.1  3.5      28.5   -25      338   No stop
10 11 40  =1829-207    22 06 33   3.1 228.7  3.6      28.8   155      341   10 08 41

10 11 40 G012.68-0.18  22 06 33   3.2 233.8  3.9      30.6   -25      341   No stop
10 13 40  ---          22 08 33   3.0 234.2  3.9  D   30.8     0      343   10 11 41

10 52 00  3C84         22 47 00  44.1  75.6 -4.6     -51.0  1957      343   10 52 00
10 59 50  ---          22 54 51  45.2  76.9 -4.4     -51.4   470      351   10 52 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.M128

   Setup group:    7         Station: TORUN            Total bit rate:   128
   Format: MARK5B            Bits per sample: 2        Sample rate:  4.000
   Number of channels: 16    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
            5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
  Net SB=         L         L         U         U         L         L         U         U
                  L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
                  U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
                RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         2         6         2         6
                  3         7         3         7         4         8         4         8
  BBC SB=         L         L         U         U         L         L         U         U
                  L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1
                 A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

 Frequency Set:   7  Based on FREQ, BW, and/or DOPPLER in schedule.  Used with PCAL = off
  LO sum=   6665.15  6665.15  6665.15  6665.15  6669.15  6669.15  6669.15  6669.15
            6673.15  6673.15  6673.15  6673.15  6677.15  6677.15  6677.15  6677.15
  BBC fr=    765.15   765.15   765.15   765.15   769.15   769.15   769.15   769.15
             773.15   773.15   773.15   773.15   777.15   777.15   777.15   777.15
  Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
               2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
   Matching frequency sets:   7

  Track assignments are:
   track1=  18, 26,  2, 10, 20, 28,  4, 12, 22, 30,  6, 14, 24, 32,  8, 16
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* G012.68-0.18      18 10 59.237691   * 18 13 54.750000     18 14 57.111308       0.00
                   -18 02 40.99379    *-18 01 46.57000     -18 01 20.11352        0.00
                     Doppler based on LSR frame and radio definition.  Velocities:
                         57.50    57.50    57.50    57.50    57.50    57.50    57.50    57.50
                         57.50    57.50    57.50    57.50    57.50    57.50

* 3C84              03 16 29.567263   * 03 19 48.160094     03 20 59.268816       1.30
  J0319+4130        41 19 51.91701    * 41 30 42.10413      41 34 34.42351        2.69
  0316+413          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J0319+41          GSFC 2015a astro solution, unpublished  10208 observations.
                    Doppler based on other sources.

  3C286             13 28 49.657758   * 13 31 08.288051     13 31 58.810467       0.18
* J1331+3030        30 45 58.64059    * 30 30 32.95924      30 24 50.67443        0.17
  1328+307          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1331+30          GSFC 2015a astro solution, unpublished    225 observations.
                    Doppler based on other sources.

* 3C345             16 41 17.606228   * 16 42 58.809966     16 43 34.945371       0.76
  J1642+3948        39 54 10.81496    * 39 48 36.99402      39 46 26.20896        0.52
  1641+399          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1642+39          GSFC 2015a astro solution, unpublished  53430 observations.
                    Doppler based on other sources.
```

```
  1829-207          18 29 12.261812   * 18 32 11.046476     18 33 14.447938       0.28
* J1832-2039       -20 42 02.03615    *-20 39 48.20378     -20 38 52.65825        0.41
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    110 observations.
                    Doppler based on other sources.

  VR422201          22 00 39.362505   * 22 02 43.291372     22 03 26.383956       0.00
* J2202+4216        42 02 08.59077    * 42 16 39.97990      42 21 48.94604        0.00
  BLLAC             /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  2200+420          GSFC 2015a astro solution, unpublished  51226 observations.
  J2202+42          Doppler based on other sources.
```

EFFECT OF SOLAR CORONA

```
  The solar corona can cause unstable phases for sources too close to the Sun.
  SCHED provides warnings at individual scans for distances less than 10 degrees.
  The distance from the Sun to each source in this schedule is:
    Source         Sun distance (deg)
   G012.68-0.18        68.2
   3C84                78.2
   J1331+3030         136.0
   3C345               96.3
   J1832-2039          63.9
   J2202+4216          50.8

  Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
  that the Sun will cause amplitude reductions on the  longest VLBA baselines
  at a solar distance of 60deg F^(-0.6) where F is in GHz.
  For common VLBI bands, this is:
       1.6 GHz         45. deg
       2.3 GHz         36. deg
       5.0 GHz         23. deg
       8.4 GHz         17. deg
      15.0 GHz         12. deg
      22.0 GHz          9. deg
```

rk18obtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   2 Mar 2018   Day  61 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 00 00  0829+046     06 56 20  37.5 149.1 -1.6     -18.0     0        0   19 00 00
19 14 30  ---          07 10 52  38.5 153.5 -1.4     -15.6   870       28   19 00 01

19 15 00  0829+046     07 11 22  38.5 153.7 -1.4     -15.5    24       28   19 15 00
19 29 30  ---          07 25 55  39.4 158.2 -1.1     -12.9   870       56   19 15 01

19 30 00  0829+046     07 26 25  39.5 158.4 -1.1     -12.8    24       56   19 30 00
19 44 30  ---          07 40 57  40.2 163.0 -0.9     -10.1   870       84   19 30 01

19 45 00  0829+046     07 41 27  40.2 163.1 -0.9     -10.1    24       84   19 45 00
20 00 00  ---          07 56 30  40.8 168.0 -0.6      -7.2   900      112   19 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.721803       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 53.21382        0.00
                    fake circumpolar target for a TS to look at

* 0829+046          08 29 10.894139   * 08 31 48.876958     08 32 46.570296       0.00
  J0831+0429        04 39 50.82946    * 04 29 39.08580      04 25 45.88787        0.00
                    ./rk18ob_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 1604 observations, RA-AO3-04


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0829+046           144.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18octr

RadioAstron AGN Monitoring

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```
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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Fri   2 Mar 2018   Day  61 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  1253-055     10 56 59  25.8 146.4 -2.0     -19.5     0        0   23 00 00
23 14 30  ---          11 11 32  26.9 150.3 -1.8     -17.4   870       28   23 00 01

23 15 00  1253-055     11 12 02  27.0 150.4 -1.8     -17.4    24       28   23 15 00
23 29 30  ---          11 26 34  28.0 154.3 -1.5     -15.2   870       56   23 15 01

23 30 00  1253-055     11 27 04  28.0 154.4 -1.5     -15.1    24       56   23 30 00
23 44 30  ---          11 41 37  28.9 158.4 -1.3     -12.8   870       84   23 30 01

23 45 00  1253-055     11 42 07  28.9 158.6 -1.3     -12.7    24       84   23 45 00
23 59 59  ---          11 57 08  29.7 162.8 -1.0     -10.3   899      112   23 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.738966       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 53.26934        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 08.012443       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 15.26095        0.00
  3C279             ./rk18oc_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1253-055           146.9

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

em117ntr

A 3-D View of high-mass star formation: gas Kinematics and Magnetic

PI: *L. Moscadelli*


```
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Phone during observation: +39 055 2752220
```


```
Observing mode: Polarization observations of 1 source at 6.7 GHz (128 Mb/s

Schedule for TORUN     (Code Tr )                                    Page   2
               A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat   3 Mar 2018   Day  62 ---

 Next scan frequencies:  6665.52  6665.52  6665.52  6665.52  6669.52  6669.52  6669.52  6669.52
                         6673.52  6673.52  6673.52  6673.52  6677.52  6677.52  6677.52  6677.52
 Next BBC frequencies:    765.52   765.52   765.52   765.52   769.52   769.52   769.52   769.52
                          773.52   773.52   773.52   773.52   777.52   777.52   777.52   777.52
 Next scan bandwidths:      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                            2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00

02 30 00  J2202+4216   14 27 34  21.0  46.3 -7.6     -36.0     0        0   02 30 00
02 38 00  =VR422201    14 35 35  21.9  47.6 -7.5     -36.9   480        8   02 30 01

02 45 35  J1331+3030   14 43 11  63.9 216.8  1.2      24.6   103        8   02 45 35
02 50 35  =3C286       14 48 12  63.4 219.0  1.3      26.0   300       12   02 45 36

02 51 05  J1331+3030   14 48 42  63.4 219.2  1.3      26.1    23       12   02 51 05
02 59 05  =3C286       14 56 43  62.6 222.6  1.4      28.1   480       20   02 51 06

03 03 31  3C345        15 01 10  68.1 117.1 -1.7     -44.1    39       20   03 03 31
03 13 31  ---          15 11 12  69.4 121.0 -1.5     -42.0   600       30   03 03 32

03 18 11  J2202+4216   15 15 53  26.6  53.9 -6.8     -41.1   105       30   03 18 11
03 26 11  =VR422201    15 23 54  27.6  55.2 -6.7     -41.9   480       37   03 18 12

03 30 06  J1821-0502   15 27 50  21.3 132.5 -2.9     -26.4    66       37   03 30 06
03 35 06  =1818-050    15 32 50  21.8 133.7 -2.8     -25.8   300       42   03 30 07

03 35 06  G25.65+1.05  15 32 50  19.5 131.0 -3.0     -27.1   -22       42   No stop
03 37 06  ---          15 34 51  19.8 131.5 -3.0     -26.9    98       44   03 35 07

03 37 51  J1821-0502   15 35 36  22.1 134.4 -2.8     -25.5    22       44   03 37 51
03 40 41  =1818-050    15 38 26  22.4 135.1 -2.7     -25.2   170       47   03 37 52

03 40 41  G25.65+1.05  15 38 26  20.2 132.4 -2.9     -26.5   -22       47   No stop
03 42 41  ---          15 40 27  20.4 132.8 -2.9     -26.3    98       49   03 40 42
```

03 42 41	J1821-0502	15 40 27	22.7	135.6	-2.7	-25.0	-23	49	No stop
03 45 41	=1818-050	15 43 27	23.0	136.3	-2.6	-24.6	157	52	03 42 42
03 45 41	G25.65+1.05	15 43 27	20.7	133.6	-2.9	-25.9	-22	52	No stop
03 47 41	---	15 45 27	20.9	134.0	-2.8	-25.7	98	54	03 45 42
03 48 26	J1821-0502	15 46 13	23.3	137.0	-2.6	-24.3	23	54	03 48 26
03 51 16	=1818-050	15 49 03	23.5	137.7	-2.6	-23.9	170	56	03 48 27
03 51 16	G25.65+1.05	15 49 03	21.3	134.9	-2.8	-25.3	-22	56	No stop
03 53 16	---	15 51 03	21.5	135.4	-2.7	-25.1	98	58	03 51 17

Schedule for TORUN (Code Tr) Page 3

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
03 53 16	J1821-0502	15 51 03	23.7	138.2	-2.5		-23.7	-22	58	No stop
03 56 16	=1818-050	15 54 04	24.0	138.9	-2.5		-23.3	158	61	03 53 17
03 56 16	G25.65+1.05	15 54 04	21.8	136.1	-2.7		-24.7	-22	61	No stop
03 58 16	---	15 56 04	22.1	136.6	-2.7		-24.5	98	63	03 56 17
03 58 16	J1821-0502	15 56 04	24.2	139.4	-2.4		-23.1	-22	63	No stop
04 01 16	=1818-050	15 59 05	24.5	140.2	-2.4		-22.7	158	66	03 58 17
04 01 16	G25.65+1.05	15 59 05	22.4	137.3	-2.6		-24.1	-22	66	No stop
04 03 16	---	16 01 05	22.6	137.8	-2.6		-23.9	98	68	04 01 17
04 04 01	J1821-0502	16 01 50	24.8	140.9	-2.3		-22.3	23	68	04 04 01
04 06 51	=1818-050	16 04 41	25.1	141.6	-2.3		-22.0	170	71	04 04 02
04 06 51	G25.65+1.05	16 04 41	22.9	138.7	-2.5		-23.5	-22	71	No stop
04 08 51	---	16 06 41	23.1	139.2	-2.5		-23.2	98	73	04 06 52
04 08 51	J1821-0502	16 06 41	25.3	142.1	-2.3		-21.7	-22	73	No stop
04 11 51	=1818-050	16 09 41	25.5	142.9	-2.2		-21.3	158	75	04 08 52
04 15 51	J2202+4216	16 13 42	34.0	62.9	-5.8		-46.3	65	75	04 15 51
04 23 51	=VR422201	16 21 43	35.0	64.1	-5.7		-47.0	480	83	04 15 52
04 28 01	J1821-0502	16 25 54	26.9	147.1	-1.9		-19.1	70	83	04 28 01
04 31 01	=1818-050	16 28 55	27.2	147.9	-1.9		-18.7	180	86	04 28 02
04 31 01	G25.65+1.05	16 28 55	25.2	144.8	-2.1		-20.3	-21	86	No stop
04 33 01	---	16 30 55	25.3	145.4	-2.1		-20.1	99	88	04 31 02
04 33 01	J1821-0502	16 30 55	27.3	148.5	-1.9		-18.4	-21	88	No stop
04 36 01	=1818-050	16 33 55	27.6	149.3	-1.8		-17.9	159	91	04 33 02
04 36 01	G25.65+1.05	16 33 55	25.6	146.1	-2.0		-19.7	-21	91	No stop
04 38 01	---	16 35 56	25.8	146.7	-2.0		-19.4	99	93	04 36 02
04 38 01	J1821-0502	16 35 56	27.7	149.8	-1.8		-17.7	-21	93	No stop
04 41 01	=1818-050	16 38 56	27.9	150.6	-1.7		-17.2	159	96	04 38 02
04 41 01	G25.65+1.05	16 38 56	26.0	147.4	-1.9		-19.0	-21	96	No stop
04 43 01	---	16 40 57	26.2	148.0	-1.9		-18.7	99	98	04 41 02
04 43 46	J1821-0502	16 41 42	28.1	151.4	-1.7		-16.8	24	98	04 43 46
04 46 36	=1818-050	16 44 32	28.3	152.1	-1.6		-16.4	170	100	04 43 47

Schedule for TORUN (Code Tr) Page 4

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
04 46 36	G25.65+1.05	16 44 32	26.5	148.9	-1.8		-18.2	-21	100	No stop
04 48 36	---	16 46 32	26.6	149.5	-1.8		-17.9	99	102	04 46 37
04 48 36	J1821-0502	16 46 32	28.5	152.7	-1.6		-16.1	-21	102	No stop
04 51 36	=1818-050	16 49 33	28.7	153.5	-1.5		-15.6	159	105	04 48 37
04 51 36	G25.65+1.05	16 49 33	26.8	150.2	-1.8		-17.4	-21	105	No stop
04 53 36	---	16 51 33	27.0	150.8	-1.7		-17.1	99	107	04 51 37
04 53 36	J1821-0502	16 51 33	28.8	154.0	-1.5		-15.3	-21	107	No stop
04 56 36	=1818-050	16 54 34	29.0	154.9	-1.5		-14.8	159	110	04 53 37
04 56 36	G25.65+1.05	16 54 34	27.2	151.6	-1.7		-16.7	-21	110	No stop
04 58 36	---	16 56 34	27.3	152.1	-1.6		-16.4	99	112	04 56 37
04 59 21	J1821-0502	16 57 19	29.2	155.6	-1.4		-14.4	24	112	04 59 21
05 02 11	=1818-050	17 00 10	29.4	156.4	-1.4		-14.0	170	115	04 59 22
05 02 11	G25.65+1.05	17 00 10	27.6	153.1	-1.6		-15.9	-21	115	No stop
05 04 11	---	17 02 10	27.7	153.6	-1.6		-15.6	99	117	05 02 12
05 04 11	J1821-0502	17 02 10	29.5	157.0	-1.3		-13.6	-22	117	No stop
05 07 11	=1818-050	17 05 11	29.6	157.8	-1.3		-13.2	158	119	05 04 12
05 11 26	J2202+4216	17 09 26	41.7	71.5	-4.9		-50.4	67	119	05 11 26
05 19 26	=VR422201	17 17 28	42.8	72.8	-4.8		-50.9	480	127	05 11 27
05 23 46	J1821-0502	17 21 48	30.5	162.5	-1.0		-10.4	66	127	05 23 46
05 26 46	=1818-050	17 24 49	30.6	163.3	-1.0		-9.9	180	130	05 23 47
05 26 46	G25.65+1.05	17 24 49	29.1	159.9	-1.2		-12.0	-22	130	No stop
05 28 46	---	17 26 49	29.2	160.4	-1.1		-11.7	98	132	05 26 47
05 28 46	J1821-0502	17 26 49	30.7	163.9	-0.9		-9.6	-22	132	No stop
05 31 46	=1818-050	17 29 50	30.8	164.8	-0.9		-9.1	158	135	05 28 47
05 31 46	G25.65+1.05	17 29 50	29.3	161.2	-1.1		-11.2	-22	135	No stop
05 33 46	---	17 31 50	29.4	161.8	-1.1		-10.9	98	137	05 31 47
05 33 46	J1821-0502	17 31 50	30.9	165.4	-0.8		-8.8	-22	137	No stop
05 36 46	=1818-050	17 34 50	31.0	166.2	-0.8		-8.3	158	140	05 33 47
05 36 46	G25.65+1.05	17 34 50	29.6	162.7	-1.0		-10.4	-22	140	No stop
05 38 46	---	17 36 51	29.6	163.2	-1.0		-10.0	98	142	05 36 47

Schedule for TORUN (Code Tr) Page 5

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
05 39 31	J1821-0502	17 37 36	31.1	167.0	-0.7		-7.8	23	142	05 39 31
05 42 21	=1818-050	17 40 26	31.2	167.8	-0.7		-7.3	170	144	05 39 32
05 42 21	G25.65+1.05	17 40 26	29.8	164.2	-0.9		-9.4	-22	144	No stop
05 44 21	---	17 42 27	29.9	164.8	-0.9		-9.1	98	146	05 42 22
05 44 21	J1821-0502	17 42 27	31.3	168.4	-0.7		-7.0	-22	146	No stop
05 47 21	=1818-050	17 45 27	31.4	169.3	-0.6		-6.4	158	149	05 44 22
05 47 21	G25.65+1.05	17 45 27	30.0	165.7	-0.8		-8.6	-22	149	No stop
05 49 21	---	17 47 27	30.1	166.2	-0.8		-8.3	98	151	05 47 22
05 49 21	J1821-0502	17 47 27	31.4	169.9	-0.6		-6.1	-22	151	No stop
05 52 21	=1818-050	17 50 28	31.5	170.7	-0.5		-5.6	158	154	05 49 22
05 52 21	G25.65+1.05	17 50 28	30.2	167.1	-0.7		-7.8	-22	154	No stop
05 54 21	---	17 52 28	30.2	167.7	-0.7		-7.4	98	156	05 52 22
05 55 06	J1821-0502	17 53 13	31.6	171.5	-0.5		-5.1	23	156	05 55 06
05 57 56	=1818-050	17 56 04	31.6	172.4	-0.4		-4.6	170	158	05 55 07
05 57 56	G25.65+1.05	17 56 04	30.3	168.7	-0.7		-6.8	-22	158	No stop
05 59 56	---	17 58 04	30.4	169.3	-0.6		-6.5	98	160	05 57 57
05 59 56	J1821-0502	17 58 04	31.7	173.0	-0.4		-4.2	-22	160	No stop
06 02 56	=1818-050	18 01 05	31.7	173.8	-0.4		-3.7	158	163	05 59 57
06 07 26	J2202+4216	18 05 35	49.8	80.7	-4.0		-53.3	68	163	06 07 26
06 15 26	=VR422201	18 13 37	51.0	82.1	-3.8		-53.6	480	171	06 07 27
06 20 06	J1821-0502	18 18 18	31.9	178.9	-0.1		-0.7	72	171	06 20 06
06 23 06	=1818-050	18 21 18	31.9	179.8	-0.0		-0.1	180	174	06 20 07
06 23 06	G25.65+1.05	18 21 18	30.9	175.9	-0.2		-2.4	-22	174	No stop
06 25 06	---	18 23 18	30.9	176.5	-0.2		-2.1	98	176	06 23 07
06 25 06	J1821-0502	18 23 18	31.9	180.3	0.0		0.2	-23	176	No stop
06 28 06	=1818-050	18 26 19	31.9	181.2	0.1		0.7	157	179	06 25 07
06 28 06	G25.65+1.05	18 26 19	30.9	177.4	-0.1		-1.6	-22	179	No stop
06 30 06	---	18 28 19	30.9	178.0	-0.1		-1.2	98	181	06 28 07
06 30 06	J1821-0502	18 28 19	31.9	181.8	0.1		1.1	-23	181	No stop
06 33 06	=1818-050	18 31 20	31.8	182.7	0.2		1.6	157	183	06 30 07

Schedule for TORUN (Code Tr) Page 6

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
06 33 06	G25.65+1.05	18 31 20	30.9	178.8	-0.1		-0.7	-22	183	No stop
06 35 06	---	18 33 20	30.9	179.4	-0.0		-0.3	98	185	06 33 07
06 35 51	J1821-0502	18 34 05	31.8	183.5	0.2		2.1	22	185	06 35 51
06 38 41	=1818-050	18 36 56	31.8	184.3	0.2		2.6	170	188	06 35 52
06 38 41	G25.65+1.05	18 36 56	30.9	180.5	0.0		0.3	-22	188	No stop
06 40 41	---	18 38 56	30.9	181.1	0.1		0.6	98	190	06 38 42
06 40 41	J1821-0502	18 38 56	31.8	184.9	0.3		3.0	-23	190	No stop
06 43 41	=1818-050	18 41 56	31.7	185.8	0.3		3.5	157	193	06 40 42
06 43 41	G25.65+1.05	18 41 56	30.9	181.9	0.1		1.2	-22	193	No stop
06 45 41	---	18 43 57	30.9	182.5	0.1		1.5	98	195	06 43 42
06 45 41	J1821-0502	18 43 57	31.7	186.4	0.4		3.8	-23	195	No stop
06 48 41	=1818-050	18 46 57	31.6	187.3	0.4		4.4	157	198	06 45 42
06 48 41	G25.65+1.05	18 46 57	30.9	183.4	0.2		2.0	-22	198	No stop
06 50 41	---	18 48 58	30.9	184.0	0.2		2.4	98	200	06 48 42
06 51 26	J1821-0502	18 49 43	31.6	188.1	0.5		4.9	22	200	06 51 26
06 54 16	=1818-050	18 52 33	31.5	188.9	0.5		5.3	170	202	06 51 27
06 54 16	G25.65+1.05	18 52 33	30.8	185.0	0.3		3.0	-22	202	No stop
06 56 16	---	18 54 33	30.8	185.6	0.3		3.4	98	204	06 54 17
06 56 16	J1821-0502	18 54 33	31.5	189.5	0.5		5.7	-23	204	No stop
06 59 16	=1818-050	18 57 34	31.4	190.4	0.6		6.2	157	207	06 56 17
07 04 06	J2202+4216	19 02 25	58.3	91.2	-3.0		-54.3	76	207	07 04 06
07 12 06	=VR422201	19 10 26	59.5	92.9	-2.9		-54.3	480	215	07 04 07
07 17 06	J1821-0502	19 15 27	30.8	195.5	0.9		9.3	81	215	07 17 06
07 20 06	=1818-050	19 18 27	30.7	196.4	0.9		9.8	180	218	07 17 07
07 20 06	G25.65+1.05	19 18 27	30.2	192.4	0.7		7.5	-23	218	No stop
07 22 06	---	19 20 28	30.2	193.0	0.8		7.8	97	220	07 20 07
07 22 06	J1821-0502	19 20 28	30.6	196.9	1.0		10.1	-23	220	No stop
07 25 06	=1818-050	19 23 28	30.4	197.8	1.0		10.6	157	223	07 22 07
07 25 06	G25.65+1.05	19 23 28	30.1	193.9	0.8		8.3	-23	223	No stop
07 27 06	---	19 25 29	30.0	194.4	0.8		8.7	97	225	07 25 07

Schedule for TORUN (Code Tr) Page 7

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

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Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
07 27 06	J1821-0502	19 25 29	30.4	198.4	1.1		10.9	-23	225	No stop
07 30 06	=1818-050	19 28 29	30.2	199.2	1.1		11.4	157	227	07 27 07
07 30 06	G25.65+1.05	19 28 29	29.9	195.3	0.9		9.2	-23	227	No stop
07 32 06	---	19 30 29	29.8	195.9	0.9		9.5	97	229	07 30 07
07 32 51	J1821-0502	19 31 14	30.1	200.0	1.2		11.9	22	229	07 32 51
07 35 41	=1818-050	19 34 05	29.9	200.8	1.2		12.4	170	232	07 32 52
07 35 41	G25.65+1.05	19 34 05	29.6	196.9	1.0		10.1	-23	232	No stop
07 37 41	---	19 36 05	29.5	197.4	1.0		10.4	97	234	07 35 42
07 37 41	J1821-0502	19 36 05	29.8	201.3	1.2		12.7	-23	234	No stop
07 40 41	=1818-050	19 39 06	29.6	202.2	1.3		13.2	157	237	07 37 42
07 40 41	G25.65+1.05	19 39 06	29.4	198.3	1.1		10.9	-22	237	No stop
07 42 41	---	19 41 06	29.3	198.8	1.1		11.2	98	239	07 40 42
07 42 41	J1821-0502	19 41 06	29.5	202.7	1.3		13.5	-23	239	No stop
07 45 41	=1818-050	19 44 07	29.4	203.6	1.4		14.0	157	242	07 42 42
07 45 41	G25.65+1.05	19 44 07	29.2	199.7	1.1		11.7	-22	242	No stop
07 47 41	---	19 46 07	29.1	200.2	1.2		12.1	98	244	07 45 42
07 48 26	J1821-0502	19 46 52	29.2	204.3	1.4		14.4	22	244	07 48 26
07 51 16	=1818-050	19 49 42	29.0	205.1	1.5		14.8	170	246	07 48 27
07 51 16	G25.65+1.05	19 49 42	28.9	201.2	1.2		12.6	-22	246	No stop
07 53 16	---	19 51 43	28.8	201.8	1.3		13.0	98	248	07 51 17
07 53 16	J1821-0502	19 51 43	28.9	205.7	1.5		15.1	-23	248	No stop
07 56 16	=1818-050	19 54 43	28.7	206.5	1.5		15.6	157	251	07 53 17
08 01 26	J2202+4216	19 59 54	66.9	105.1	-2.1		-51.7	91	251	08 01 26
08 09 26	=VR422201	20 07 55	68.0	107.5	-1.9		-50.8	480	259	08 01 27
08 14 26	J1821-0502	20 12 56	27.4	211.4	1.8		18.3	78	259	08 14 26
08 17 26	=1818-050	20 15 57	27.1	212.2	1.9		18.7	180	262	08 14 27
08 17 26	G25.65+1.05	20 15 57	27.2	208.4	1.7		16.7	-22	262	No stop
08 19 26	---	20 17 57	27.1	208.9	1.7		17.0	98	264	08 17 27
08 19 26	J1821-0502	20 17 57	27.0	212.8	1.9		19.0	-23	264	No stop
08 22 26	=1818-050	20 20 58	26.7	213.5	2.0		19.5	157	267	08 19 27

Schedule for TORUN (Code Tr) Page 8

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
08 22 26	G25.65+1.05	20 20 58	26.8	209.7	1.8		17.4	-22	267	No stop
08 24 26	---	20 22 58	26.7	210.3	1.8		17.7	98	268	08 22 27
08 24 26	J1821-0502	20 22 58	26.5	214.1	2.0		19.7	-23	268	No stop
08 27 26	=1818-050	20 25 58	26.3	214.9	2.1		20.2	157	271	08 24 27
08 27 26	G25.65+1.05	20 25 58	26.5	211.1	1.8		18.1	-22	271	No stop
08 29 26	---	20 27 59	26.3	211.6	1.9		18.4	98	273	08 27 27
08 30 11	J1821-0502	20 28 44	26.0	215.6	2.1		20.5	22	273	08 30 11
08 33 01	=1818-050	20 31 34	25.8	216.3	2.2		20.9	170	276	08 30 12
08 33 01	G25.65+1.05	20 31 34	26.0	212.5	1.9		18.9	-22	276	No stop
08 35 01	---	20 33 35	25.9	213.1	2.0		19.2	98	278	08 33 02
08 35 01	J1821-0502	20 33 35	25.6	216.8	2.2		21.2	-23	278	No stop
08 38 01	=1818-050	20 36 35	25.3	217.6	2.2		21.6	157	281	08 35 02
08 38 01	G25.65+1.05	20 36 35	25.6	213.8	2.0		19.6	-22	281	No stop
08 40 01	---	20 38 35	25.4	214.4	2.1		19.9	98	283	08 38 02
08 40 01	J1821-0502	20 38 35	25.2	218.1	2.3		21.8	-23	283	No stop
08 43 01	=1818-050	20 41 36	24.9	218.9	2.3		22.2	157	286	08 40 02
08 43 01	G25.65+1.05	20 41 36	25.2	215.1	2.1		20.3	-22	286	No stop
08 45 01	---	20 43 36	25.0	215.6	2.1		20.6	98	287	08 43 02
08 45 46	J1821-0502	20 44 21	24.6	219.6	2.4		22.6	23	287	08 45 46
08 48 36	=1818-050	20 47 12	24.3	220.3	2.4		22.9	170	290	08 45 47
08 48 36	G25.65+1.05	20 47 12	24.7	216.6	2.2		21.1	-22	290	No stop
08 50 36	---	20 49 12	24.5	217.1	2.2		21.3	98	292	08 48 37
08 50 36	J1821-0502	20 49 12	24.1	220.8	2.5		23.2	-22	292	No stop
08 53 36	=1818-050	20 52 13	23.9	221.6	2.5		23.6	158	295	08 50 37
08 59 01	J2202+4216	20 57 39	74.7	127.8	-1.1		-40.0	120	295	08 59 01
09 07 01	=VR422201	21 05 40	75.6	132.3	-1.0		-37.0	480	303	08 59 02
09 12 36	J1821-0502	21 11 16	21.9	226.2	2.8		25.8	121	303	09 12 36
09 15 36	=1818-050	21 14 16	21.5	227.0	2.9		26.1	180	306	09 12 37
09 15 36	G25.65+1.05	21 14 16	22.1	223.3	2.6		24.5	-22	306	No stop
09 17 36	---	21 16 17	21.9	223.8	2.7		24.7	98	308	09 15 37

Schedule for TORUN (Code Tr) Page 9

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
09 17 36	J1821-0502	21 16 17	21.3	227.4	2.9		26.4	-22	308	No stop
09 20 36	=1818-050	21 19 17	21.0	228.2	3.0		26.7	158	310	09 17 37
09 20 36	G25.65+1.05	21 19 17	21.6	224.5	2.7		25.1	-22	310	No stop
09 22 36	---	21 21 17	21.3	225.0	2.8		25.3	98	312	09 20 37
09 22 36	J1821-0502	21 21 17	20.8	228.6	3.0		26.9	-22	312	No stop
09 25 36	=1818-050	21 24 18	20.4	229.3	3.0		27.2	158	315	09 22 37
09 25 36	G25.65+1.05	21 24 18	21.0	225.8	2.8		25.6	-22	315	No stop
09 27 36	---	21 26 18	20.8	226.2	2.9		25.9	98	317	09 25 37
09 28 21	J1821-0502	21 27 03	20.1	230.0	3.1		27.5	23	317	09 28 21
09 31 11	=1818-050	21 29 54	19.8	230.7	3.1		27.8	170	320	09 28 22
09 31 11	G25.65+1.05	21 29 54	20.4	227.1	2.9		26.2	-22	320	No stop
09 33 11	---	21 31 54	20.2	227.6	2.9		26.5	98	322	09 31 12
09 33 11	J1821-0502	21 31 54	19.5	231.1	3.2		28.0	-22	322	No stop
09 36 11	=1818-050	21 34 55	19.2	231.8	3.2		28.3	158	325	09 33 12
09 36 11	G25.65+1.05	21 34 55	19.9	228.3	3.0		26.8	-22	325	No stop
09 38 11	---	21 36 55	19.6	228.8	3.0		27.0	98	327	09 36 12
09 38 11	J1821-0502	21 36 55	18.9	232.3	3.2		28.5	-22	327	No stop
09 41 11	=1818-050	21 39 56	18.6	233.0	3.3		28.8	158	329	09 38 12
09 41 11	G25.65+1.05	21 39 56	19.3	229.5	3.1		27.3	-22	329	No stop
09 43 11	---	21 41 56	19.1	229.9	3.1		27.5	98	331	09 41 12
09 43 56	J1821-0502	21 42 41	18.3	233.6	3.3		29.0	23	331	09 43 56
09 46 46	=1818-050	21 45 31	17.9	234.3	3.4		29.3	170	334	09 43 57
09 46 46	G25.65+1.05	21 45 31	18.6	230.8	3.2		27.9	-22	334	No stop
09 48 46	---	21 47 32	18.4	231.2	3.2		28.1	98	336	09 46 47
09 48 46	J1821-0502	21 47 32	17.7	234.7	3.4		29.5	-22	336	No stop
09 51 46	=1818-050	21 50 32	17.3	235.4	3.5		29.8	158	339	09 48 47
09 57 11	J2202+4216	21 55 58	79.2	172.6	-0.1		-6.0	79	339	09 57 11
10 05 11	=VR422201	22 03 59	79.3	180.5	0.0		0.4	480	347	09 57 12
10 10 41	J1821-0502	22 09 30	14.9	239.6	3.8		31.3	75	347	10 10 41
10 13 41	=1818-050	22 12 31	14.5	240.3	3.8		31.6	180	350	10 10 42

Schedule for TORUN (Code Tr) Page 10

A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 3 Mar 2018 Day 62 ---										
10 13 41	G25.65+1.05	22 12 31	15.4	236.9	3.6		30.4	-21	350	No stop
10 15 41	---	22 14 31	15.1	237.3	3.7		30.6	99	351	10 13 42
10 15 41	J1821-0502	22 14 31	14.2	240.7	3.9		31.7	-22	351	No stop
10 18 41	=1818-050	22 17 32	13.8	241.4	3.9		32.0	158	354	10 15 42
10 18 41	G25.65+1.05	22 17 32	14.7	238.0	3.7		30.8	-21	354	No stop
10 20 41	---	22 19 32	14.5	238.5	3.7		31.0	99	356	10 18 42
10 20 41	J1821-0502	22 19 32	13.6	241.8	4.0		32.1	-22	356	No stop
10 23 41	=1818-050	22 22 33	13.2	242.5	4.0		32.3	158	359	10 20 42
10 23 41	G25.65+1.05	22 22 33	14.1	239.1	3.8		31.2	-21	359	No stop
10 25 41	---	22 24 33	13.8	239.6	3.8		31.4	99	361	10 23 42
10 26 26	J1821-0502	22 25 18	12.8	243.1	4.1		32.5	23	361	10 26 26
10 29 16	=1818-050	22 28 08	12.4	243.7	4.1		32.7	170	364	10 26 27
10 29 16	G25.65+1.05	22 28 08	13.4	240.3	3.9		31.6	-21	364	No stop
10 31 16	---	22 30 09	13.1	240.8	3.9		31.8	99	366	10 29 17
10 31 16	J1821-0502	22 30 09	12.2	244.1	4.1		32.8	-22	366	No stop
10 34 16	=1818-050	22 33 09	11.8	244.8	4.2		33.0	158	369	10 31 17
10 34 16	G25.65+1.05	22 33 09	12.7	241.4	4.0		32.0	-21	369	No stop
10 36 16	---	22 35 10	12.5	241.9	4.0		32.2	99	371	10 34 17
10 36 16	J1821-0502	22 35 10	11.5	245.2	4.2		33.2	-21	371	No stop
10 39 16	=1818-050	22 38 10	11.1	245.8	4.3		33.4	159	373	10 36 17
10 39 16	G25.65+1.05	22 38 10	12.1	242.5	4.0		32.4	-21	373	No stop
10 41 16	---	22 40 10	11.8	242.9	4.1		32.5	99	375	10 39 17
10 42 01	J1821-0502	22 40 56	10.7	246.4	4.3		33.5	24	375	10 42 01
10 44 51	=1818-050	22 43 46	10.3	247.0	4.4		33.7	170	378	10 42 02
10 44 51	G25.65+1.05	22 43 46	11.3	243.7	4.1		32.8	-21	378	No stop
10 46 51	---	22 45 46	11.0	244.1	4.2		32.9	99	380	10 44 52
10 46 51	J1821-0502	22 45 46	10.0	247.4	4.4		33.8	-21	380	No stop
10 49 51	=1818-050	22 48 47	9.6	248.1	4.4		34.0	159	383	10 46 52
10 54 31	J2202+4216	22 53 28	76.4	222.9	0.8		33.6	15	383	10 54 31
11 02 41	=VR422201	23 01 39	75.5	228.0	1.0		37.1	490	391	10 54 32

```
Schedule for TORUN     (Code Tr )                                  Page  11
               A 3-D View of high-mass star formation: gas Kinematics and Magnetic Fiel
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat   3 Mar 2018   Day  62 ---

11 07 26  J1821-0502   23 06 25   7.1 251.7  4.7      34.9    15      391   11 07 26
11 10 26  =1818-050    23 09 25   6.7 252.3  4.8      35.1   180      394   11 07 27

11 10 26  G25.65+1.05  23 09 25   7.8 249.1  4.6      34.3   -21      394   No stop
11 12 26  ---          23 11 26   7.5 249.5  4.6      34.4    99      396   11 10 27

11 12 51  J1821-0502   23 11 51   6.3 252.8  4.8      35.2     4      396   11 12 51
11 17 51  =1818-050    23 16 51   5.6 253.9  4.9      35.4   300      400   11 12 52

11 22 32  J2202+4216   23 21 33  73.1 238.4  1.3      43.8    14      400   11 22 32
11 30 00  =VR422201    23 29 02  72.2 241.6  1.4      45.7   448      407   11 22 33



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.M128

   Setup group:    7         Station: TORUN            Total bit rate:   128
   Format: MARK5B            Bits per sample: 2        Sample rate:  4.000
   Number of channels: 16    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
           5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
 Net SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF SB =         U         U         U         U         U         U         U         U
                 U         U         U         U         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
               RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         2         6         2         6
                 3         7         3         7         4         8         4         8
 BBC SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1
                A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

 Frequency Set:   6  Based on FREQ, BW, and/or DOPPLER in schedule.  Used with PCAL = off
  LO sum=   6665.52  6665.52  6665.52  6665.52  6669.52  6669.52  6669.52  6669.52
            6673.52  6673.52  6673.52  6673.52  6677.52  6677.52  6677.52  6677.52
  BBC fr=    765.52   765.52   765.52   765.52   769.52   769.52   769.52   769.52
             773.52   773.52   773.52   773.52   777.52   777.52   777.52   777.52
  Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
               2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
   Matching frequency sets:   6

  Track assignments are:
   track1=  18, 26,  2, 10, 20, 28,  4, 12, 22, 30,  6, 14, 24, 32,  8, 16
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* G25.65+1.05        18 31 40.145161   * 18 34 20.900000     18 35 17.910134       0.00
                    -06 02 05.96283    *-05 59 42.10000     -05 58 47.97160        0.00
                     Doppler based on LSR frame and radio definition.  Velocities:
                         41.60    41.60    41.60    41.60    41.60    41.60    41.60    41.60
                         41.60    41.60    41.60    41.60    41.60    41.60

  3C286              13 28 49.657758   * 13 31 08.288051     13 31 58.829871       0.18
* J1331+3030         30 45 58.64059    * 30 30 32.95924      30 24 50.75498        0.17
  1328+307           /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1331+30           GSFC 2015a astro solution, unpublished    225 observations.
                     Doppler based on other sources.

* 3C345              16 41 17.606228   * 16 42 58.809966     16 43 34.977099       0.76
  J1642+3948         39 54 10.81496    * 39 48 36.99402      39 46 26.14472        0.52
  1641+399           /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1642+39           GSFC 2015a astro solution, unpublished  53430 observations.
                     Doppler based on other sources.

  1818-050           18 18 32.138835   * 18 21 11.809558     18 22 08.506188       0.32
* J1821-0502         -05 03 46.86946    *-05 02 20.08539     -05 01 46.63323        0.52
                     /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                     GSFC 2015a astro solution, unpublished    107 observations.
                     Doppler based on other sources.
```

```
  VR422201          22 00 39.362505   * 22 02 43.291372     22 03 26.389058       0.00
* J2202+4216        42 02 08.59077    * 42 16 39.97990      42 21 48.66404        0.00
  BLLAC             /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  2200+420          GSFC 2015a astro solution, unpublished  51226 observations.
  J2202+42          Doppler based on other sources.


EFFECT OF SOLAR CORONA

  The solar corona can cause unstable phases for sources too close to the Sun.
  SCHED provides warnings at individual scans for distances less than 10 degrees.
  The distance from the Sun to each source in this schedule is:
    Source         Sun distance (deg)
   G25.65+1.05         64.7
   J1331+3030         136.5
   3C345               96.7
   J1821-0502          68.1
   J2202+4216          50.6

  Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
  that the Sun will cause amplitude reductions on the  longest VLBA baselines
  at a solar distance of 60deg F^(-0.6) where F is in GHz.
  For common VLBI bands, this is:
       1.6 GHz         45. deg
       2.3 GHz         36. deg
       5.0 GHz         23. deg
       8.4 GHz         17. deg
      15.0 GHz         12. deg
      22.0 GHz          9. deg
```

rk18odtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat   3 Mar 2018   Day  62 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

21 00 00  1226+023     09 00 36  23.2 120.6 -3.5     -31.2     0        0   21 00 00
21 14 30  ---          09 15 08  25.0 124.0 -3.2     -29.9   870       28   21 00 01

21 15 00  1226+023     09 15 39  25.1 124.1 -3.2     -29.8    24       28   21 15 00
21 29 30  ---          09 30 11  26.9 127.7 -3.0     -28.4   870       56   21 15 01

21 30 00  1226+023     09 30 41  26.9 127.8 -3.0     -28.4    24       56   21 30 00
21 44 30  ---          09 45 13  28.6 131.4 -2.7     -26.8   870       84   21 30 01

21 45 00  1226+023     09 45 43  28.7 131.5 -2.7     -26.7    24       84   21 45 00
22 00 00  ---          10 00 46  30.3 135.4 -2.5     -24.9   900      112   21 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.823091       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 53.57790        0.00
                    fake circumpolar target for a TS to look at

* 1226+023          12 26 33.245835   * 12 29 06.699731     12 30 02.867680       0.00
  J1229+0203        02 19 43.30547    * 02 03 08.59797      01 57 04.77690        0.00
  3C273B            ./rk18od_sources.radioastron
  3C273             AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1226+023           156.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18oetr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Sun   4 Mar 2018   Day  63 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1253-055     13 01 15  31.0 181.2  0.1       0.7     0        0   01 00 00
01 14 30  ---          13 15 48  30.9 185.4  0.3       3.3   870       28   01 00 01

01 15 00  1253-055     13 16 18  30.9 185.6  0.3       3.4    24       28   01 15 00
01 29 30  ---          13 30 50  30.6 189.7  0.6       5.9   870       56   01 15 01

01 30 00  1253-055     13 31 20  30.6 189.9  0.6       6.0    24       56   01 30 00
01 44 30  ---          13 45 53  30.1 194.0  0.8       8.4   870       84   01 30 01

01 45 00  1253-055     13 46 23  30.1 194.2  0.8       8.5    24       84   01 45 00
02 00 00  ---          14 01 25  29.5 198.4  1.1      11.0   900      112   01 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.836597       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 53.63421        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 08.024901       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 15.34422        0.00
  3C279             ./rk18oe_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           148.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

es089tr

Probing the gas kinematic and velocity gradients at milliarcsecond

PI: *Rafal Sarniak*


```
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          ul. Gagarina 11, Torun, PL-87100
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```


```
Observing mode: MKV, 128Mb/s

Schedule for TORUN     (Code Tr )                                    Page   2
               Probing the gas kinematic and velocity gradients at milliarcsecond scale
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun   4 Mar 2018   Day  63 ---

 Next scan frequencies:  6663.96  6663.96  6663.96  6663.96  6667.96  6667.96  6667.96  6667.96
                         6671.96  6671.96  6671.96  6671.96  6675.96  6675.96  6675.96  6675.96
 Next BBC frequencies:    763.96   763.96   763.96   763.96   767.96   767.96   767.96   767.96
                          771.96   771.96   771.96   771.96   775.96   775.96   775.96   775.96
 Next scan bandwidths:      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                            2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00

04 00 00  J1834-0301   16 01 45  25.4 136.7 -2.6     -24.4     0        0   04 00 00
04 01 45  =1831-030    16 03 30  25.5 137.1 -2.5     -24.1   105        2   04 00 01

04 01 45  G30.224      16 03 30  24.7 133.7 -2.7     -25.8   -22        2   No stop
04 05 00  ---          16 06 46  25.0 134.5 -2.7     -25.4   173        5   04 01 46

04 05 00  J1834-0301   16 06 46  25.9 138.0 -2.5     -23.7   -22        5   No stop
04 06 45  =1831-030    16 08 31  26.0 138.4 -2.4     -23.5    83        6   04 05 01

04 06 45  G30.198      16 08 31  25.2 135.0 -2.7     -25.2   -21        6   No stop
04 10 00  ---          16 11 47  25.5 135.8 -2.6     -24.8   174       10   04 06 46

04 10 15  J1834-0301   16 12 02  26.4 139.3 -2.4     -23.1    -7       10   04 10 15
04 12 00  =1831-030    16 13 47  26.6 139.8 -2.4     -22.9    98       11   04 10 16

04 15 42  3C345        16 17 30  76.0 158.9 -0.4     -16.3    23       11   04 15 42
04 20 42  ---          16 22 31  76.2 162.8 -0.4     -13.4   300       16   04 15 43

04 20 42  3C345        16 22 31  76.2 162.8 -0.4     -13.4    -5       16   No stop
04 24 32  ---          16 26 21  76.4 165.8 -0.3     -11.0   225       20   04 20 43

04 26 32  J1834-0301   16 28 22  27.9 143.6 -2.1     -20.9   -75       20   04 26 32
04 28 17  =1831-030    16 30 07  28.1 144.0 -2.1     -20.7    30       21   04 26 33

04 28 17  G30.224      16 30 07  27.4 140.4 -2.3     -22.5   -22       21   No stop
04 31 32  ---          16 33 23  27.7 141.3 -2.2     -22.1   173       25   04 28 18
```

04 32 17	J1834-0301	16 34 08	28.4	145.1	-2.0	-20.1	23	25	04 32 17
04 34 02	=1831-030	16 35 53	28.6	145.6	-2.0	-19.9	105	26	04 32 18
04 34 02	G30.198	16 35 53	27.9	142.0	-2.2	-21.7	-22	26	No stop
04 37 17	---	16 39 09	28.2	142.8	-2.1	-21.3	173	29	04 34 03
04 37 17	J1834-0301	16 39 09	28.8	146.4	-1.9	-19.4	-22	29	No stop
04 39 02	=1831-030	16 40 54	29.0	146.9	-1.9	-19.2	83	31	04 37 18
04 39 02	G30.224	16 40 54	28.4	143.3	-2.1	-21.1	-22	31	No stop
04 42 17	---	16 44 09	28.7	144.1	-2.1	-20.6	173	34	04 39 03

Schedule for TORUN (Code Tr) Page 3

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
04 43 02	J1834-0301	16 44 54	29.3	148.0	-1.8		-18.6	23	34	04 43 02
04 44 47	=1831-030	16 46 40	29.5	148.5	-1.8		-18.3	105	36	04 43 03
04 44 47	G30.198	16 46 40	28.9	144.8	-2.0		-20.3	-22	36	No stop
04 48 02	---	16 49 55	29.2	145.7	-2.0		-19.8	173	39	04 44 48
04 48 02	J1834-0301	16 49 55	29.7	149.4	-1.8		-17.8	-22	39	No stop
04 49 47	=1831-030	16 51 41	29.8	149.8	-1.7		-17.6	83	41	04 48 03
04 49 47	G30.224	16 51 41	29.3	146.1	-1.9		-19.6	-22	41	No stop
04 53 02	---	16 54 56	29.6	147.0	-1.9		-19.1	173	44	04 49 48
04 53 47	J1834-0301	16 55 41	30.1	150.9	-1.7		-17.0	23	44	04 53 47
04 55 32	=1831-030	16 57 27	30.3	151.4	-1.6		-16.7	105	46	04 53 48
04 55 32	G30.198	16 57 27	29.8	147.7	-1.8		-18.7	-22	46	No stop
04 58 47	---	17 00 42	30.0	148.6	-1.8		-18.2	173	49	04 55 33
04 58 47	J1834-0301	17 00 42	30.5	152.3	-1.6		-16.2	-22	49	No stop
05 00 32	=1831-030	17 02 27	30.6	152.8	-1.5		-15.9	83	50	04 58 48
05 00 32	G30.224	17 02 27	30.2	149.1	-1.8		-18.0	-22	50	No stop
05 03 47	---	17 05 43	30.4	150.0	-1.7		-17.5	173	53	05 00 33
05 04 32	J1834-0301	17 06 28	30.9	153.9	-1.5		-15.3	22	53	05 04 32
05 06 17	=1831-030	17 08 13	31.0	154.4	-1.4		-15.0	105	55	05 04 33
05 06 17	G30.198	17 08 13	30.6	150.7	-1.7		-17.1	-22	55	No stop
05 09 32	---	17 11 29	30.8	151.6	-1.6		-16.6	173	58	05 06 18
05 09 32	J1834-0301	17 11 29	31.2	155.4	-1.4		-14.5	-23	58	No stop
05 11 17	=1831-030	17 13 14	31.3	155.9	-1.4		-14.2	82	60	05 09 33
05 11 17	G30.224	17 13 14	31.0	152.1	-1.6		-16.4	-22	60	No stop
05 14 32	---	17 16 30	31.2	153.0	-1.5		-15.8	173	63	05 11 18
05 15 17	J1834-0301	17 17 15	31.6	157.0	-1.3		-13.6	22	63	05 15 17
05 17 02	=1831-030	17 19 00	31.7	157.5	-1.3		-13.3	105	65	05 15 18
05 17 02	G30.198	17 19 00	31.4	153.7	-1.5		-15.4	-22	65	No stop
05 20 17	---	17 22 16	31.6	154.6	-1.4		-14.9	173	68	05 17 03
05 20 17	J1834-0301	17 22 16	31.8	158.4	-1.2		-12.8	-23	68	No stop
05 22 02	=1831-030	17 24 01	31.9	158.9	-1.2		-12.5	82	70	05 20 18

Schedule for TORUN (Code Tr) Page 4

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
05 22 02	G30.224	17 24 01	31.7	155.1	-1.4		-14.7	-22	70	No stop
05 25 17	---	17 27 16	31.9	156.0	-1.3		-14.1	173	73	05 22 03
05 26 02	J1834-0301	17 28 02	32.2	160.1	-1.1		-11.8	22	73	05 26 02
05 27 47	=1831-030	17 29 47	32.2	160.6	-1.1		-11.5	105	74	05 26 03
05 27 47	G30.198	17 29 47	32.0	156.8	-1.3		-13.7	-22	74	No stop
05 31 02	---	17 33 02	32.2	157.7	-1.2		-13.2	173	77	05 27 48
05 31 02	J1834-0301	17 33 02	32.4	161.5	-1.0		-11.0	-23	77	No stop
05 32 47	=1831-030	17 34 48	32.5	162.0	-1.0		-10.7	82	79	05 31 03
05 32 47	G30.224	17 34 48	32.3	158.2	-1.2		-12.9	-22	79	No stop
05 36 02	---	17 38 03	32.5	159.1	-1.2		-12.4	173	82	05 32 48
05 36 47	J1834-0301	17 38 48	32.7	163.2	-0.9		-10.0	22	82	05 36 47
05 38 32	=1831-030	17 40 34	32.7	163.7	-0.9		-9.7	105	84	05 36 48
05 38 32	G30.198	17 40 34	32.6	159.9	-1.1		-11.9	-22	84	No stop
05 41 47	---	17 43 49	32.8	160.8	-1.1		-11.4	173	87	05 38 33
05 41 47	J1834-0301	17 43 49	32.9	164.7	-0.9		-9.1	-23	87	No stop
05 43 32	=1831-030	17 45 34	32.9	165.2	-0.8		-8.8	82	89	05 41 48
05 43 32	G30.224	17 45 34	32.9	161.3	-1.0		-11.1	-22	89	No stop
05 46 47	---	17 48 50	33.1	162.3	-1.0		-10.6	173	92	05 43 33
05 47 32	J1834-0301	17 49 35	33.1	166.4	-0.8		-8.1	22	92	05 47 32
05 49 17	=1831-030	17 51 20	33.1	166.9	-0.7		-7.8	105	94	05 47 33
05 49 17	G30.198	17 51 20	33.2	163.0	-0.9		-10.1	-22	94	No stop
05 52 32	---	17 54 36	33.3	164.0	-0.9		-9.5	173	97	05 49 18
05 52 32	J1834-0301	17 54 36	33.3	167.9	-0.7		-7.3	-23	97	No stop
05 54 17	=1831-030	17 56 21	33.3	168.4	-0.6		-7.0	82	98	05 52 33
05 54 17	G30.224	17 56 21	33.4	164.5	-0.9		-9.3	-22	98	No stop
05 57 32	---	17 59 37	33.5	165.4	-0.8		-8.7	173	102	05 54 18
05 58 17	J1834-0301	18 00 22	33.4	169.6	-0.6		-6.2	22	102	05 58 17
06 00 02	=1831-030	18 02 07	33.5	170.1	-0.6		-5.9	105	103	05 58 18
06 00 02	G30.198	18 02 07	33.6	166.2	-0.8		-8.2	-22	103	No stop
06 03 17	---	18 05 23	33.7	167.2	-0.7		-7.7	173	106	06 00 03

Schedule for TORUN (Code Tr) Page 5

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
06 03 17	J1834-0301	18 05 23	33.5	171.1	-0.5		-5.4	-23	106	No stop
06 05 02	=1831-030	18 07 08	33.6	171.6	-0.5		-5.0	82	108	06 03 18
06 05 02	G30.224	18 07 08	33.8	167.7	-0.7		-7.4	-23	108	No stop
06 08 17	---	18 10 23	33.9	168.6	-0.6		-6.8	172	111	06 05 03
06 09 02	J1834-0301	18 11 09	33.7	172.8	-0.4		-4.3	22	111	06 09 02
06 10 47	=1831-030	18 12 54	33.7	173.3	-0.4		-4.0	105	113	06 09 03
06 10 47	G30.198	18 12 54	33.9	169.4	-0.6		-6.3	-22	113	No stop
06 14 02	---	18 16 09	34.0	170.4	-0.5		-5.8	173	116	06 10 48
06 14 02	J1834-0301	18 16 09	33.8	174.3	-0.3		-3.4	-23	116	No stop
06 15 47	=1831-030	18 17 55	33.8	174.8	-0.3		-3.1	82	118	06 14 03
06 15 47	G30.224	18 17 55	34.1	170.9	-0.5		-5.5	-23	118	No stop
06 19 02	---	18 21 10	34.1	171.9	-0.4		-4.9	172	121	06 15 48
06 19 47	J1834-0301	18 21 55	33.8	176.0	-0.2		-2.4	22	121	06 19 47
06 21 32	=1831-030	18 23 41	33.8	176.5	-0.2		-2.1	105	122	06 19 48
06 21 32	G30.198	18 23 41	34.2	172.7	-0.4		-4.4	-22	122	No stop
06 24 47	---	18 26 56	34.2	173.6	-0.4		-3.8	173	126	06 21 33
06 24 47	J1834-0301	18 26 56	33.9	177.5	-0.1		-1.5	-23	126	No stop
06 26 32	=1831-030	18 28 41	33.9	178.1	-0.1		-1.2	82	127	06 24 48
06 29 44	3C345	18 31 53	67.3	245.0	1.8		45.1	43	127	06 29 44
06 34 44	---	18 36 54	66.6	246.7	1.9		45.9	300	132	06 29 45
06 34 44	3C345	18 36 54	66.6	246.7	1.9		45.9	-5	132	No stop
06 38 34	---	18 40 45	66.1	248.0	2.0		46.4	225	136	06 34 45
06 40 34	J1834-0301	18 42 45	33.9	182.3	0.1		1.4	-26	136	06 40 34
06 42 19	=1831-030	18 44 30	33.9	182.8	0.2		1.7	79	137	06 40 35
06 42 19	G30.224	18 44 30	34.4	178.9	-0.1		-0.6	-22	137	No stop
06 45 34	---	18 47 46	34.4	179.9	-0.0		-0.1	173	141	06 42 20
06 46 19	J1834-0301	18 48 31	33.8	184.0	0.2		2.4	22	141	06 46 19
06 48 04	=1831-030	18 50 16	33.8	184.5	0.3		2.7	105	142	06 46 20
06 48 04	G30.198	18 50 16	34.4	180.7	0.0		0.4	-22	142	No stop
06 51 19	---	18 53 32	34.4	181.7	0.1		1.0	173	145	06 48 05

Schedule for TORUN (Code Tr) Page 6

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sun 4 Mar 2018 Day 63 ---										
06 51 19	J1834-0301	18 53 32	33.8	185.5	0.3		3.3	-23	145	No stop
06 53 04	=1831-030	18 55 17	33.7	186.0	0.3		3.6	82	147	06 51 20
06 53 04	G30.224	18 55 17	34.4	182.2	0.1		1.3	-22	147	No stop
06 56 19	---	18 58 33	34.4	183.2	0.2		1.9	173	150	06 53 05
06 57 04	J1834-0301	18 59 18	33.7	187.2	0.4		4.3	22	150	06 57 04
06 58 49	=1831-030	19 01 03	33.6	187.8	0.4		4.7	105	152	06 57 05
06 58 49	G30.198	19 01 03	34.3	184.0	0.2		2.4	-22	152	No stop
07 02 04	---	19 04 18	34.3	184.9	0.3		3.0	173	155	06 58 50
07 02 04	J1834-0301	19 04 18	33.6	188.7	0.5		5.2	-23	155	No stop
07 03 49	=1831-030	19 06 04	33.5	189.3	0.5		5.6	82	157	07 02 05
07 03 49	G30.224	19 06 04	34.3	185.4	0.3		3.3	-22	157	No stop
07 07 04	---	19 09 19	34.3	186.4	0.4		3.9	173	160	07 03 50
07 07 49	J1834-0301	19 10 04	33.4	190.5	0.6		6.3	22	160	07 07 49
07 09 34	=1831-030	19 11 50	33.4	191.0	0.6		6.6	105	161	07 07 50
07 09 34	G30.198	19 11 50	34.2	187.2	0.4		4.3	-22	161	No stop
07 12 49	---	19 15 05	34.1	188.2	0.5		4.9	173	165	07 09 35
07 12 49	J1834-0301	19 15 05	33.3	191.9	0.7		7.2	-23	165	No stop
07 14 34	=1831-030	19 16 51	33.2	192.5	0.7		7.5	82	166	07 12 50
07 14 34	G30.224	19 16 51	34.1	188.7	0.5		5.2	-22	166	No stop
07 17 49	---	19 20 06	34.0	189.7	0.5		5.8	173	169	07 14 35
07 18 34	J1834-0301	19 20 51	33.1	193.7	0.8		8.2	22	169	07 18 34
07 20 19	=1831-030	19 22 36	33.0	194.2	0.8		8.5	105	171	07 18 35
07 20 19	G30.198	19 22 36	33.9	190.4	0.6		6.3	-22	171	No stop
07 23 34	---	19 25 52	33.8	191.4	0.6		6.8	173	174	07 20 20
07 23 34	J1834-0301	19 25 52	32.9	195.1	0.8		9.0	-22	174	No stop
07 25 19	=1831-030	19 27 37	32.8	195.6	0.9		9.3	83	176	07 23 35
07 25 19	G30.224	19 27 37	33.8	191.9	0.7		7.1	-22	176	No stop
07 28 34	---	19 30 53	33.7	192.9	0.7		7.7	173	179	07 25 20
07 29 19	J1834-0301	19 31 38	32.7	196.8	0.9		10.0	23	179	07 29 19
07 31 04	=1831-030	19 33 23	32.6	197.3	1.0		10.3	105	181	07 29 20

Schedule for TORUN (Code Tr) Page 7

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
07 31 04	G30.198	19 33 23	33.6	193.7	0.8		8.2	-22	181	No stop
07 34 19	---	19 36 39	33.5	194.6	0.8		8.7	173	184	07 31 05
07 34 19	J1834-0301	19 36 39	32.4	198.3	1.0		10.9	-22	184	No stop
07 36 04	=1831-030	19 38 24	32.3	198.8	1.1		11.2	83	185	07 34 20
07 36 04	G30.224	19 38 24	33.4	195.1	0.8		9.0	-22	185	No stop
07 39 19	---	19 41 40	33.3	196.1	0.9		9.6	173	189	07 36 05
07 40 04	J1834-0301	19 42 25	32.1	199.9	1.1		11.8	23	189	07 40 04
07 41 49	=1831-030	19 44 10	32.1	200.5	1.2		12.1	105	190	07 40 05
07 41 49	G30.198	19 44 10	33.2	196.8	0.9		10.0	-22	190	No stop
07 45 04	---	19 47 26	33.0	197.8	1.0		10.6	173	193	07 41 50
07 45 04	J1834-0301	19 47 26	31.9	201.4	1.2		12.7	-22	193	No stop
07 46 49	=1831-030	19 49 11	31.8	201.9	1.2		13.0	83	195	07 45 05
07 46 49	G30.224	19 49 11	33.0	198.3	1.0		10.9	-22	195	No stop
07 50 04	---	19 52 26	32.8	199.2	1.1		11.4	173	198	07 46 50
07 50 49	J1834-0301	19 53 11	31.6	203.0	1.3		13.6	23	198	07 50 49
07 52 34	=1831-030	19 54 57	31.4	203.5	1.3		13.9	105	200	07 50 50
07 52 34	G30.198	19 54 57	32.7	200.0	1.1		11.9	-22	200	No stop
07 55 49	---	19 58 12	32.5	200.9	1.2		12.4	173	203	07 52 35
07 55 49	J1834-0301	19 58 12	31.2	204.5	1.4		14.4	-22	203	No stop
07 57 34	=1831-030	19 59 58	31.1	205.0	1.4		14.7	83	205	07 55 50
07 57 34	G30.224	19 59 58	32.4	201.4	1.2		12.7	-22	205	No stop
08 00 49	---	20 03 13	32.2	202.4	1.3		13.2	173	208	07 57 35
08 01 34	J1834-0301	20 03 58	30.9	206.1	1.5		15.3	23	208	08 01 34
08 03 19	=1831-030	20 05 44	30.8	206.6	1.5		15.6	105	210	08 01 35
08 03 19	G30.198	20 05 44	32.1	203.1	1.3		13.6	-21	210	No stop
08 06 34	---	20 08 59	31.9	204.0	1.4		14.2	174	213	08 03 20
08 06 34	J1834-0301	20 08 59	30.5	207.5	1.6		16.1	-22	213	No stop
08 08 19	=1831-030	20 10 44	30.4	208.0	1.6		16.4	83	214	08 06 35
08 08 19	G30.224	20 10 44	31.8	204.5	1.4		14.4	-21	214	No stop
08 11 34	---	20 14 00	31.6	205.4	1.4		15.0	174	217	08 08 20

Schedule for TORUN (Code Tr) Page 8

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
08 12 19	J1834-0301	20 14 45	30.1	209.1	1.7		17.0	23	217	08 12 19
08 14 04	=1831-030	20 16 30	30.0	209.6	1.7		17.3	105	219	08 12 20
08 14 04	G30.198	20 16 30	31.4	206.2	1.5		15.4	-21	219	No stop
08 17 19	---	20 19 46	31.2	207.1	1.5		15.9	174	222	08 14 05
08 17 19	J1834-0301	20 19 46	29.8	210.5	1.7		17.7	-22	222	No stop
08 19 04	=1831-030	20 21 31	29.6	210.9	1.8		18.0	83	224	08 17 20
08 19 04	G30.224	20 21 31	31.1	207.6	1.6		16.1	-21	224	No stop
08 22 19	---	20 24 47	30.9	208.5	1.6		16.6	174	227	08 19 05
08 23 04	J1834-0301	20 25 32	29.3	212.0	1.8		18.6	23	227	08 23 04
08 24 49	=1831-030	20 27 17	29.2	212.5	1.9		18.9	105	229	08 23 05
08 24 49	G30.198	20 27 17	30.6	209.2	1.7		17.0	-21	229	No stop
08 28 04	---	20 30 33	30.4	210.1	1.7		17.5	174	232	08 24 50
08 28 04	J1834-0301	20 30 33	28.9	213.4	1.9		19.3	-21	232	No stop
08 29 49	=1831-030	20 32 18	28.8	213.9	2.0		19.6	84	234	08 28 05
08 33 32	3C345	20 36 02	49.1	275.2	3.9		51.1	86	234	08 33 32
08 38 32	---	20 41 03	48.3	276.1	4.0		51.0	300	238	08 33 33
08 38 55	3C345	20 41 26	48.3	276.2	4.0		51.0	17	238	08 38 55
08 42 50	---	20 45 22	47.7	276.9	4.0		50.9	235	242	08 38 56
08 44 50	J1834-0301	20 47 22	27.4	217.9	2.2		21.7	-13	242	08 44 50
08 46 35	=1831-030	20 49 07	27.3	218.3	2.2		21.9	92	244	08 44 51
08 46 35	G30.224	20 49 07	28.9	215.1	2.0		20.2	-21	244	No stop
08 49 50	---	20 52 23	28.6	216.0	2.1		20.7	174	247	08 46 36
08 50 35	J1834-0301	20 53 08	26.9	219.4	2.3		22.4	24	247	08 50 35
08 52 20	=1831-030	20 54 53	26.7	219.8	2.3		22.6	105	249	08 50 36
08 52 20	G30.198	20 54 53	28.4	216.7	2.1		21.0	-21	249	No stop
08 55 35	---	20 58 09	28.1	217.5	2.2		21.5	174	252	08 52 21
08 55 35	J1834-0301	20 58 09	26.4	220.6	2.4		23.1	-21	252	No stop
08 57 20	=1831-030	20 59 54	26.2	221.1	2.4		23.3	84	253	08 55 36
08 57 20	G30.224	20 59 54	28.0	218.0	2.2		21.7	-21	253	No stop
09 00 35	---	21 03 10	27.7	218.8	2.3		22.1	174	257	08 57 21

Schedule for TORUN (Code Tr) Page 9

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
09 01 20	J1834-0301	21 03 55	25.8	222.1	2.5		23.8	24	257	09 01 20
09 03 05	=1831-030	21 05 40	25.7	222.6	2.5		24.0	105	258	09 01 21
09 03 05	G30.198	21 05 40	27.4	219.5	2.3		22.5	-20	258	No stop
09 06 20	---	21 08 55	27.1	220.3	2.3		22.9	175	261	09 03 06
09 06 20	J1834-0301	21 08 55	25.3	223.4	2.6		24.4	-21	261	No stop
09 08 05	=1831-030	21 10 41	25.1	223.8	2.6		24.6	84	263	09 06 21
09 08 05	G30.224	21 10 41	26.9	220.8	2.4		23.1	-20	263	No stop
09 11 20	---	21 13 56	26.6	221.6	2.4		23.5	175	266	09 08 06
09 12 05	J1834-0301	21 14 41	24.7	224.8	2.7		25.1	24	266	09 12 05
09 13 50	=1831-030	21 16 27	24.5	225.3	2.7		25.3	105	268	09 12 06
09 13 50	G30.198	21 16 27	26.3	222.3	2.5		23.8	-20	268	No stop
09 17 05	---	21 19 42	26.0	223.1	2.5		24.2	175	271	09 13 51
09 17 05	J1834-0301	21 19 42	24.2	226.1	2.7		25.7	-21	271	No stop
09 18 50	=1831-030	21 21 28	24.0	226.5	2.8		25.9	84	273	09 17 06
09 18 50	G30.224	21 21 28	25.8	223.5	2.6		24.5	-21	273	No stop
09 22 05	---	21 24 43	25.5	224.4	2.6		24.8	174	276	09 18 51
09 22 50	J1834-0301	21 25 28	23.6	227.5	2.8		26.3	24	276	09 22 50
09 24 35	=1831-030	21 27 13	23.4	227.9	2.9		26.5	105	277	09 22 51
09 24 35	G30.198	21 27 13	25.2	225.0	2.7		25.1	-21	277	No stop
09 27 50	---	21 30 29	24.9	225.8	2.7		25.5	174	281	09 24 36
09 27 50	J1834-0301	21 30 29	23.0	228.7	2.9		26.9	-21	281	No stop
09 29 35	=1831-030	21 32 14	22.8	229.1	3.0		27.0	84	282	09 27 51
09 29 35	G30.224	21 32 14	24.7	226.2	2.7		25.7	-21	282	No stop
09 32 50	---	21 35 30	24.4	227.0	2.8		26.1	174	285	09 29 36
09 33 35	J1834-0301	21 36 15	22.3	230.1	3.0		27.5	24	285	09 33 35
09 35 20	=1831-030	21 38 00	22.1	230.5	3.0		27.6	105	287	09 33 36
09 35 20	G30.198	21 38 00	24.0	227.7	2.8		26.4	-21	287	No stop
09 38 35	---	21 41 16	23.7	228.5	2.9		26.7	174	290	09 35 21
09 38 35	J1834-0301	21 41 16	21.8	231.3	3.1		28.0	-21	290	No stop
09 40 20	=1831-030	21 43 01	21.5	231.7	3.1		28.2	84	292	09 38 36

Schedule for TORUN (Code Tr) Page 10

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Sun 4 Mar 2018 Day 63 ---										
09 40 20	G30.224	21 43 01	23.5	228.9	2.9		26.9	-21	292	No stop
09 43 35	---	21 46 17	23.1	229.7	3.0		27.3	174	295	09 40 21
09 44 20	J1834-0301	21 47 02	21.1	232.6	3.2		28.6	24	295	09 44 20
09 46 05	=1831-030	21 48 47	20.9	233.1	3.2		28.7	105	297	09 44 21
09 46 05	G30.198	21 48 47	22.8	230.3	3.0		27.5	-21	297	No stop
09 49 20	---	21 52 03	22.4	231.1	3.1		27.9	174	300	09 46 06
09 49 20	J1834-0301	21 52 03	20.5	233.8	3.3		29.0	-21	300	No stop
09 51 05	=1831-030	21 53 48	20.3	234.2	3.3		29.2	84	302	09 49 21
09 51 05	G30.224	21 53 48	22.3	231.5	3.1		28.0	-21	302	No stop
09 54 20	---	21 57 03	21.9	232.2	3.1		28.4	174	305	09 51 06
09 55 05	J1834-0301	21 57 49	19.8	235.2	3.4		29.6	23	305	09 55 05
09 56 50	=1831-030	21 59 34	19.5	235.6	3.4		29.7	105	306	09 55 06
09 56 50	G30.198	21 59 34	21.6	232.8	3.2		28.6	-21	306	No stop
10 00 05	---	22 02 49	21.2	233.6	3.2		28.9	174	309	09 56 51
10 00 05	J1834-0301	22 02 49	19.1	236.3	3.5		30.0	-22	309	No stop
10 01 50	=1831-030	22 04 35	18.9	236.7	3.5		30.2	83	311	10 00 06
10 01 50	G30.224	22 04 35	21.0	234.0	3.3		29.1	-21	311	No stop
10 05 05	---	22 07 50	20.6	234.8	3.3		29.4	174	314	10 01 51
10 05 50	J1834-0301	22 08 35	18.4	237.6	3.6		30.5	23	314	10 05 50
10 07 35	=1831-030	22 10 21	18.2	238.0	3.6		30.7	105	316	10 05 51
10 07 35	G30.198	22 10 21	20.2	235.4	3.4		29.6	-21	316	No stop
10 10 50	---	22 13 36	19.8	236.1	3.4		29.9	174	319	10 07 36
10 10 50	J1834-0301	22 13 36	17.8	238.8	3.6		30.9	-22	319	No stop
10 12 35	=1831-030	22 15 21	17.6	239.1	3.7		31.1	83	321	10 10 51
10 12 35	G30.224	22 15 21	19.7	236.5	3.5		30.1	-22	321	No stop
10 15 50	---	22 18 37	19.2	237.3	3.5		30.4	173	324	10 12 36
10 16 35	J1834-0301	22 19 22	17.0	240.0	3.7		31.4	23	324	10 16 35
10 18 20	=1831-030	22 21 07	16.8	240.4	3.8		31.5	105	326	10 16 36
10 18 20	G30.198	22 21 07	18.9	237.8	3.6		30.6	-22	326	No stop
10 21 35	---	22 24 23	18.5	238.6	3.6		30.9	173	329	10 18 21

Schedule for TORUN (Code Tr) Page 11

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
10 21 35	J1834-0301	22 24 23	16.4	241.2	3.8		31.8	-22	329	No stop
10 23 20	=1831-030	22 26 08	16.1	241.5	3.8		31.9	83	330	10 21 36
10 23 20	G30.224	22 26 08	18.3	239.0	3.6		31.0	-22	330	No stop
10 26 35	---	22 29 24	17.9	239.7	3.7		31.3	173	333	10 23 21
10 27 20	J1834-0301	22 30 09	15.6	242.4	3.9		32.2	23	333	10 27 20
10 29 05	=1831-030	22 31 54	15.4	242.8	3.9		32.3	105	335	10 27 21
10 29 05	G30.198	22 31 54	17.5	240.3	3.7		31.5	-22	335	No stop
10 32 20	---	22 35 10	17.1	241.0	3.8		31.7	173	338	10 29 06
10 32 20	J1834-0301	22 35 10	14.9	243.5	4.0		32.6	-22	338	No stop
10 34 05	=1831-030	22 36 55	14.7	243.9	4.0		32.7	83	340	10 32 21
10 34 05	G30.224	22 36 55	16.9	241.4	3.8		31.8	-22	340	No stop
10 37 20	---	22 40 10	16.5	242.1	3.9		32.1	173	343	10 34 06
10 38 05	J1834-0301	22 40 56	14.2	244.8	4.1		33.0	23	343	10 38 05
10 39 50	=1831-030	22 42 41	13.9	245.2	4.1		33.1	105	345	10 38 06
10 39 50	G30.198	22 42 41	16.1	242.7	3.9		32.3	-22	345	No stop
10 43 05	---	22 45 56	15.7	243.4	4.0		32.5	173	348	10 39 51
10 43 05	J1834-0301	22 45 56	13.5	245.9	4.2		33.3	-22	348	No stop
10 44 50	=1831-030	22 47 42	13.2	246.2	4.2		33.4	83	350	10 43 06
10 44 50	G30.224	22 47 42	15.4	243.7	4.0		32.6	-22	350	No stop
10 48 05	---	22 50 57	15.0	244.5	4.0		32.8	173	353	10 44 51
10 48 50	J1834-0301	22 51 42	12.7	247.1	4.3		33.6	23	353	10 48 50
10 50 35	=1831-030	22 53 28	12.4	247.5	4.3		33.7	105	354	10 48 51
10 50 35	G30.198	22 53 28	14.6	245.0	4.1		33.0	-22	354	No stop
10 53 50	---	22 56 43	14.2	245.7	4.1		33.2	173	358	10 50 36
10 53 50	J1834-0301	22 56 43	12.0	248.1	4.4		33.9	-22	358	No stop
10 55 35	=1831-030	22 58 28	11.7	248.5	4.4		34.0	83	359	10 53 51
10 55 35	G30.224	22 58 28	14.0	246.1	4.2		33.3	-22	359	No stop
10 58 50	---	23 01 44	13.5	246.8	4.2		33.5	173	362	10 55 36
10 59 35	J1834-0301	23 02 29	11.2	249.4	4.5		34.2	23	362	10 59 35
11 01 20	=1831-030	23 04 14	10.9	249.7	4.5		34.3	105	364	10 59 36

Schedule for TORUN (Code Tr) Page 12

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
11 01 20	G30.198	23 04 14	13.2	247.3	4.3		33.7	-22	364	No stop
11 04 35	---	23 07 30	12.7	248.0	4.3		33.9	173	367	11 01 21
11 04 35	J1834-0301	23 07 30	10.5	250.4	4.5		34.5	-22	367	No stop
11 06 20	=1831-030	23 09 15	10.2	250.8	4.6		34.6	83	369	11 04 36
11 06 20	G30.224	23 09 15	12.5	248.4	4.4		34.0	-22	369	No stop
11 09 35	---	23 12 31	12.0	249.1	4.4		34.2	173	372	11 06 21
11 10 20	J1834-0301	23 13 16	9.7	251.6	4.6		34.8	22	372	11 10 20
11 12 05	=1831-030	23 15 01	9.4	252.0	4.7		34.9	105	374	11 10 21
11 12 05	G30.198	23 15 01	11.7	249.6	4.5		34.3	-22	374	No stop
11 15 20	---	23 18 17	11.2	250.3	4.5		34.5	173	377	11 12 06
11 15 20	J1834-0301	23 18 17	8.9	252.7	4.7		35.0	-22	377	No stop
11 17 05	=1831-030	23 20 02	8.7	253.0	4.7		35.1	83	378	11 15 21
11 17 05	G30.224	23 20 02	11.0	250.7	4.5		34.5	-22	378	No stop
11 20 20	---	23 23 18	10.5	251.3	4.6		34.7	173	382	11 17 06
11 21 05	J1834-0301	23 24 03	8.1	253.9	4.8		35.3	22	382	11 21 05
11 22 50	=1831-030	23 25 48	7.9	254.2	4.8		35.4	105	383	11 21 06
11 22 50	G30.198	23 25 48	10.1	251.9	4.6		34.8	-22	383	No stop
11 26 05	---	23 29 03	9.7	252.5	4.7		35.0	173	386	11 22 51
11 26 05	J1834-0301	23 29 03	7.4	254.9	4.9		35.5	-23	386	No stop
11 27 50	=1831-030	23 30 49	7.1	255.2	4.9		35.6	82	388	11 26 06
11 27 50	G30.224	23 30 49	9.4	252.9	4.7		35.1	-22	388	No stop
11 31 05	---	23 34 04	9.0	253.6	4.8		35.2	173	391	11 27 51
11 31 50	J1834-0301	23 34 49	6.6	256.1	5.0		35.7	22	391	11 31 50
11 33 35	=1831-030	23 36 35	6.3	256.4	5.0		35.8	105	393	11 31 51
11 33 35	G30.198	23 36 35	8.6	254.1	4.8		35.3	-22	393	No stop
11 36 50	---	23 39 50	8.1	254.8	4.9		35.4	173	396	11 33 36
11 36 50	J1834-0301	23 39 50	5.8	257.1	5.1		35.9	-23	396	No stop
11 38 35	=1831-030	23 41 36	5.6	257.4	5.1		35.9	82	398	11 36 51
11 38 35	G30.224	23 41 36	7.9	255.1	4.9		35.5	-22	398	No stop
11 41 50	---	23 44 51	7.4	255.8	4.9		35.6	173	401	11 38 36

Schedule for TORUN (Code Tr) Page 13

Probing the gas kinematic and velocity gradients at milliarcsecond scale

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 4 Mar 2018 Day 63 ---										
11 42 35	J1834-0301	23 45 36	5.0	258.3	5.2		36.1	22	401	11 42 35
11 44 20	=1831-030	23 47 21	4.7	258.6	5.2		36.1	105	402	11 42 36
11 44 20	G30.198	23 47 21	7.0	256.3	5.0		35.7	-22	402	No stop
11 47 35	---	23 50 37	6.5	257.0	5.0		35.8	173	406	11 44 21
11 47 35	J1834-0301	23 50 37	4.2	259.3	5.3		36.2	-23	406	No stop
11 49 20	=1831-030	23 52 22	4.0	259.6	5.3		36.3	82	407	11 47 36
11 49 20	G30.224	23 52 22	6.3	257.3	5.1		35.9	-22	407	No stop
11 52 35	---	23 55 38	5.8	258.0	5.1		36.0	173	410	11 49 21
11 52 35	J1834-0301	23 55 38	3.5	260.3	5.3		36.3	-23	410	No stop
11 54 20	=1831-030	23 57 23	3.2	260.6	5.4		36.4	82	412	11 52 36
11 54 20	G30.198	23 57 23	5.5	258.3	5.2		36.1	-22	412	No stop
11 57 35	---	00 00 39	5.1	259.0	5.2		36.2	173	415	11 54 21

SETUP FILE INFORMATION:
NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

======== Setup file: sess118.M128

Setup group: 7 Station: TORUN Total bit rate: 128
Format: MARK5B Bits per sample: 2 Sample rate: 4.000
Number of channels: 16 DBE type: DBBC_DDC Speedup factor: 1.00

Disk used to record data.

```
 1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
           5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
 Net SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF SB =         U         U         U         U         U         U         U         U
                 U         U         U         U         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
               RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         2         6         2         6
                 3         7         3         7         4         8         4         8
 BBC SB=         L         L         U         U         L         L         U         U
                 L         L         U         U         L         L         U         U
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1
                A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

 Frequency Set:   5  Based on FREQ, BW, and/or DOPPLER in schedule.  Used with PCAL = off
 LO sum=   6663.96  6663.96  6663.96  6663.96  6667.96  6667.96  6667.96  6667.96
           6671.96  6671.96  6671.96  6671.96  6675.96  6675.96  6675.96  6675.96
 BBC fr=    763.96   763.96   763.96   763.96   767.96   767.96   767.96   767.96
            771.96   771.96   771.96   771.96   775.96   775.96   775.96   775.96
 Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
              2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
  Matching frequency sets:   5

 Track assignments are:
  track1=  18, 26,  2, 10, 20, 28,  4, 12, 22, 30,  6, 14, 24, 32,  8, 16
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* G30.224           18 44 31.629030   * 18 47 08.297810     18 48 03.805568       0.00
                   -02 32 48.42487    *-02 29 29.31990     -02 28 16.67473        0.00
                    Doppler based on LSR frame and radio definition.  Velocities:
                       111.00   111.00   111.00   111.00   111.00   111.00   111.00   111.00
                       111.00   111.00   111.00   111.00   111.00   111.00

* G30.198           18 44 26.379805   * 18 47 03.070040     18 47 58.585898       0.00
                   -02 33 54.99049    *-02 30 36.25970     -02 29 23.74210        0.00
                    Doppler based on other sources.

* 3C345             16 41 17.606228   * 16 42 58.809966     16 43 35.009710       0.76
  J1642+3948        39 54 10.81496    * 39 48 36.99402      39 46 26.10607        0.52
  1641+399          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1642+39          GSFC 2015a astro solution, unpublished  53430 observations.
                    Doppler based on other sources.

  1831-030          18 31 36.772725   * 18 34 14.074666     18 35 09.876684       0.24
* J1834-0301       -03 03 43.12330    *-03 01 19.62711     -03 00 26.64577        0.32
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished     77 observations.
                    Doppler based on other sources.
```

EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
G30.224	62.9
G30.198	62.9
3C345	97.2
J1834-0301	66.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk18ogtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*

```
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Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun   4 Mar 2018   Day  63 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

21 00 00  1144+402     09 04 33  59.5  99.0 -2.7     -50.6     0        0   21 00 00
21 19 30  ---          09 24 06  62.3 103.9 -2.4     -49.4  1170       37   21 00 01

21 20 00  1144+402     09 24 36  62.4 104.1 -2.4     -49.4    24       37   21 20 00
21 39 30  ---          09 44 09  65.2 109.7 -2.1     -47.4  1170       75   21 20 01

21 40 00  1144+402     09 44 39  65.3 109.9 -2.1     -47.4    24       75   21 40 00
22 00 00  ---          10 04 42  68.1 116.6 -1.7     -44.4  1200      113   21 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 03.897111       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 53.91557        0.00
                    fake circumpolar target for a TS to look at

* 1144+402          11 44 21.020905   * 11 46 58.297917     11 47 55.826390       0.00
  J1146+3958        40 15 14.23942    * 39 58 34.30433      39 52 25.88405        0.00
                    ./rk18og_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18887 observations, RA-AO3-04, RA-AO2-1


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1144+402           144.8

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

n18c1tr

Network Monitoring Experiment

PI: *Ross Burns*


```
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          The Netherlands

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```


```
Observing mode:

Schedule for TORUN     (Code Tr )                                    Page   2
               Network Monitoring Experiment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon   5 Mar 2018   Day  64 ---

 Next scan frequencies:  4974.49  4974.49  4974.49  4974.49  5006.49  5006.49  5006.49  5006.49
 Next BBC frequencies:    774.49   774.49   774.49   774.49   806.49   806.49   806.49   806.49
 Next scan bandwidths:     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00

13 00 00  J0319+4130   01 07 10  64.9 103.7 -2.2     -51.2     0        0   13 00 00
13 10 00  =3C84        01 17 12  66.3 106.6 -2.1     -50.3   600       38   13 00 01

13 12 00  J0319+4130   01 19 12  66.6 107.2 -2.0     -50.1   113       38   13 12 00
13 17 00  =3C84        01 24 13  67.3 108.7 -1.9     -49.5   300       58   13 12 01

13 18 00  J0319+4130   01 25 13  67.5 109.0 -1.9     -49.4    54       58   13 18 00
13 25 00  =3C84        01 32 14  68.5 111.4 -1.8     -48.4   420       85   13 18 01

13 26 00  J0319+4130   01 33 15  68.6 111.7 -1.8     -48.2    53       85   13 26 00
13 33 00  =3C84        01 40 16  69.6 114.2 -1.7     -47.1   420      112   13 26 01

13 34 00  J0319+4130   01 41 16  69.7 114.5 -1.7     -46.9    53      112   13 34 00
13 41 00  =3C84        01 48 17  70.7 117.2 -1.5     -45.5   420      138   13 34 01

13 43 00  J0319+4130   01 50 17  70.9 118.0 -1.5     -45.1   113      138   13 43 00
13 47 00  =3C84        01 54 18  71.5 119.7 -1.4     -44.2   240      154   13 43 01

13 50 00  J0319+4130   01 57 19  71.9 121.0 -1.4     -43.5   173      154   13 50 00
14 00 00  =3C84        02 07 20  73.1 125.6 -1.2     -40.8   600      192   13 50 01

14 02 30  J0237+2848   02 09 51  65.2 164.7 -0.5     -10.4    58      192   14 02 30
14 10 00  =0234+285    02 17 22  65.5 168.6 -0.4      -7.8   450      221   14 02 31

14 12 00  J0237+2848   02 19 22  65.5 169.6 -0.3      -7.1   112      221   14 12 00
14 17 00  =0234+285    02 24 23  65.6 172.3 -0.2      -5.3   300      240   14 12 01

14 18 00  J0237+2848   02 25 23  65.7 172.8 -0.2      -4.9    53      240   14 18 00
14 25 00  =0234+285    02 32 24  65.8 176.5 -0.1      -2.4   420      267   14 18 01
```

14 26 00	J0237+2848	02 33 24	65.8	177.1	-0.1	-2.0	53	267	14 26 00
14 33 00	=0234+285	02 40 26	65.8	180.8	0.0	0.6	420	294	14 26 01
14 34 00	J0237+2848	02 41 26	65.8	181.3	0.0	0.9	53	294	14 34 00
14 41 00	=0234+285	02 48 27	65.7	185.1	0.2	3.5	420	321	14 34 01
14 43 00	J0237+2848	02 50 27	65.7	186.1	0.2	4.2	112	321	14 43 00
14 47 00	=0234+285	02 54 28	65.6	188.3	0.3	5.7	240	337	14 43 01
14 50 00	J0237+2848	02 57 28	65.5	189.8	0.3	6.7	172	337	14 50 00
15 00 00	=0234+285	03 07 30	65.2	195.1	0.5	10.3	600	375	14 50 01

```
Schedule for TORUN     (Code Tr )                                Page   3
               Network Monitoring Experiment
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon   5 Mar 2018   Day  64 ---

15 04 00  J0319+4130   03 11 31  78.4 171.2 -0.2      -7.1   172      375   15 04 00
15 10 00  =3C84        03 17 32  78.5 176.8 -0.1      -2.6   360      398   15 04 01

15 12 00  J0319+4130   03 19 32  78.5 178.6 -0.0      -1.1   111      398   15 12 00
15 17 00  =3C84        03 24 33  78.5 183.3  0.1       2.7   300      417   15 12 01

15 18 00  J0319+4130   03 25 33  78.5 184.3  0.1       3.4    52      417   15 18 00
15 25 00  =3C84        03 32 34  78.3 190.8  0.2       8.6   420      444   15 18 01

15 26 00  J0319+4130   03 33 34  78.3 191.7  0.2       9.3    52      444   15 26 00
15 33 00  =3C84        03 40 35  78.0 197.9  0.3      14.3   420      471   15 26 01

15 34 00  J0319+4130   03 41 36  78.0 198.8  0.3      15.0    52      471   15 34 00
15 41 00  =3C84        03 48 37  77.6 204.7  0.5      19.6   420      498   15 34 01

15 43 00  J0319+4130   03 50 37  77.5 206.4  0.5      20.9   111      498   15 43 00
15 47 00  =3C84        03 54 38  77.2 209.5  0.6      23.3   240      513   15 43 01

15 50 00  J0319+4130   03 57 38  76.9 211.8  0.6      25.0   171      513   15 50 00
16 00 00  =3C84        04 07 40  76.1 218.9  0.8      30.3   600      552   15 50 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.C512nme

   Setup group:   17         Station: TORUN            Total bit rate:   512
   Format: MARK5B            Bits per sample: 2        Sample rate: 32.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00
 Net SB=         L         L         U         U         L         L         U         U
 IF SB =         U         U         U         U         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
 BBC   =         1         5         1         5         3         7         3         7
 BBC SB=         L         L         U         U         L         L         U         U
 IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

 Frequency Set:   9  Setup file default.  Used with PCAL = off
 LO sum=   4974.49  4974.49  4974.49  4974.49  5006.49  5006.49  5006.49  5006.49
 BBC fr=    774.49   774.49   774.49   774.49   806.49   806.49   806.49   806.49
 Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
  Matching frequency sets:   9

 Track assignments are:
  track1=  10, 14,  2,  6, 12, 16,  4,  8
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

 Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)            (mas)

 0234+285          02 34 55.589590   * 02 37 52.405677     02 38 55.340534       0.00
* J0237+2848        28 35 11.40776    * 28 48 08.99001      28 52 43.07865        0.00
 J0237+28          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                   GSFC 2015a astro solution, unpublished  54650 observations.

 3C84              03 16 29.567263   * 03 19 48.160094     03 20 59.169032       1.30
* J0319+4130        41 19 51.91701    * 41 30 42.10413      41 34 34.03512        2.69
 0316+413          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
 J0319+41          GSFC 2015a astro solution, unpublished  10208 observations.


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  J0237+2848          62.1
  J0319+4130          75.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

ek038atr

Inclination Dependences of Optical-UV Broad Emission Line Profiles

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Observing mode: 6cm EVN/MKV

```
Schedule for TORUN     (Code Tr )                                    Page   2
               Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Tue   6 Mar 2018   Day  65 ---

 Next scan frequencies:  4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
 Next BBC frequencies:    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

08 00 00  3C454.3      20 10 18  41.1 123.0 -2.7     -31.6     0        0   08 00 00
08 04 40  ---          20 14 58  41.7 124.3 -2.7     -31.1   280       36   08 00 01

08 06 20  J2349+0534   20 16 39  25.8 117.5 -3.6     -32.4    26       36   08 06 20
08 07 50  =2346+052    20 18 09  26.0 117.8 -3.5     -32.3    90       47   08 06 21

08 07 50  2345+061     20 18 09  26.8 117.5 -3.5     -32.4   -16       47   No stop
08 11 20  ---          20 21 39  27.3 118.3 -3.5     -32.1   194       74   08 07 51

08 11 20  J2349+0534   20 21 39  26.5 118.6 -3.5     -32.0   -15       74   No stop
08 12 50  =2346+052    20 23 10  26.7 119.0 -3.5     -31.9    75       86   08 11 21

08 12 50  2345+061     20 23 10  27.5 118.7 -3.4     -32.0   -16       86   No stop
08 16 20  ---          20 26 40  27.9 119.5 -3.4     -31.7   194      113   08 12 51

08 16 20  J2349+0534   20 26 40  27.1 119.8 -3.4     -31.6   -15      113   No stop
08 17 50  =2346+052    20 28 11  27.3 120.2 -3.4     -31.4    75      124   08 16 21

08 19 20  J0009+1513   20 29 41  32.8 109.5 -3.7     -35.9    53      124   08 19 20
08 20 50  =0007+149    20 31 11  33.0 109.9 -3.7     -35.8    90      136   08 19 21

08 20 50  0017+154     20 31 11  31.8 107.1 -3.8     -36.6   -20      136   No stop
08 24 20  ---          20 34 42  32.3 107.9 -3.8     -36.4   190      163   08 20 51

08 24 20  J0009+1513   20 34 42  33.5 110.7 -3.6     -35.6   -20      163   No stop
08 25 50  =0007+149    20 36 12  33.7 111.1 -3.6     -35.5    70      174   08 24 21

08 25 50  0017+154     20 36 12  32.6 108.2 -3.8     -36.3   -20      174   No stop
08 29 20  ---          20 39 42  33.1 109.1 -3.7     -36.1   190      201   08 25 51
```

08 30 10	J0009+1513	20 40 33	34.3	112.1	-3.5	-35.2	30	201	08 30 10
08 31 40	=0007+149	20 42 03	34.5	112.4	-3.5	-35.1	90	213	08 30 11
08 31 40	0017+154	20 42 03	33.4	109.6	-3.7	-36.0	-20	213	No stop
08 35 10	---	20 45 33	33.9	110.4	-3.6	-35.8	190	240	08 31 41
08 35 10	J0009+1513	20 45 33	35.0	113.3	-3.4	-34.9	-20	240	No stop
08 36 40	=0007+149	20 47 04	35.2	113.7	-3.4	-34.8	70	251	08 35 11
08 36 40	0017+154	20 47 04	34.1	110.8	-3.6	-35.7	-20	251	No stop
08 40 10	---	20 50 34	34.6	111.6	-3.5	-35.5	190	278	08 36 41

Schedule for TORUN (Code Tr) Page 3

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Mar 2018 Day 65 ---										
08 40 10	J0009+1513	20 50 34	35.7	114.5	-3.3		-34.5	-20	278	No stop
08 41 40	=0007+149	20 52 04	35.9	114.9	-3.3		-34.4	70	290	08 40 11
08 43 20	J2349+0534	20 53 45	30.5	126.5	-2.9		-29.0	62	290	08 43 20
08 44 50	=2346+052	20 55 15	30.7	126.8	-2.9		-28.9	90	301	08 43 21
08 44 50	2345+061	20 55 15	31.5	126.6	-2.9		-29.0	-16	301	No stop
08 48 20	---	20 58 46	32.0	127.5	-2.8		-28.7	194	328	08 44 51
08 48 20	J2349+0534	20 58 46	31.1	127.7	-2.9		-28.5	-15	328	No stop
08 49 50	=2346+052	21 00 16	31.3	128.1	-2.8		-28.3	75	340	08 48 21
08 49 50	2345+061	21 00 16	32.1	127.9	-2.8		-28.5	-16	340	No stop
08 53 20	---	21 03 46	32.6	128.8	-2.8		-28.1	194	367	08 49 51
08 53 20	J2349+0534	21 03 46	31.7	129.0	-2.8		-28.0	-15	367	No stop
08 54 50	=2346+052	21 05 17	31.9	129.4	-2.7		-27.8	75	378	08 53 21
08 56 20	J0009+1513	21 06 47	37.9	118.6	-3.1		-33.2	53	378	08 56 20
08 57 50	=0007+149	21 08 17	38.1	118.9	-3.0		-33.0	90	390	08 56 21
08 57 50	0017+154	21 08 17	37.0	115.9	-3.2		-34.1	-20	390	No stop
09 01 20	---	21 11 48	37.5	116.8	-3.2		-33.8	190	417	08 57 51
09 01 20	J0009+1513	21 11 48	38.5	119.9	-3.0		-32.7	-21	417	No stop
09 02 50	=0007+149	21 13 18	38.7	120.2	-3.0		-32.5	69	428	09 01 21
09 02 50	0017+154	21 13 18	37.7	117.2	-3.1		-33.7	-20	428	No stop
09 06 20	---	21 16 48	38.2	118.1	-3.1		-33.4	190	455	09 02 51
09 07 10	J0009+1513	21 17 39	39.3	121.4	-2.9		-32.1	29	455	09 07 10
09 08 40	=0007+149	21 19 09	39.5	121.8	-2.9		-32.0	90	467	09 07 11
09 08 40	0017+154	21 19 09	38.5	118.7	-3.0		-33.2	-21	467	No stop
09 12 10	---	21 22 39	38.9	119.6	-3.0		-32.9	189	494	09 08 41
09 12 10	J0009+1513	21 22 39	39.9	122.7	-2.8		-31.6	-21	494	No stop
09 13 40	=0007+149	21 24 10	40.1	123.1	-2.8		-31.4	69	505	09 12 11
09 13 40	0017+154	21 24 10	39.1	120.0	-3.0		-32.7	-21	505	No stop
09 17 10	---	21 27 40	39.6	120.9	-2.9		-32.4	189	532	09 13 41
09 17 10	J0009+1513	21 27 40	40.6	124.1	-2.7		-31.0	-21	532	No stop
09 18 40	=0007+149	21 29 11	40.7	124.5	-2.7		-30.9	69	544	09 17 11

Schedule for TORUN (Code Tr) Page 4

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Mar 2018 Day 65 ---										
09 20 20	J2349+0534	21 30 51	34.7	136.2	-2.3		-24.7	62	544	09 20 20
09 21 50	=2346+052	21 32 21	34.9	136.6	-2.3		-24.5	90	555	09 20 21
09 21 50	2345+061	21 32 21	35.7	136.4	-2.3		-24.6	-16	555	No stop
09 25 20	---	21 35 52	36.1	137.4	-2.2		-24.1	194	582	09 21 51
09 25 20	J2349+0534	21 35 52	35.2	137.6	-2.2		-24.0	-16	582	No stop
09 26 50	=2346+052	21 37 22	35.4	138.0	-2.2		-23.8	74	594	09 25 21
09 26 50	2345+061	21 37 22	36.2	137.8	-2.2		-23.9	-16	594	No stop
09 30 20	---	21 40 52	36.6	138.8	-2.1		-23.4	194	621	09 26 51
09 30 20	J2349+0534	21 40 52	35.7	139.0	-2.2		-23.3	-16	621	No stop
09 31 50	=2346+052	21 42 23	35.9	139.4	-2.1		-23.1	74	632	09 30 21
09 33 20	J0009+1513	21 43 53	42.5	128.6	-2.4		-29.1	52	632	09 33 20
09 34 50	=0007+149	21 45 23	42.7	129.0	-2.4		-28.9	90	644	09 33 21
09 34 50	0017+154	21 45 23	41.8	125.7	-2.6		-30.5	-21	644	No stop
09 38 20	---	21 48 54	42.2	126.7	-2.5		-30.0	189	671	09 34 51
09 38 20	J0009+1513	21 48 54	43.1	130.0	-2.4		-28.5	-22	671	No stop
09 39 50	=0007+149	21 50 24	43.3	130.5	-2.3		-28.3	68	682	09 38 21
09 39 50	0017+154	21 50 24	42.4	127.1	-2.5		-29.9	-21	682	No stop
09 43 20	---	21 53 55	42.8	128.1	-2.5		-29.4	189	709	09 39 51
09 44 10	J0009+1513	21 54 45	43.8	131.7	-2.3		-27.7	28	709	09 44 10
09 45 40	=0007+149	21 56 15	43.9	132.2	-2.2		-27.5	90	721	09 44 11
09 45 40	0017+154	21 56 15	43.1	128.8	-2.4		-29.1	-21	721	No stop
09 49 10	---	21 59 46	43.5	129.8	-2.4		-28.7	189	747	09 45 41
09 49 10	J0009+1513	21 59 46	44.3	133.2	-2.2		-27.0	-22	747	No stop
09 50 40	=0007+149	22 01 16	44.5	133.7	-2.2		-26.8	68	759	09 49 11
09 50 40	0017+154	22 01 16	43.7	130.2	-2.3		-28.5	-21	759	No stop
09 54 10	---	22 04 46	44.1	131.2	-2.3		-28.0	189	786	09 50 41
09 54 10	J0009+1513	22 04 46	44.9	134.8	-2.1		-26.2	-22	786	No stop
09 55 40	=0007+149	22 06 17	45.0	135.2	-2.1		-26.0	68	797	09 54 11
09 58 10	J0237+2848	22 08 47	36.0	88.4	-4.5		-43.3	41	797	09 58 10
10 02 10	=0234+285	22 12 48	36.6	89.2	-4.4		-43.3	240	828	09 58 11

Schedule for TORUN (Code Tr) Page 5

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Mar 2018 Day 65 ---										
10 03 50	J2349+0534	22 14 28	38.7	148.8	-1.6		-18.2	-35	828	10 03 50
10 05 20	=2346+052	22 15 58	38.8	149.3	-1.6		-17.9	55	840	10 03 51
10 05 20	2345+061	22 15 58	39.7	149.2	-1.6		-18.0	-16	840	No stop
10 08 50	---	22 19 29	39.9	150.3	-1.5		-17.4	194	867	10 05 21
10 08 50	J2349+0534	22 19 29	39.1	150.4	-1.5		-17.4	-16	867	No stop
10 10 20	=2346+052	22 20 59	39.2	150.8	-1.5		-17.1	74	878	10 08 51
10 10 20	2345+061	22 20 59	40.0	150.8	-1.5		-17.2	-16	878	No stop
10 13 50	---	22 24 30	40.3	151.8	-1.4		-16.6	194	905	10 10 21
10 13 50	J2349+0534	22 24 30	39.4	151.9	-1.4		-16.5	-16	905	No stop
10 15 20	=2346+052	22 26 00	39.5	152.4	-1.4		-16.3	74	917	10 13 51
10 16 50	J0009+1513	22 27 30	47.1	141.9	-1.7		-22.6	48	917	10 16 50
10 18 20	=0007+149	22 29 00	47.3	142.4	-1.7		-22.3	90	928	10 16 51
10 18 20	0017+154	22 29 00	46.7	138.7	-1.9		-24.3	-22	928	No stop
10 21 50	---	22 32 31	47.0	139.8	-1.8		-23.7	188	955	10 18 21
10 21 50	J0009+1513	22 32 31	47.6	143.6	-1.6		-21.7	-23	955	No stop
10 23 20	=0007+149	22 34 01	47.7	144.1	-1.6		-21.4	67	967	10 21 51
10 23 20	0017+154	22 34 01	47.1	140.3	-1.8		-23.5	-22	967	No stop
10 26 50	---	22 37 32	47.5	141.5	-1.7		-22.9	188	994	10 23 21
10 27 40	J0009+1513	22 38 22	48.1	145.6	-1.5		-20.6	27	994	10 27 40
10 29 10	=0007+149	22 39 52	48.2	146.1	-1.5		-20.3	90	1005	10 27 41
10 29 10	0017+154	22 39 52	47.7	142.2	-1.7		-22.5	-22	1005	No stop
10 32 40	---	22 43 23	48.0	143.4	-1.6		-21.8	188	1032	10 29 11
10 32 40	J0009+1513	22 43 23	48.5	147.3	-1.5		-19.7	-23	1032	No stop
10 34 10	=0007+149	22 44 53	48.6	147.8	-1.4		-19.4	67	1044	10 32 41
10 34 10	0017+154	22 44 53	48.1	143.9	-1.6		-21.6	-22	1044	No stop
10 37 40	---	22 48 23	48.5	145.1	-1.5		-20.9	188	1071	10 34 11
10 37 40	J0009+1513	22 48 23	48.9	149.0	-1.4		-18.7	-23	1071	No stop
10 39 10	=0007+149	22 49 54	49.0	149.5	-1.3		-18.4	67	1082	10 37 41
10 40 50	J2349+0534	22 51 34	41.1	160.5	-1.0		-11.6	56	1082	10 40 50
10 42 20	=2346+052	22 53 04	41.2	161.0	-1.0		-11.4	90	1094	10 40 51

Schedule for TORUN (Code Tr) Page 6

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Mar 2018 Day 65 ---										
10 42 20	2345+061	22 53 04	42.0	161.0	-0.9		-11.3	-16	1094	No stop
10 45 50	---	22 56 35	42.2	162.2	-0.9		-10.7	194	1121	10 42 21
10 45 50	J2349+0534	22 56 35	41.3	162.1	-0.9		-10.7	-16	1121	No stop
10 47 20	=2346+052	22 58 05	41.4	162.6	-0.9		-10.4	74	1132	10 45 51
10 47 20	2345+061	22 58 05	42.3	162.7	-0.9		-10.4	-16	1132	No stop
10 50 50	---	23 01 36	42.4	163.8	-0.8		-9.7	194	1159	10 47 21
10 50 50	J2349+0534	23 01 36	41.5	163.7	-0.8		-9.7	-16	1159	No stop
10 52 20	=2346+052	23 03 06	41.6	164.2	-0.8		-9.4	74	1171	10 50 51
10 53 50	J0009+1513	23 04 36	50.0	154.7	-1.1		-15.4	45	1171	10 53 50
10 55 20	=0007+149	23 06 06	50.1	155.3	-1.1		-15.1	90	1182	10 53 51
10 55 20	0017+154	23 06 06	49.9	151.2	-1.3		-17.5	-23	1182	No stop
10 58 50	---	23 09 37	50.1	152.5	-1.2		-16.8	187	1209	10 55 21
10 58 50	J0009+1513	23 09 37	50.4	156.6	-1.0		-14.3	-23	1209	No stop
11 00 20	=0007+149	23 11 07	50.4	157.1	-1.0		-14.0	67	1221	10 58 51
11 00 20	0017+154	23 11 07	50.2	153.0	-1.2		-16.4	-23	1221	No stop
11 03 50	---	23 14 38	50.4	154.3	-1.1		-15.7	187	1247	11 00 21
11 04 40	J0009+1513	23 15 28	50.7	158.7	-0.9		-13.1	27	1247	11 04 40
11 06 10	=0007+149	23 16 58	50.8	159.3	-0.9		-12.7	90	1259	11 04 41
11 06 10	0017+154	23 16 58	50.6	155.2	-1.1		-15.2	-23	1259	No stop
11 09 40	---	23 20 29	50.8	156.4	-1.0		-14.4	187	1286	11 06 11
11 09 40	J0009+1513	23 20 29	51.0	160.6	-0.8		-11.9	-23	1286	No stop
11 11 10	=0007+149	23 21 59	51.0	161.2	-0.8		-11.6	67	1297	11 09 41
11 11 10	0017+154	23 21 59	50.9	157.0	-1.0		-14.1	-23	1297	No stop
11 14 40	---	23 25 30	51.1	158.3	-0.9		-13.3	187	1324	11 11 11
11 14 40	J0009+1513	23 25 30	51.2	162.5	-0.8		-10.8	-24	1324	No stop
11 16 10	=0007+149	23 27 00	51.3	163.0	-0.7		-10.5	66	1336	11 14 41
11 18 20	3C454.3	23 29 10	52.5	193.6	0.6		8.5	55	1336	11 18 20
11 23 00	---	23 33 51	52.4	195.4	0.7		9.6	280	1372	11 18 21
11 24 40	J2349+0534	23 35 31	42.5	175.0	-0.2		-3.0	44	1372	11 24 40
11 26 10	=2346+052	23 37 01	42.5	175.5	-0.2		-2.7	90	1383	11 24 41

Schedule for TORUN (Code Tr) Page 7

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 6 Mar 2018 Day 65 ---										
11 26 10	2345+061	23 37 01	43.4	175.8	-0.2		-2.6	-16	1383	No stop
11 29 40	---	23 40 32	43.4	177.0	-0.1		-1.8	194	1410	11 26 11
11 29 40	J2349+0534	23 40 32	42.5	176.7	-0.2		-2.0	-16	1410	No stop
11 31 10	=2346+052	23 42 02	42.6	177.2	-0.1		-1.7	74	1422	11 29 41
11 31 10	2345+061	23 42 02	43.4	177.5	-0.1		-1.5	-16	1422	No stop
11 34 40	---	23 45 33	43.4	178.7	-0.1		-0.8	194	1449	11 31 11
11 34 40	J2349+0534	23 45 33	42.6	178.4	-0.1		-1.0	-16	1449	No stop
11 36 10	=2346+052	23 47 03	42.6	178.9	-0.1		-0.7	74	1460	11 34 41
11 37 40	J0009+1513	23 48 33	52.0	171.3	-0.4		-5.4	41	1460	11 37 40
11 39 10	=0007+149	23 50 04	52.0	171.9	-0.3		-5.0	90	1472	11 37 41
11 39 10	0017+154	23 50 04	52.2	167.7	-0.5		-7.7	-23	1472	No stop
11 42 40	---	23 53 34	52.3	169.0	-0.5		-6.8	187	1499	11 39 11
11 42 40	J0009+1513	23 53 34	52.1	173.3	-0.3		-4.2	-24	1499	No stop
11 44 10	=0007+149	23 55 04	52.1	173.9	-0.3		-3.8	66	1510	11 42 41
11 44 10	0017+154	23 55 04	52.3	169.6	-0.4		-6.4	-23	1510	No stop
11 47 40	---	23 58 35	52.4	171.0	-0.4		-5.6	187	1537	11 44 11
11 48 30	J0009+1513	23 59 25	52.2	175.6	-0.2		-2.7	26	1537	11 48 30
11 50 00	=0007+149	00 00 55	52.2	176.2	-0.2		-2.4	90	1549	11 48 31
11 50 00	0017+154	00 00 55	52.5	171.9	-0.3		-5.0	-23	1549	No stop
11 53 30	---	00 04 26	52.5	173.3	-0.3		-4.2	187	1576	11 50 01
11 53 30	J0009+1513	00 04 26	52.2	177.6	-0.1		-1.5	-24	1576	No stop
11 55 00	=0007+149	00 05 56	52.2	178.2	-0.1		-1.1	66	1587	11 53 31
11 55 00	0017+154	00 05 56	52.6	173.9	-0.3		-3.8	-23	1587	No stop
11 58 30	---	00 09 27	52.6	175.3	-0.2		-2.9	187	1614	11 55 01
11 58 30	J0009+1513	00 09 27	52.2	179.5	-0.0		-0.3	-24	1614	No stop
12 00 00	=0007+149	00 10 57	52.2	180.1	0.0		0.1	66	1626	11 58 31

SETUP FILE INFORMATION:
NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

======== Setup file: sess118.C1024

Setup group: 16 Station: TORUN Total bit rate: 1024

```
Format: MARK5B            Bits per sample: 2         Sample rate: 64.000
Number of channels:  8    DBE type: DBBC_DDC         Speedup factor:   1.00

Disk used to record data.
```

```
  1st LO=   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   7  Setup file default.  Used with PCAL = off
  LO sum=   4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
  BBC fr=    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   7

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



 POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* 3C454.3           22 51 29.519738   * 22 53 57.747938     22 54 49.718147       0.67
  J2253+1608        15 52 54.34810    * 16 08 53.56093      16 14 32.45539        0.70
  J2253+16          GSFC 2015a astro solution, unpublished  40748 observations.

  2346+052          23 46 47.611401   * 23 49 21.051510     23 50 14.898581       0.12
* J2349+0534        05 17 59.10038    * 05 34 39.87237      05 40 31.81999        0.26
                    GSFC 2015a astro solution, unpublished     94 observations.

  0007+149          00 07 09.036608   * 00 09 43.468697     00 10 37.772311       0.39
* J0009+1513        14 56 56.51284    * 15 13 37.90554      15 19 30.76853        0.76
                    rfc_2015a Petrov, 2015, unpublished.  28 observations

* 2345+061          23 45 58.408106   * 23 48 31.770600     23 49 25.594727       0.00
                    06 08 19.20677    * 06 24 59.78084      06 30 51.76196        0.00
                    Target

* 0017+154          00 17 49.906527   * 00 20 25.223501     00 21 19.872341       0.00
                    15 24 16.13804    * 15 40 54.71900      15 46 46.46550        0.00
                    Target

  0234+285          02 34 55.589590   * 02 37 52.405677     02 38 55.326095       0.00
* J0237+2848        28 35 11.40776    * 28 48 08.99001      28 52 42.97458        0.00
  J0237+28          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished  54650 observations.


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  3C454.3             22.1
```

```
 J2349+0534          15.5
 J0009+1513          26.1
 2345+061            16.0
 0017+154            28.1
 J0237+2848          61.3

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18oltr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Tue   6 Mar 2018   Day  65 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

22 00 00  1253-055     10 12 36  21.6 135.3 -2.7     -25.1     0        0   22 00 00
22 14 30  ---          10 27 08  23.1 138.8 -2.5     -23.4   870       28   22 00 01

22 15 00  1253-055     10 27 38  23.1 139.0 -2.5     -23.3    24       28   22 15 00
22 29 30  ---          10 42 10  24.5 142.6 -2.2     -21.5   870       56   22 15 01

22 30 00  1253-055     10 42 41  24.5 142.7 -2.2     -21.4    24       56   22 30 00
22 44 30  ---          10 57 13  25.8 146.5 -2.0     -19.5   870       84   22 30 01

22 45 00  1253-055     10 57 43  25.9 146.6 -2.0     -19.4    24       84   22 45 00
23 00 00  ---          11 12 45  27.0 150.6 -1.7     -17.2   900      112   22 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:   10         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   6  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   6

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.010051       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 54.57497        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 08.062925       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 15.56907        0.00
  3C279             ./rk18ol_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           150.9

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

em131ctr

EVN: EM131C

PI: *Marcote*


```
Address:  JIVE
          Oude Hoogeveensedijk 4
          Dwingeloo
          Netherlands

Phone:    +31 521 596 508
EMAIL:    marcote@jive.eu
Fax:      +31 521 596 508
Phone during observation: +31 521 596 508
```


```
Observing mode: vlbi

Schedule for TORUN     (Code Tr )                                    Page   2
               EVN: EM131C
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed   7 Mar 2018   Day  66 ---

 Next scan frequencies:  4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
 Next BBC frequencies:    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

03 00 00  J2007+4029   15 13 25  40.4  73.2 -4.9     -49.2     0        0   03 00 00
03 02 00  =2005+403    15 15 25  40.6  73.5 -4.9     -49.3   120       15   03 00 01

03 02 00  WR137        15 15 25  37.1  76.0 -5.0     -46.6   -27       15   No stop
03 05 00  ---          15 18 26  37.5  76.6 -4.9     -46.8   153       38   03 02 01

03 05 00  J2007+4029   15 18 26  41.1  74.0 -4.8     -49.4   -27       38   No stop
03 07 00  =2005+403    15 20 26  41.4  74.4 -4.8     -49.5    93       54   03 05 01

03 07 00  CYGOB212     15 20 26  38.3  69.6 -5.2     -48.5   -25       54   No stop
03 10 00  ---          15 23 27  38.7  70.1 -5.2     -48.7   155       77   03 07 01

03 11 00  J2007+4029   15 24 27  42.0  75.0 -4.7     -49.8    34       77   03 11 00
03 12 00  =2005+403    15 25 27  42.1  75.2 -4.7     -49.8    60       85   03 11 01

03 12 00  WR137        15 25 27  38.6  77.8 -4.8     -47.1   -27       85   No stop
03 15 00  ---          15 28 27  39.0  78.3 -4.8     -47.2   153      108   03 12 01

03 15 00  J2007+4029   15 28 27  42.5  75.7 -4.7     -50.0   -27      108   No stop
03 17 00  =2005+403    15 30 28  42.8  76.0 -4.6     -50.1    93      123   03 15 01

03 17 00  WR137        15 30 28  39.3  78.7 -4.7     -47.3   -27      123   No stop
03 20 00  ---          15 33 28  39.7  79.2 -4.7     -47.4   153      146   03 17 01

03 20 00  J2007+4029   15 33 28  43.3  76.5 -4.6     -50.2   -27      146   No stop
03 22 00  =2005+403    15 35 28  43.6  76.8 -4.5     -50.3    93      162   03 20 01

03 22 00  CYGOB212     15 35 28  40.4  72.0 -5.0     -49.5   -25      162   No stop
03 25 00  ---          15 38 29  40.9  72.5 -4.9     -49.7   155      185   03 22 01
```

03 26 00	J2007+4029	15 39 29	44.1	77.5	-4.5	-50.5	34	185	03 26 00
03 27 00	=2005+403	15 40 29	44.3	77.7	-4.5	-50.5	60	192	03 26 01
03 27 00	WR137	15 40 29	40.8	80.4	-4.6	-47.6	-27	192	No stop
03 30 00	---	15 43 30	41.2	81.0	-4.5	-47.7	153	215	03 27 01
03 30 00	J2007+4029	15 43 30	44.7	78.2	-4.4	-50.7	-27	215	No stop
03 32 00	=2005+403	15 45 30	45.0	78.5	-4.4	-50.8	93	231	03 30 01
03 32 00	J1955+5131	15 45 30	52.9	66.3	-4.2	-62.2	-44	231	No stop
03 36 00	=1954+513	15 49 31	53.5	66.8	-4.1	-62.6	196	262	03 32 01

Schedule for TORUN (Code Tr) Page 3

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 7 Mar 2018 Day 66 ---										
03 37 20	J2007+4029	15 50 51	45.8	79.5	-4.3		-51.0	37	262	03 37 20
03 39 20	=2005+403	15 52 51	46.1	79.8	-4.3		-51.1	120	277	03 37 21
03 39 20	WR137	15 52 51	42.6	82.7	-4.4		-48.0	-27	277	No stop
03 42 20	---	15 55 52	43.1	83.2	-4.3		-48.1	153	300	03 39 21
03 42 20	J2007+4029	15 55 52	46.6	80.3	-4.2		-51.2	-27	300	No stop
03 44 20	=2005+403	15 57 52	46.9	80.7	-4.2		-51.2	93	315	03 42 21
03 44 20	CYGOB212	15 57 52	43.7	75.6	-4.6		-50.7	-26	315	No stop
03 47 20	---	16 00 53	44.1	76.1	-4.5		-50.9	154	338	03 44 21
03 48 20	J2007+4029	16 01 53	47.5	81.4	-4.1		-51.4	34	338	03 48 20
03 49 20	=2005+403	16 02 53	47.6	81.5	-4.1		-51.4	60	346	03 48 21
03 49 20	WR137	16 02 53	44.1	84.5	-4.2		-48.2	-27	346	No stop
03 52 20	---	16 05 53	44.6	85.1	-4.2		-48.3	153	369	03 49 21
03 52 20	J2007+4029	16 05 53	48.0	82.1	-4.0		-51.5	-27	369	No stop
03 54 20	=2005+403	16 07 54	48.3	82.4	-4.0		-51.6	93	385	03 52 21
03 54 20	WR137	16 07 54	44.9	85.4	-4.1		-48.3	-27	385	No stop
03 57 20	---	16 10 54	45.3	86.0	-4.1		-48.4	153	408	03 54 21
03 57 20	J2007+4029	16 10 54	48.8	83.0	-4.0		-51.7	-27	408	No stop
03 59 20	=2005+403	16 12 55	49.1	83.3	-3.9		-51.7	93	423	03 57 21
03 59 20	CYGOB212	16 12 55	45.9	78.1	-4.3		-51.5	-26	423	No stop
04 02 20	---	16 15 55	46.3	78.6	-4.3		-51.6	154	446	03 59 21
04 03 20	J2007+4029	16 16 55	49.7	84.0	-3.9		-51.8	34	446	04 03 20
04 04 20	=2005+403	16 17 55	49.8	84.2	-3.8		-51.8	60	454	04 03 21
04 04 20	WR137	16 17 55	46.4	87.4	-4.0		-48.4	-27	454	No stop
04 07 20	---	16 20 56	46.8	87.9	-3.9		-48.5	153	477	04 04 21
04 07 20	J2007+4029	16 20 56	50.3	84.8	-3.8		-51.9	-27	477	No stop
04 09 20	=2005+403	16 22 56	50.6	85.1	-3.8		-51.9	93	492	04 07 21
04 09 20	WR137	16 22 56	47.1	88.3	-3.9		-48.5	-27	492	No stop
04 12 20	---	16 25 57	47.6	88.9	-3.8		-48.5	153	515	04 09 21
04 12 20	J2007+4029	16 25 57	51.0	85.7	-3.7		-52.0	-27	515	No stop
04 14 20	=2005+403	16 27 57	51.3	86.1	-3.7		-52.0	93	531	04 12 21

Schedule for TORUN (Code Tr) Page 4

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
04 14 20	CYGOB212	16 27 57	48.1	80.7	-4.1		-52.1	-26	531	No stop
04 17 20	---	16 30 58	48.5	81.2	-4.0		-52.2	154	554	04 14 21
04 18 20	J2007+4029	16 31 58	51.9	86.8	-3.6		-52.1	34	554	04 18 20
04 19 20	=2005+403	16 32 58	52.1	87.0	-3.6		-52.1	60	562	04 18 21
04 19 20	WR137	16 32 58	48.6	90.3	-3.7		-48.5	-27	562	No stop
04 22 20	---	16 35 58	49.1	90.9	-3.7		-48.5	153	585	04 19 21
04 22 20	J2007+4029	16 35 58	52.5	87.6	-3.5		-52.1	-27	585	No stop
04 24 20	=2005+403	16 37 59	52.8	88.0	-3.5		-52.2	93	600	04 22 21
04 24 20	WR137	16 37 59	49.4	91.3	-3.6		-48.5	-27	600	No stop
04 27 20	---	16 40 59	49.8	91.9	-3.6		-48.5	153	623	04 24 21
04 27 20	J2007+4029	16 40 59	53.3	88.6	-3.5		-52.2	-27	623	No stop
04 29 20	=2005+403	16 43 00	53.6	89.0	-3.4		-52.2	93	638	04 27 21
04 29 20	CYGOB212	16 43 00	50.3	83.3	-3.8		-52.6	-26	638	No stop
04 32 20	---	16 46 00	50.8	83.9	-3.8		-52.6	154	662	04 29 21
04 33 20	J2007+4029	16 47 00	54.2	89.8	-3.4		-52.2	33	662	04 33 20
04 34 20	=2005+403	16 48 00	54.3	89.9	-3.3		-52.2	60	669	04 33 21
04 34 20	WR137	16 48 00	50.9	93.4	-3.5		-48.4	-27	669	No stop
04 37 20	---	16 51 01	51.3	94.0	-3.4		-48.3	153	692	04 34 21
04 37 20	J2007+4029	16 51 01	54.8	90.6	-3.3		-52.2	-27	692	No stop
04 39 20	=2005+403	16 53 01	55.1	91.0	-3.3		-52.2	93	708	04 37 21
04 39 20	WR137	16 53 01	51.6	94.5	-3.4		-48.3	-27	708	No stop
04 42 20	---	16 56 02	52.1	95.1	-3.3		-48.3	153	731	04 39 21
04 42 20	J2007+4029	16 56 02	55.6	91.6	-3.2		-52.2	-27	731	No stop
04 44 20	=2005+403	16 58 02	55.9	92.0	-3.2		-52.2	93	746	04 42 21
04 44 20	CYGOB212	16 58 02	52.6	86.1	-3.6		-52.9	-27	746	No stop
04 47 20	---	17 01 02	53.0	86.6	-3.5		-52.9	153	769	04 44 21
04 48 20	J2007+4029	17 02 03	56.5	92.8	-3.1		-52.1	33	769	04 48 20
04 49 20	=2005+403	17 03 03	56.6	93.0	-3.1		-52.1	60	777	04 48 21
04 49 20	WR137	17 03 03	53.1	96.7	-3.2		-48.1	-27	777	No stop
04 52 20	---	17 06 03	53.6	97.3	-3.2		-48.0	153	800	04 49 21

Schedule for TORUN (Code Tr) Page 5

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 7 Mar 2018 Day 66 ---										
04 52 20	J2007+4029	17 06 03	57.1	93.7	-3.0		-52.1	-27	800	No stop
04 54 20	=2005+403	17 08 04	57.4	94.1	-3.0		-52.0	93	815	04 52 21
04 54 20	J1955+5131	17 08 04	64.6	76.3	-2.8		-69.9	-50	815	No stop
04 58 20	=1954+513	17 12 04	65.2	76.8	-2.7		-70.2	190	846	04 54 21
04 59 40	J2007+4029	17 13 25	58.2	95.3	-2.9		-51.9	28	846	04 59 40
05 01 30	=2005+403	17 15 15	58.4	95.7	-2.9		-51.8	110	860	04 59 41
05 01 30	WR137	17 15 15	54.9	99.5	-3.0		-47.6	-27	860	No stop
05 04 30	---	17 18 15	55.4	100.2	-2.9		-47.5	153	883	05 01 31
05 04 30	J2007+4029	17 18 15	58.9	96.4	-2.8		-51.8	-27	883	No stop
05 06 30	=2005+403	17 20 16	59.2	96.8	-2.8		-51.7	93	899	05 04 31
05 06 30	CYGOB212	17 20 16	55.9	90.4	-3.2		-53.1	-28	899	No stop
05 09 30	---	17 23 16	56.4	91.0	-3.2		-53.1	152	922	05 06 31
05 10 30	J2007+4029	17 24 16	59.8	97.8	-2.7		-51.5	32	922	05 10 30
05 11 30	=2005+403	17 25 16	59.9	98.0	-2.7		-51.5	60	929	05 10 31
05 11 30	WR137	17 25 16	56.4	101.9	-2.8		-47.1	-27	929	No stop
05 14 30	---	17 28 17	56.9	102.6	-2.8		-47.0	153	953	05 11 31
05 14 30	J2007+4029	17 28 17	60.4	98.7	-2.7		-51.4	-27	953	No stop
05 16 30	=2005+403	17 30 17	60.7	99.2	-2.6		-51.3	93	968	05 14 31
05 16 30	WR137	17 30 17	57.2	103.1	-2.7		-46.8	-27	968	No stop
05 19 30	---	17 33 18	57.6	103.9	-2.7		-46.7	153	991	05 16 31
05 19 30	J2007+4029	17 33 18	61.1	99.9	-2.6		-51.1	-27	991	No stop
05 21 30	=2005+403	17 35 18	61.4	100.4	-2.6		-51.0	93	1006	05 19 31
05 21 30	CYGOB212	17 35 18	58.2	93.5	-3.0		-52.9	-29	1006	No stop
05 24 30	---	17 38 19	58.6	94.1	-2.9		-52.9	151	1029	05 21 31
05 25 30	J2007+4029	17 39 19	62.0	101.5	-2.5		-50.8	31	1029	05 25 30
05 26 30	=2005+403	17 40 19	62.2	101.7	-2.5		-50.7	60	1037	05 25 31
05 26 30	WR137	17 40 19	58.6	105.7	-2.6		-46.1	-27	1037	No stop
05 29 30	---	17 43 19	59.0	106.5	-2.5		-45.9	153	1060	05 26 31
05 29 30	J2007+4029	17 43 19	62.6	102.5	-2.4		-50.5	-27	1060	No stop
05 31 30	=2005+403	17 45 20	62.9	103.0	-2.4		-50.3	93	1076	05 29 31

Schedule for TORUN (Code Tr) Page 6

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
05 31 30	WR137	17 45 20	59.3	107.1	-2.5		-45.7	-27	1076	No stop
05 34 30	---	17 48 20	59.8	107.9	-2.4		-45.5	153	1099	05 31 31
05 34 30	J2007+4029	17 48 20	63.3	103.8	-2.3		-50.1	-27	1099	No stop
05 36 30	=2005+403	17 50 21	63.6	104.4	-2.3		-49.9	93	1114	05 34 31
05 36 30	CYGOB212	17 50 21	60.4	96.8	-2.7		-52.5	-30	1114	No stop
05 39 30	---	17 53 21	60.9	97.5	-2.7		-52.4	150	1137	05 36 31
05 40 30	J2007+4029	17 54 21	64.2	105.5	-2.2		-49.6	29	1137	05 40 30
05 41 30	=2005+403	17 55 21	64.3	105.8	-2.2		-49.5	60	1145	05 40 31
05 41 30	WR137	17 55 21	60.8	109.9	-2.3		-44.8	-27	1145	No stop
05 44 30	---	17 58 22	61.2	110.8	-2.3		-44.4	153	1168	05 41 31
05 44 30	J2007+4029	17 58 22	64.8	106.7	-2.2		-49.2	-28	1168	No stop
05 46 30	=2005+403	18 00 22	65.1	107.2	-2.1		-49.0	92	1183	05 44 31
05 46 30	WR137	18 00 22	61.5	111.4	-2.2		-44.2	-27	1183	No stop
05 49 30	---	18 03 23	61.9	112.3	-2.2		-43.9	153	1206	05 46 31
05 49 30	J2007+4029	18 03 23	65.5	108.1	-2.1		-48.7	-28	1206	No stop
05 51 30	=2005+403	18 05 23	65.8	108.8	-2.0		-48.4	92	1222	05 49 31
05 51 30	CYGOB212	18 05 23	62.6	100.5	-2.5		-51.8	-31	1222	No stop
05 54 30	---	18 08 24	63.1	101.2	-2.4		-51.6	149	1245	05 51 31
05 55 30	J2007+4029	18 09 24	66.3	110.0	-2.0		-48.0	28	1245	05 55 30
05 56 30	=2005+403	18 10 24	66.5	110.3	-2.0		-47.8	60	1253	05 55 31
05 56 30	WR137	18 10 24	62.8	114.5	-2.1		-43.0	-27	1253	No stop
05 59 30	---	18 13 24	63.3	115.5	-2.0		-42.5	153	1276	05 56 31
05 59 30	J2007+4029	18 13 24	66.9	111.3	-1.9		-47.4	-28	1276	No stop
06 01 30	=2005+403	18 15 25	67.2	112.0	-1.9		-47.1	92	1291	05 59 31
06 01 30	WR137	18 15 25	63.5	116.2	-2.0		-42.3	-27	1291	No stop
06 04 30	---	18 18 25	63.9	117.2	-1.9		-41.8	153	1314	06 01 31
06 04 30	J2007+4029	18 18 25	67.6	113.0	-1.8		-46.7	-28	1314	No stop
06 06 30	=2005+403	18 20 25	67.9	113.7	-1.8		-46.4	92	1329	06 04 31
06 06 30	CYGOB212	18 20 25	64.8	104.5	-2.2		-50.7	-33	1329	No stop
06 09 30	---	18 23 26	65.3	105.3	-2.2		-50.4	147	1353	06 06 31

Schedule for TORUN (Code Tr) Page 7

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 7 Mar 2018 Day 66 ---										
06 10 30	J2007+4029	18 24 26	68.4	115.1	-1.7		-45.7	26	1353	06 10 30
06 11 30	=2005+403	18 25 26	68.6	115.5	-1.7		-45.5	60	1360	06 10 31
06 11 30	WR137	18 25 26	64.9	119.6	-1.8		-40.6	-28	1360	No stop
06 14 30	---	18 28 27	65.2	120.7	-1.8		-40.1	152	1383	06 11 31
06 14 30	J2007+4029	18 28 27	69.0	116.6	-1.7		-45.0	-28	1383	No stop
06 16 30	=2005+403	18 30 27	69.2	117.3	-1.6		-44.6	92	1399	06 14 31
06 16 30	WR137	18 30 27	65.5	121.4	-1.7		-39.7	-28	1399	No stop
06 19 30	---	18 33 28	65.9	122.6	-1.7		-39.1	152	1422	06 16 31
06 19 30	J2007+4029	18 33 28	69.6	118.5	-1.6		-44.0	-28	1422	No stop
06 21 30	=2005+403	18 35 28	69.9	119.3	-1.5		-43.6	92	1437	06 19 31
06 21 30	CYGOB212	18 35 28	67.0	108.9	-2.0		-49.1	-35	1437	No stop
06 24 30	---	18 38 28	67.4	109.9	-1.9		-48.7	145	1460	06 21 31
06 25 30	J2007+4029	18 39 29	70.4	120.9	-1.5		-42.7	23	1460	06 25 30
06 26 30	=2005+403	18 40 29	70.6	121.3	-1.5		-42.4	60	1468	06 25 31
06 26 30	WR137	18 40 29	66.8	125.3	-1.6		-37.7	-28	1468	No stop
06 29 30	---	18 43 29	67.1	126.5	-1.5		-37.0	152	1491	06 26 31
06 29 30	J2007+4029	18 43 29	70.9	122.6	-1.4		-41.7	-28	1491	No stop
06 31 30	=2005+403	18 45 30	71.2	123.5	-1.4		-41.2	92	1506	06 29 31
06 31 30	WR137	18 45 30	67.4	127.4	-1.5		-36.5	-28	1506	No stop
06 34 30	---	18 48 30	67.7	128.6	-1.4		-35.8	152	1529	06 31 31
06 34 30	J2007+4029	18 48 30	71.6	124.9	-1.3		-40.4	-28	1529	No stop
06 36 30	=2005+403	18 50 30	71.8	125.8	-1.3		-39.9	92	1545	06 34 31
06 36 30	CYGOB212	18 50 30	69.1	114.0	-1.7		-46.9	-38	1545	No stop
06 39 30	---	18 53 31	69.5	115.1	-1.7		-46.4	142	1568	06 36 31
06 40 30	J2007+4029	18 54 31	72.3	127.7	-1.2		-38.7	20	1568	06 40 30
06 41 30	=2005+403	18 55 31	72.4	128.2	-1.2		-38.4	60	1576	06 40 31
06 41 30	WR137	18 55 31	68.5	131.7	-1.3		-34.0	-28	1576	No stop
06 44 30	---	18 58 32	68.9	133.1	-1.3		-33.1	152	1599	06 41 31
06 44 30	J2007+4029	18 58 32	72.8	129.7	-1.2		-37.4	-29	1599	No stop
06 46 30	=2005+403	19 00 32	73.0	130.7	-1.1		-36.8	91	1614	06 44 31

Schedule for TORUN (Code Tr) Page 8

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT / Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early / Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
06 46 30	WR137	19 00 32	69.1	134.1	-1.2		-32.6	-28	1614	No stop
06 49 30	---	19 03 33	69.4	135.5	-1.2		-31.7	152	1637	06 46 31
06 49 30	J2007+4029	19 03 33	73.3	132.3	-1.1		-35.8	-29	1637	No stop
06 51 30	=2005+403	19 05 33	73.6	133.4	-1.0		-35.0	91	1653	06 49 31
06 51 30	CYGOB212	19 05 33	71.1	119.8	-1.5		-43.9	-42	1653	No stop
06 54 30	---	19 08 33	71.5	121.1	-1.4		-43.2	138	1676	06 51 31
06 55 30	J2007+4029	19 09 34	74.0	135.7	-1.0		-33.5	16	1676	06 55 30
06 56 30	=2005+403	19 10 34	74.1	136.2	-1.0		-33.1	60	1683	06 55 31
06 56 30	WR137	19 10 34	70.1	139.0	-1.1		-29.4	-29	1683	No stop
06 59 30	---	19 13 34	70.4	140.6	-1.0		-28.4	151	1706	06 56 31
06 59 30	J2007+4029	19 13 34	74.4	138.0	-0.9		-31.9	-29	1706	No stop
07 01 30	=2005+403	19 15 35	74.6	139.2	-0.9		-31.1	91	1722	06 59 31
07 01 30	WR137	19 15 35	70.6	141.6	-1.0		-27.7	-29	1722	No stop
07 04 30	---	19 18 35	70.9	143.3	-0.9		-26.6	151	1745	07 01 31
07 04 30	J2007+4029	19 18 35	74.9	141.1	-0.8		-29.7	-29	1745	No stop
07 06 30	=2005+403	19 20 35	75.1	142.4	-0.8		-28.8	91	1760	07 04 31
07 06 30	CYGOB212	19 20 35	73.0	126.7	-1.2		-39.9	-46	1760	No stop
07 09 30	---	19 23 36	73.4	128.2	-1.2		-38.9	134	1783	07 06 31
07 10 30	J2007+4029	19 24 36	75.4	145.0	-0.7		-26.9	12	1783	07 10 30
07 11 30	=2005+403	19 25 36	75.5	145.7	-0.7		-26.4	60	1791	07 10 31
07 11 30	WR137	19 25 36	71.5	147.2	-0.8		-23.9	-29	1791	No stop
07 14 30	---	19 28 37	71.7	149.0	-0.8		-22.7	151	1814	07 11 31
07 14 30	J2007+4029	19 28 37	75.8	147.8	-0.7		-24.9	-29	1814	No stop
07 16 30	=2005+403	19 30 37	75.9	149.2	-0.6		-23.9	91	1829	07 14 31
07 16 30	WR137	19 30 37	71.9	150.2	-0.7		-21.9	-29	1829	No stop
07 19 30	---	19 33 37	72.1	152.0	-0.7		-20.6	151	1853	07 16 31
07 19 30	J2007+4029	19 33 37	76.1	151.4	-0.6		-22.2	-29	1853	No stop
07 21 30	=2005+403	19 35 38	76.3	152.9	-0.5		-21.1	91	1868	07 19 31
07 21 30	CYGOB212	19 35 38	74.7	134.8	-1.0		-34.6	-50	1868	No stop
07 24 30	---	19 38 38	75.0	136.6	-0.9		-33.3	130	1891	07 21 31

Schedule for TORUN (Code Tr) Page 9

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
07 25 30	J2007+4029	19 39 38	76.5	155.9	-0.5		-18.8	7	1891	07 25 30
07 26 30	=2005+403	19 40 39	76.6	156.7	-0.5		-18.2	60	1899	07 25 31
07 26 30	WR137	19 40 39	72.5	156.3	-0.6		-17.5	-29	1899	No stop
07 29 30	---	19 43 39	72.7	158.3	-0.5		-16.1	151	1922	07 26 31
07 29 30	J2007+4029	19 43 39	76.8	159.1	-0.4		-16.4	-29	1922	No stop
07 31 30	=2005+403	19 45 39	76.9	160.7	-0.4		-15.2	91	1937	07 29 31
07 31 30	WR137	19 45 39	72.8	159.6	-0.5		-15.1	-29	1937	No stop
07 34 30	---	19 48 40	73.0	161.6	-0.4		-13.7	151	1960	07 31 31
07 34 30	J2007+4029	19 48 40	77.0	163.1	-0.3		-13.3	-29	1960	No stop
07 36 30	=2005+403	19 50 40	77.1	164.8	-0.3		-12.0	91	1976	07 34 31
07 36 30	CYGOB212	19 50 40	76.2	144.4	-0.7		-27.7	-55	1976	No stop
07 39 30	---	19 53 41	76.4	146.5	-0.7		-26.2	125	1999	07 36 31
07 40 30	J2007+4029	19 54 41	77.2	168.2	-0.2		-9.3	2	1999	07 40 30
07 41 30	=2005+403	19 55 41	77.3	169.0	-0.2		-8.7	60	2006	07 40 31
07 41 30	WR137	19 55 41	73.3	166.3	-0.3		-10.2	-29	2006	No stop
07 44 30	---	19 58 42	73.4	168.4	-0.3		-8.7	151	2029	07 41 31
07 44 30	J2007+4029	19 58 42	77.3	171.6	-0.2		-6.6	-29	2029	No stop
07 46 30	=2005+403	20 00 42	77.4	173.3	-0.1		-5.3	91	2045	07 44 31
07 46 30	J2101+0341	20 00 42	39.0	160.0	-1.0		-11.9	-157	2045	No stop
07 50 30	=2059+034	20 04 43	39.2	161.2	-1.0		-11.2	83	2076	07 46 31
07 53 20	J2007+4029	20 07 33	77.5	179.3	-0.0		-0.6	13	2076	07 53 20
07 55 20	=2005+403	20 09 33	77.5	181.0	0.0		0.8	120	2091	07 53 21
07 55 20	WR137	20 09 33	73.6	176.0	-0.1		-3.0	-28	2091	No stop
07 58 20	---	20 12 34	73.6	178.1	-0.0		-1.4	152	2114	07 55 21
07 58 20	J2007+4029	20 12 34	77.4	183.7	0.1		2.9	-28	2114	No stop
08 00 20	=2005+403	20 14 34	77.4	185.4	0.1		4.3	92	2129	07 58 21
08 00 20	CYGOB212	20 14 34	77.8	163.1	-0.3		-13.4	-58	2129	No stop
08 03 20	---	20 17 35	77.9	165.8	-0.3		-11.3	122	2153	08 00 21
08 04 20	J2007+4029	20 18 35	77.3	188.9	0.2		7.0	-1	2153	08 04 20
08 05 20	=2005+403	20 19 35	77.3	189.7	0.2		7.7	59	2160	08 04 21

Schedule for TORUN (Code Tr) Page 10

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
08 05 20	WR137	20 19 35	73.6	183.1	0.1		2.3	-28	2160	No stop
08 08 20	---	20 22 36	73.6	185.3	0.1		3.9	152	2183	08 05 21
08 08 20	J2007+4029	20 22 36	77.2	192.3	0.2		9.7	-30	2183	No stop
08 10 20	=2005+403	20 24 36	77.2	194.0	0.3		11.0	90	2199	08 08 21
08 10 20	WR137	20 24 36	73.5	186.7	0.2		5.0	-29	2199	No stop
08 13 20	---	20 27 36	73.5	188.8	0.2		6.6	151	2222	08 10 21
08 13 20	J2007+4029	20 27 36	77.0	196.5	0.3		13.0	-31	2222	No stop
08 15 20	=2005+403	20 29 37	76.9	198.1	0.4		14.2	89	2237	08 13 21
08 15 20	CYGOB212	20 29 37	78.2	176.6	-0.1		-2.7	-56	2237	No stop
08 18 20	---	20 32 37	78.2	179.4	-0.0		-0.5	124	2260	08 15 21
08 19 20	J2007+4029	20 33 37	76.7	201.4	0.4		16.7	1	2260	08 19 20
08 20 20	=2005+403	20 34 37	76.7	202.2	0.4		17.3	60	2268	08 19 21
08 20 20	WR137	20 34 37	73.3	193.6	0.3		10.2	-31	2268	No stop
08 23 20	---	20 37 38	73.2	195.7	0.4		11.7	149	2291	08 20 21
08 23 20	J2007+4029	20 37 38	76.5	204.5	0.5		19.1	-33	2291	No stop
08 25 20	=2005+403	20 39 38	76.4	206.0	0.5		20.3	87	2306	08 23 21
08 25 20	WR137	20 39 38	73.1	197.0	0.4		12.7	-32	2306	No stop
08 28 20	---	20 42 39	72.9	199.1	0.5		14.2	148	2329	08 25 21
08 28 20	J2007+4029	20 42 39	76.2	208.3	0.6		22.0	-34	2329	No stop
08 30 20	=2005+403	20 44 39	76.0	209.7	0.6		23.1	86	2345	08 28 21
08 30 20	CYGOB212	20 44 39	78.1	190.3	0.2		8.3	-52	2345	No stop
08 33 20	---	20 47 40	78.0	193.0	0.2		10.4	128	2368	08 30 21
08 34 20	J2007+4029	20 48 40	75.7	212.6	0.7		25.2	6	2368	08 34 20
08 35 20	=2005+403	20 49 40	75.6	213.3	0.7		25.7	60	2376	08 34 21
08 35 20	WR137	20 49 40	72.5	203.6	0.6		17.5	-34	2376	No stop
08 38 20	---	20 52 40	72.4	205.5	0.6		18.8	146	2399	08 35 21
08 38 20	J2007+4029	20 52 40	75.4	215.3	0.7		27.2	-35	2399	No stop
08 40 20	=2005+403	20 54 41	75.2	216.7	0.8		28.2	85	2414	08 38 21
08 40 20	WR137	20 54 41	72.2	206.8	0.7		19.7	-34	2414	No stop
08 43 20	---	20 57 41	72.0	208.6	0.7		21.0	146	2437	08 40 21

Schedule for TORUN (Code Tr) Page 11

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
08 43 20	J2007+4029	20 57 41	74.9	218.6	0.8		29.5	-36	2437	No stop
08 45 20	=2005+403	20 59 42	74.7	219.9	0.9		30.4	84	2453	08 43 21
08 45 20	CYGOB212	20 59 42	77.4	203.3	0.4		18.4	-47	2453	No stop
08 48 20	---	21 02 42	77.2	205.7	0.5		20.3	133	2476	08 45 21
08 49 20	J2007+4029	21 03 42	74.3	222.3	0.9		32.1	12	2476	08 49 20
08 50 20	=2005+403	21 04 42	74.2	222.9	0.9		32.5	60	2483	08 49 21
08 50 20	WR137	21 04 42	71.5	212.8	0.8		23.9	-35	2483	No stop
08 53 20	---	21 07 43	71.2	214.5	0.9		25.1	145	2506	08 50 21
08 53 20	J2007+4029	21 07 43	73.9	224.6	1.0		33.7	-36	2506	No stop
08 55 20	=2005+403	21 09 43	73.7	225.8	1.0		34.5	84	2522	08 53 21
08 55 20	WR137	21 09 43	71.1	215.6	0.9		25.9	-35	2522	No stop
08 58 20	---	21 12 44	70.8	217.2	1.0		27.0	145	2545	08 55 21
08 58 20	J2007+4029	21 12 44	73.4	227.4	1.1		35.6	-36	2545	No stop
09 00 20	=2005+403	21 14 44	73.2	228.5	1.1		36.3	84	2560	08 58 21
09 00 20	CYGOB212	21 14 44	76.3	214.8	0.7		27.1	-42	2560	No stop
09 03 20	---	21 17 45	76.0	216.8	0.7		28.6	138	2583	09 00 21
09 04 20	J2007+4029	21 18 45	72.7	230.6	1.2		37.6	18	2583	09 04 20
09 05 20	=2005+403	21 19 45	72.6	231.1	1.2		37.9	60	2591	09 04 21
09 05 20	WR137	21 19 45	70.1	221.0	1.1		29.4	-35	2591	No stop
09 08 20	---	21 22 45	69.8	222.5	1.1		30.4	145	2614	09 05 21
09 08 20	J2007+4029	21 22 45	72.2	232.6	1.2		38.9	-36	2614	No stop
09 10 20	=2005+403	21 24 46	72.0	233.5	1.3		39.5	84	2629	09 08 21
09 10 20	WR137	21 24 46	69.6	223.5	1.2		31.0	-35	2629	No stop
09 13 20	---	21 27 46	69.3	224.9	1.2		31.9	145	2653	09 10 21
09 13 20	J2007+4029	21 27 46	71.6	234.9	1.3		40.3	-35	2653	No stop
09 15 20	=2005+403	21 29 47	71.4	235.8	1.4		40.8	85	2668	09 13 21
09 15 20	CYGOB212	21 29 47	74.9	224.5	0.9		34.1	-37	2668	No stop
09 18 20	---	21 32 47	74.5	226.3	1.0		35.3	143	2691	09 15 21
09 19 20	J2007+4029	21 33 47	70.9	237.6	1.4		41.9	23	2691	09 19 20
09 20 20	=2005+403	21 34 47	70.7	238.0	1.4		42.1	60	2699	09 19 21

Schedule for TORUN (Code Tr) Page 12

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	 AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
09 20 20	WR137	21 34 47	68.5	228.2	1.3		34.0	-34	2699	No stop
09 23 20	---	21 37 48	68.2	229.6	1.4		34.8	146	2722	09 20 21
09 23 20	J2007+4029	21 37 48	70.4	239.3	1.5		42.8	-35	2722	No stop
09 25 20	=2005+403	21 39 48	70.1	240.1	1.5		43.3	85	2737	09 23 21
09 25 20	WR137	21 39 48	68.0	230.5	1.4		35.3	-34	2737	No stop
09 28 20	---	21 42 49	67.6	231.8	1.5		36.0	146	2760	09 25 21
09 28 20	J2007+4029	21 42 49	69.7	241.3	1.6		43.9	-35	2760	No stop
09 30 20	=2005+403	21 44 49	69.4	242.1	1.6		44.3	85	2776	09 28 21
09 30 20	CYGOB212	21 44 49	73.2	232.7	1.2		39.5	-33	2776	No stop
09 33 20	---	21 47 49	72.8	234.2	1.2		40.4	147	2799	09 30 21
09 34 20	J2007+4029	21 48 50	68.9	243.6	1.7		45.1	27	2799	09 34 20
09 35 20	=2005+403	21 49 50	68.8	244.0	1.7		45.3	60	2806	09 34 21
09 35 20	WR137	21 49 50	66.8	234.7	1.6		37.7	-33	2806	No stop
09 38 20	---	21 52 50	66.4	235.9	1.6		38.3	147	2829	09 35 21
09 38 20	J2007+4029	21 52 50	68.4	245.1	1.7		45.8	-34	2829	No stop
09 40 20	=2005+403	21 54 51	68.1	245.8	1.8		46.1	86	2845	09 38 21
09 40 20	WR137	21 54 51	66.1	236.6	1.7		38.7	-33	2845	No stop
09 43 20	---	21 57 51	65.8	237.8	1.7		39.3	147	2868	09 40 21
09 43 20	J2007+4029	21 57 51	67.7	246.9	1.8		46.6	-33	2868	No stop
09 45 20	=2005+403	21 59 51	67.4	247.6	1.9		46.9	87	2883	09 43 21
09 45 20	CYGOB212	21 59 51	71.3	239.7	1.4		43.6	-30	2883	No stop
09 48 20	---	22 02 52	70.9	240.9	1.5		44.3	150	2906	09 45 21
09 49 20	J2007+4029	22 03 52	66.8	248.9	1.9		47.5	29	2906	09 49 20
09 50 20	=2005+403	22 04 52	66.7	249.2	1.9		47.6	60	2914	09 49 21
09 50 20	WR137	22 04 52	64.9	240.4	1.8		40.6	-32	2914	No stop
09 53 20	---	22 07 53	64.5	241.4	1.9		41.1	148	2937	09 50 21
09 53 20	J2007+4029	22 07 53	66.3	250.2	2.0		48.0	-33	2937	No stop
09 55 20	=2005+403	22 09 53	66.0	250.8	2.0		48.3	87	2953	09 53 21
09 55 20	WR137	22 09 53	64.2	242.1	1.9		41.5	-32	2953	No stop
09 58 20	---	22 12 54	63.8	243.2	2.0		41.9	148	2976	09 55 21

Schedule for TORUN (Code Tr) Page 13

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	 AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
09 58 20	J2007+4029	22 12 54	65.6	251.7	2.1		48.6	-32	2976	No stop
10 00 20	=2005+403	22 14 54	65.3	252.3	2.1		48.8	88	2991	09 58 21
10 00 20	CYGOB212	22 14 54	69.3	245.6	1.7		46.7	-29	2991	No stop
10 03 20	---	22 17 54	68.9	246.7	1.7		47.2	151	3014	10 00 21
10 04 20	J2007+4029	22 18 55	64.7	253.5	2.2		49.3	31	3014	10 04 20
10 05 20	=2005+403	22 19 55	64.6	253.8	2.2		49.4	60	3022	10 04 21
10 05 20	WR137	22 19 55	62.9	245.5	2.1		43.0	-31	3022	No stop
10 08 20	---	22 22 55	62.4	246.4	2.1		43.4	149	3045	10 05 21
10 08 20	J2007+4029	22 22 55	64.1	254.7	2.2		49.6	-32	3045	No stop
10 10 20	=2005+403	22 24 56	63.8	255.2	2.3		49.8	88	3060	10 08 21
10 10 20	WR137	22 24 56	62.2	247.1	2.2		43.6	-31	3060	No stop
10 13 20	---	22 27 56	61.7	248.0	2.2		44.0	149	3083	10 10 21
10 13 20	J2007+4029	22 27 56	63.4	256.0	2.3		50.1	-31	3083	No stop
10 15 20	=2005+403	22 29 56	63.1	256.6	2.4		50.2	89	3099	10 13 21
10 15 20	CYGOB212	22 29 56	67.2	250.7	1.9		49.0	-29	3099	No stop
10 18 20	---	22 32 57	66.8	251.6	2.0		49.3	151	3122	10 15 21
10 19 20	J2007+4029	22 33 57	62.5	257.6	2.4		50.5	31	3122	10 19 20
10 20 20	=2005+403	22 34 57	62.4	257.9	2.4		50.6	60	3129	10 19 21
10 20 20	WR137	22 34 57	60.8	250.1	2.3		44.8	-30	3129	No stop
10 23 20	---	22 37 58	60.3	250.9	2.4		45.1	150	3153	10 20 21
10 23 20	J2007+4029	22 37 58	61.9	258.7	2.5		50.8	-31	3153	No stop
10 25 20	=2005+403	22 39 58	61.6	259.2	2.5		50.9	89	3168	10 23 21
10 25 20	WR137	22 39 58	60.1	251.5	2.4		45.3	-30	3168	No stop
10 28 20	---	22 42 59	59.6	252.4	2.5		45.5	150	3191	10 25 21
10 28 20	J2007+4029	22 42 59	61.2	259.9	2.6		51.1	-30	3191	No stop
10 30 20	=2005+403	22 44 59	60.9	260.4	2.6		51.2	90	3206	10 28 21
10 30 20	CYGOB212	22 44 59	65.0	255.2	2.2		50.6	-29	3206	No stop
10 33 20	---	22 47 59	64.6	256.0	2.2		50.9	151	3229	10 30 21
10 34 20	J2007+4029	22 48 59	60.3	261.4	2.7		51.4	30	3229	10 34 20
10 35 20	=2005+403	22 50 00	60.1	261.6	2.7		51.4	60	3237	10 34 21

Schedule for TORUN (Code Tr) Page 14

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
10 35 20	WR137	22 50 00	58.6	254.3	2.6		46.1	-30	3237	No stop
10 38 20	---	22 53 00	58.2	255.1	2.6		46.4	150	3260	10 35 21
10 38 20	J2007+4029	22 53 00	59.7	262.4	2.7		51.6	-30	3260	No stop
10 40 20	=2005+403	22 55 00	59.4	262.8	2.8		51.6	90	3276	10 38 21
10 40 20	WR137	22 55 00	57.9	255.6	2.7		46.5	-29	3276	No stop
10 43 20	---	22 58 01	57.5	256.4	2.7		46.7	151	3299	10 40 21
10 43 20	J2007+4029	22 58 01	58.9	263.5	2.8		51.7	-30	3299	No stop
10 45 20	=2005+403	23 00 01	58.6	264.0	2.9		51.8	90	3314	10 43 21
10 45 20	CYGOB212	23 00 01	62.8	259.2	2.4		51.7	-29	3314	No stop
10 48 20	---	23 03 02	62.4	260.0	2.5		51.9	151	3337	10 45 21
10 49 20	J2007+4029	23 04 02	58.0	264.9	2.9		51.9	30	3337	10 49 20
10 50 20	=2005+403	23 05 02	57.9	265.1	2.9		51.9	60	3345	10 49 21
10 50 20	WR137	23 05 02	56.4	258.1	2.8		47.1	-29	3345	No stop
10 53 20	---	23 08 03	56.0	258.9	2.9		47.3	151	3368	10 50 21
10 53 20	J2007+4029	23 08 03	57.4	265.7	3.0		52.0	-29	3368	No stop
10 55 20	=2005+403	23 10 03	57.1	266.2	3.0		52.0	91	3383	10 53 21
10 55 20	WR137	23 10 03	55.7	259.3	2.9		47.4	-29	3383	No stop
10 58 20	---	23 13 03	55.2	260.1	3.0		47.5	151	3406	10 55 21
10 58 20	J2007+4029	23 13 03	56.7	266.8	3.1		52.1	-29	3406	No stop
11 00 20	=2005+403	23 15 04	56.4	267.3	3.1		52.1	91	3422	10 58 21
11 00 20	CYGOB212	23 15 04	60.6	262.9	2.7		52.5	-29	3422	No stop
11 03 20	---	23 18 04	60.1	263.6	2.7		52.6	151	3445	11 00 21
11 04 20	J2007+4029	23 19 04	55.8	268.1	3.2		52.2	30	3445	11 04 20
11 05 20	=2005+403	23 20 05	55.6	268.3	3.2		52.2	60	3453	11 04 21
11 05 20	WR137	23 20 05	54.2	261.7	3.1		47.8	-28	3453	No stop
11 08 20	---	23 23 05	53.8	262.4	3.1		47.9	152	3476	11 05 21
11 08 20	J2007+4029	23 23 05	55.2	268.9	3.2		52.2	-28	3476	No stop
11 10 20	=2005+403	23 25 05	54.9	269.3	3.3		52.2	92	3491	11 08 21
11 10 20	WR137	23 25 05	53.5	262.8	3.2		48.0	-28	3491	No stop
11 13 20	---	23 28 06	53.0	263.5	3.2		48.1	152	3514	11 10 21

Schedule for TORUN (Code Tr) Page 15

EVN: EM131C

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	 AZ	 HA	 UP	 ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 7 Mar 2018 Day 66 ---										
11 13 20	J2007+4029	23 28 06	54.4	269.9	3.3		52.2	-28	3514	No stop
11 15 20	=2005+403	23 30 06	54.1	270.3	3.4		52.2	92	3529	11 13 21
11 15 20	CYGOB212	23 30 06	58.3	266.2	2.9		52.9	-29	3529	No stop
11 18 20	---	23 33 07	57.9	266.9	3.0		53.0	151	3553	11 15 21
11 19 20	J2007+4029	23 34 07	53.5	271.1	3.4		52.2	30	3553	11 19 20
11 20 20	=2005+403	23 35 07	53.4	271.3	3.4		52.2	60	3560	11 19 21
11 20 20	WR137	23 35 07	52.0	265.0	3.3		48.3	-27	3560	No stop
11 23 20	---	23 38 08	51.5	265.7	3.4		48.3	153	3583	11 20 21
11 23 20	J2007+4029	23 38 08	52.9	271.9	3.5		52.2	-28	3583	No stop
11 25 20	=2005+403	23 40 08	52.6	272.3	3.5		52.1	92	3599	11 23 21
11 25 20	WR137	23 40 08	51.2	266.1	3.4		48.4	-27	3599	No stop
11 28 20	---	23 43 08	50.8	266.8	3.5		48.4	153	3622	11 25 21
11 28 20	J2007+4029	23 43 08	52.2	272.9	3.6		52.1	-27	3622	No stop
11 30 20	=2005+403	23 45 09	51.9	273.2	3.6		52.1	93	3637	11 28 21
11 30 20	CYGOB212	23 45 09	56.1	269.4	3.2		53.1	-29	3637	No stop
11 33 20	---	23 48 09	55.6	270.0	3.2		53.1	151	3660	11 30 21
11 34 20	J2007+4029	23 49 09	51.3	274.0	3.7		52.0	30	3660	11 34 20
11 35 20	=2005+403	23 50 10	51.1	274.2	3.7		52.0	60	3668	11 34 21
11 35 20	WR137	23 50 10	49.7	268.2	3.6		48.5	-27	3668	No stop
11 38 20	---	23 53 10	49.3	268.8	3.6		48.5	153	3691	11 35 21
11 38 20	J2007+4029	23 53 10	50.7	274.7	3.7		52.0	-27	3691	No stop
11 40 20	=2005+403	23 55 10	50.4	275.1	3.8		51.9	93	3706	11 38 21
11 40 20	WR137	23 55 10	49.0	269.2	3.7		48.5	-27	3706	No stop
11 43 20	---	23 58 11	48.5	269.8	3.7		48.5	153	3729	11 40 21
11 43 20	J2007+4029	23 58 11	49.9	275.7	3.8		51.8	-27	3729	No stop
11 45 20	=2005+403	00 00 11	49.6	276.0	3.9		51.8	93	3745	11 43 21
11 45 20	CYGOB212	00 00 11	53.8	272.3	3.4		53.0	-29	3745	No stop
11 48 20	---	00 03 12	53.4	272.9	3.5		53.0	151	3768	11 45 21
11 49 20	J2007+4029	00 04 12	49.0	276.7	3.9		51.7	30	3768	11 49 20
11 50 20	=2005+403	00 05 12	48.9	276.9	3.9		51.7	60	3776	11 49 21

```
Schedule for TORUN     (Code Tr )                                Page  16
               EVN: EM131C
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed   7 Mar 2018   Day  66 ---

11 50 20  WR137        00 05 12  47.4 271.2  3.8      48.5   -26     3776   No stop
11 53 20  ---          00 08 12  47.0 271.8  3.9      48.5   154     3799   11 50 21

11 53 20  J2007+4029   00 08 12  48.4 277.5  4.0      51.6   -26     3799   No stop
11 55 20  =2005+403    00 10 13  48.1 277.8  4.0      51.5    94     3814   11 53 21

11 55 20  J2101+0341   00 10 13  27.5 235.3  3.1      29.6   -99     3814   No stop
12 00 00  =2059+034    00 14 54  26.9 236.4  3.2      30.1   181     3850   11 55 21



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.C2048

   Setup group:   16         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   9  Setup file default.  Used with PCAL = off
  LO sum=   4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
  BBC fr=    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   9

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



 POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* WR137             20 12 39.375614   * 20 14 31.767543     20 15 11.026133       0.00
                    36 30 28.02474    * 36 39 39.60097      36 42 50.19164        0.00

* CYGOB212          20 30 53.138271   * 20 32 40.880000     20 33 18.359935       0.00
                    41 04 13.13576    * 41 14 29.28600      41 18 03.03297        0.00

  1954+513          19 54 22.470020   * 19 55 42.738250     19 56 10.286493       0.02
* J1955+5131        51 23 46.42518    * 51 31 48.54619      51 34 32.28648        0.01
  J1955+51          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   4136 observations.

  2005+403          20 05 59.558883   * 20 07 44.944834     20 08 21.668559       0.41
* J2007+4029        40 21 01.80223    * 40 29 48.60408      40 32 49.73636        0.31
  J2007+40          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    114 observations.

  2059+034          20 59 08.011539   * 21 01 38.834158     21 02 31.796188       0.01
* J2101+0341        03 29 41.48361    * 03 41 31.32086      03 45 43.35816        0.01
  J2101+03          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished  15007 observations.



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 WR137               58.7
 CYGOB212            58.8
 J1955+5131          70.3
 J2007+4029          62.0
 J2101+0341          33.3
```

```
Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18optr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu   8 Mar 2018   Day  67 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1253-055     12 16 52  30.4 168.4 -0.7      -7.0     0        0   00 00 00
00 14 30  ---          12 31 24  30.8 172.5 -0.4      -4.5   870       28   00 00 01

00 15 00  1253-055     12 31 54  30.8 172.7 -0.4      -4.4    24       28   00 15 00
00 29 30  ---          12 46 27  31.0 176.9 -0.2      -1.9   870       56   00 15 01

00 30 00  1253-055     12 46 57  31.0 177.0 -0.2      -1.8    24       56   00 30 00
00 44 30  ---          13 01 29  31.0 181.3  0.1       0.8   870       84   00 30 01

00 45 00  1253-055     13 01 59  31.0 181.4  0.1       0.8    24       84   00 45 00
01 00 00  ---          13 17 02  30.9 185.8  0.3       3.5   900      112   00 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    9         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.062743       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 54.90596        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 08.080941       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 15.67353        0.00
  3C279             ./rk18op_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           152.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

ep106ctr

Mrk1018 at 2 Gb/s - C band

PI: *Miguel A. Perez-Torres*


```
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```


```
Observing mode: 1024 Mbps

Schedule for TORUN     (Code Tr )                                  Page   2
               Mrk1018 at 2 Gb/s - C band
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu   8 Mar 2018   Day  67 ---

 Next scan frequencies:  4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
 Next BBC frequencies:    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

10 30 00  0149+218     22 48 35  43.4 113.2 -3.1     -36.6     0        0   10 30 00
10 33 40  ---          22 52 16  43.9 114.1 -3.0     -36.3   220       28   10 30 01

10 33 40  0205-010     22 52 16  22.4 124.9 -3.3     -29.5   -94       28   No stop
10 36 40  ---          22 55 16  22.8 125.6 -3.2     -29.2    86       51   10 33 41

10 36 40  MRK1018      22 55 16  23.5 125.9 -3.2     -29.1   -15       51   No stop
10 40 30  ---          22 59 07  24.0 126.8 -3.1     -28.7   215       81   10 36 41

10 41 00  0205-010     22 59 37  23.3 126.7 -3.2     -28.8    15       81   10 41 00
10 42 10  ---          23 00 47  23.5 127.0 -3.1     -28.7    70       90   10 41 01

10 42 10  MRK1018      23 00 47  24.2 127.2 -3.1     -28.6   -15       90   No stop
10 46 00  ---          23 04 38  24.6 128.1 -3.0     -28.2   215      119   10 42 11

10 46 00  0205-010     23 04 38  23.9 127.9 -3.1     -28.3   -15      119   No stop
10 47 10  ---          23 05 48  24.1 128.2 -3.1     -28.2    55      128   10 46 01

10 47 10  MRK1018      23 05 48  24.8 128.4 -3.0     -28.1   -15      128   No stop
10 51 00  ---          23 09 39  25.2 129.4 -3.0     -27.7   215      158   10 47 11

10 51 30  0205-010     23 10 09  24.6 129.2 -3.0     -27.7    15      158   10 51 30
10 52 40  ---          23 11 19  24.7 129.5 -3.0     -27.6    70      167   10 51 31

10 52 40  MRK1018      23 11 19  25.4 129.8 -2.9     -27.5   -15      167   No stop
10 56 30  ---          23 15 10  25.9 130.7 -2.9     -27.1   215      196   10 52 41

10 56 30  0205-010     23 15 10  25.2 130.4 -2.9     -27.2   -15      196   No stop
10 57 40  ---          23 16 20  25.3 130.7 -2.9     -27.1    55      205   10 56 31
```

10 57 40	MRK1018	23 16 20	26.0	131.0	-2.8	-26.9	-15	205	No stop
11 01 30	---	23 20 11	26.4	132.0	-2.8	-26.5	215	235	10 57 41
11 02 00	0205-010	23 20 41	25.8	131.8	-2.8	-26.6	16	235	11 02 00
11 03 10	---	23 21 51	25.9	132.1	-2.8	-26.5	70	244	11 02 01
11 03 10	MRK1018	23 21 51	26.6	132.4	-2.8	-26.3	-15	244	No stop
11 07 00	---	23 25 41	27.0	133.3	-2.7	-25.9	215	273	11 03 11
11 07 00	0205-010	23 25 41	26.3	133.0	-2.7	-26.0	-14	273	No stop
11 08 10	---	23 26 52	26.5	133.3	-2.7	-25.9	56	282	11 07 01

Schedule for TORUN (Code Tr) Page 3

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
11 08 10	MRK1018	23 26 52	27.2	133.6	-2.7		-25.8	-15	282	No stop
11 12 00	---	23 30 42	27.6	134.6	-2.6		-25.3	215	312	11 08 11
11 12 30	0205-010	23 31 12	26.9	134.4	-2.6		-25.4	16	312	11 12 30
11 13 40	---	23 32 23	27.1	134.7	-2.6		-25.3	70	321	11 12 31
11 13 40	MRK1018	23 32 23	27.8	135.0	-2.6		-25.1	-15	321	No stop
11 17 30	---	23 36 13	28.2	136.0	-2.5		-24.6	215	350	11 13 41
11 17 30	0205-010	23 36 13	27.5	135.7	-2.6		-24.8	-14	350	No stop
11 18 40	---	23 37 23	27.6	136.0	-2.5		-24.6	56	359	11 17 31
11 18 40	MRK1018	23 37 23	28.3	136.3	-2.5		-24.5	-15	359	No stop
11 22 30	---	23 41 14	28.7	137.3	-2.4		-24.0	215	388	11 18 41
11 23 00	0205-010	23 41 44	28.0	137.1	-2.5		-24.1	16	388	11 23 00
11 24 10	---	23 42 54	28.2	137.4	-2.4		-24.0	70	397	11 23 01
11 24 10	MRK1018	23 42 54	28.8	137.8	-2.4		-23.8	-15	397	No stop
11 28 00	---	23 46 45	29.2	138.8	-2.3		-23.3	215	427	11 24 11
11 28 00	0205-010	23 46 45	28.6	138.4	-2.4		-23.5	-14	427	No stop
11 29 10	---	23 47 55	28.7	138.7	-2.4		-23.3	56	436	11 28 01
11 29 10	MRK1018	23 47 55	29.3	139.1	-2.3		-23.2	-15	436	No stop
11 33 00	---	23 51 46	29.7	140.1	-2.3		-22.7	215	465	11 29 11
11 33 30	0205-010	23 52 16	29.1	139.9	-2.3		-22.8	16	465	11 33 30
11 34 40	---	23 53 26	29.2	140.2	-2.3		-22.6	70	474	11 33 31
11 34 40	MRK1018	23 53 26	29.9	140.5	-2.2		-22.4	-15	474	No stop
11 38 30	---	23 57 17	30.2	141.6	-2.2		-21.9	215	504	11 34 41
11 38 30	0205-010	23 57 17	29.6	141.2	-2.2		-22.1	-14	504	No stop
11 39 40	---	23 58 27	29.7	141.5	-2.2		-21.9	56	513	11 38 31
11 39 40	MRK1018	23 58 27	30.4	141.9	-2.1		-21.8	-15	513	No stop
11 43 30	---	00 02 17	30.7	142.9	-2.1		-21.2	215	542	11 39 41
11 44 00	0205-010	00 02 47	30.1	142.7	-2.1		-21.3	16	542	11 44 00
11 45 10	---	00 03 58	30.2	143.0	-2.1		-21.2	70	551	11 44 01
11 45 10	MRK1018	00 03 58	30.9	143.4	-2.1		-21.0	-15	551	No stop
11 49 00	---	00 07 48	31.2	144.4	-2.0		-20.4	215	581	11 45 11

Schedule for TORUN (Code Tr) Page 4

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
11 49 00	0205-010	00 07 48	30.5	144.0	-2.0		-20.6	-14	581	No stop
11 50 10	---	00 08 59	30.6	144.4	-2.0		-20.5	56	590	11 49 01
11 50 10	MRK1018	00 08 59	31.3	144.8	-2.0		-20.3	-14	590	No stop
11 54 00	---	00 12 49	31.6	145.8	-1.9		-19.7	216	619	11 50 11
11 54 30	0205-010	00 13 19	31.0	145.5	-1.9		-19.9	16	619	11 54 30
11 55 40	---	00 14 29	31.1	145.9	-1.9		-19.7	70	628	11 54 31
11 55 40	MRK1018	00 14 29	31.8	146.3	-1.9		-19.5	-14	628	No stop
11 59 30	---	00 18 20	32.1	147.3	-1.8		-18.9	216	658	11 55 41
11 59 30	0205-010	00 18 20	31.4	146.9	-1.9		-19.1	-14	658	No stop
12 00 40	---	00 19 30	31.5	147.3	-1.8		-19.0	56	667	11 59 31
12 00 40	MRK1018	00 19 30	32.2	147.7	-1.8		-18.7	-14	667	No stop
12 04 30	---	00 23 21	32.5	148.7	-1.7		-18.2	216	696	12 00 41
12 05 00	0205-010	00 23 51	31.9	148.5	-1.8		-18.3	16	696	12 05 00
12 06 10	---	00 25 01	32.0	148.8	-1.7		-18.1	70	705	12 05 01
12 06 10	MRK1018	00 25 01	32.6	149.2	-1.7		-17.9	-14	705	No stop
12 10 00	---	00 28 52	32.9	150.3	-1.6		-17.3	216	735	12 06 11
12 10 00	0205-010	00 28 52	32.3	149.9	-1.7		-17.5	-14	735	No stop
12 11 10	---	00 30 02	32.3	150.2	-1.7		-17.4	56	744	12 10 01
12 11 10	MRK1018	00 30 02	33.0	150.6	-1.6		-17.1	-14	744	No stop
12 15 00	---	00 33 53	33.3	151.7	-1.6		-16.5	216	773	12 11 11
12 15 30	0205-010	00 34 23	32.7	151.4	-1.6		-16.7	16	773	12 15 30
12 16 40	---	00 35 33	32.7	151.8	-1.6		-16.5	70	782	12 15 31
12 16 40	MRK1018	00 35 33	33.4	152.2	-1.5		-16.3	-14	782	No stop
12 20 30	---	00 39 23	33.6	153.3	-1.5		-15.6	216	812	12 16 41
12 20 30	0205-010	00 39 23	33.0	152.9	-1.5		-15.9	-14	812	No stop
12 21 40	---	00 40 34	33.1	153.2	-1.5		-15.7	56	821	12 20 31
12 21 40	MRK1018	00 40 34	33.7	153.7	-1.4		-15.4	-14	821	No stop
12 25 30	---	00 44 24	34.0	154.8	-1.4		-14.8	216	850	12 21 41
12 26 00	0205-010	00 44 54	33.4	154.5	-1.4		-15.0	16	850	12 26 00
12 27 10	---	00 46 05	33.5	154.8	-1.4		-14.8	70	859	12 26 01

Schedule for TORUN (Code Tr) Page 5

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
12 27 10	MRK1018	00 46 05	34.1	155.3	-1.4		-14.5	-14	859	No stop
12 31 00	---	00 49 55	34.3	156.4	-1.3		-13.9	216	888	12 27 11
12 31 00	0205-010	00 49 55	33.7	155.9	-1.3		-14.2	-14	888	No stop
12 32 10	---	00 51 05	33.8	156.2	-1.3		-14.0	56	897	12 31 01
12 32 10	MRK1018	00 51 05	34.4	156.7	-1.3		-13.7	-14	897	No stop
12 36 00	---	00 54 56	34.6	157.9	-1.2		-13.1	216	927	12 32 11
12 36 30	0205-010	00 55 26	34.0	157.5	-1.2		-13.3	16	927	12 36 30
12 37 40	---	00 56 36	34.1	157.9	-1.2		-13.1	70	936	12 36 31
12 37 40	MRK1018	00 56 36	34.7	158.4	-1.2		-12.8	-14	936	No stop
12 41 30	---	01 00 27	34.9	159.5	-1.1		-12.1	216	965	12 37 41
12 41 30	0205-010	01 00 27	34.3	159.0	-1.1		-12.4	-14	965	No stop
12 42 40	---	01 01 37	34.4	159.3	-1.1		-12.2	56	974	12 41 31
12 42 40	MRK1018	01 01 37	35.0	159.9	-1.1		-11.9	-14	974	No stop
12 46 30	---	01 05 28	35.2	161.0	-1.0		-11.3	216	1004	12 42 41
12 47 00	0205-010	01 05 58	34.6	160.6	-1.1		-11.5	16	1004	12 47 00
12 48 10	---	01 07 08	34.6	161.0	-1.0		-11.3	70	1013	12 47 01
12 48 10	MRK1018	01 07 08	35.2	161.5	-1.0		-11.0	-14	1013	No stop
12 52 00	---	01 10 59	35.4	162.7	-0.9		-10.3	216	1042	12 48 11
12 52 00	0205-010	01 10 59	34.8	162.1	-1.0		-10.6	-14	1042	No stop
12 53 10	---	01 12 09	34.9	162.5	-1.0		-10.4	56	1051	12 52 01
12 53 10	MRK1018	01 12 09	35.5	163.0	-0.9		-10.1	-14	1051	No stop
12 57 00	---	01 15 59	35.6	164.2	-0.9		-9.4	216	1081	12 53 11
12 57 30	0205-010	01 16 30	35.1	163.8	-0.9		-9.7	16	1081	12 57 30
12 58 40	---	01 17 40	35.1	164.1	-0.9		-9.4	70	1090	12 57 31
12 58 40	MRK1018	01 17 40	35.7	164.7	-0.8		-9.1	-14	1090	No stop
13 02 30	---	01 21 30	35.9	165.9	-0.8		-8.4	216	1119	12 58 41
13 02 30	0205-010	01 21 30	35.3	165.3	-0.8		-8.8	-14	1119	No stop
13 03 40	---	01 22 41	35.3	165.7	-0.8		-8.6	56	1128	13 02 31
13 03 40	MRK1018	01 22 41	35.9	166.2	-0.7		-8.2	-14	1128	No stop
13 07 30	---	01 26 31	36.0	167.4	-0.7		-7.5	216	1158	13 03 41

Schedule for TORUN (Code Tr) Page 6

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 8 Mar 2018 Day 67 ---										
13 08 00	0205-010	01 27 01	35.5	167.0	-0.7		-7.8	16	1158	13 08 00
13 09 10	---	01 28 11	35.5	167.3	-0.7		-7.6	70	1167	13 08 01
13 09 10	MRK1018	01 28 11	36.1	167.9	-0.6		-7.2	-14	1167	No stop
13 13 00	---	01 32 02	36.2	169.1	-0.6		-6.5	216	1196	13 09 11
13 13 00	0205-010	01 32 02	35.6	168.5	-0.6		-6.9	-14	1196	No stop
13 14 10	---	01 33 12	35.7	168.9	-0.6		-6.7	56	1205	13 13 01
13 14 10	0154-000	01 33 12	36.9	172.2	-0.4		-4.7	-22	1205	No stop
13 15 40	---	01 34 43	37.0	172.7	-0.4		-4.4	68	1217	13 14 11
13 16 10	0205-010	01 35 13	35.7	169.5	-0.6		-6.3	9	1217	13 16 10
13 17 10	---	01 36 13	35.7	169.8	-0.6		-6.1	60	1224	13 16 11
13 17 10	MRK1018	01 36 13	36.3	170.4	-0.5		-5.8	-14	1224	No stop
13 19 40	---	01 38 43	36.4	171.2	-0.5		-5.3	136	1244	13 17 11
13 19 40	0205-010	01 38 43	35.8	170.5	-0.5		-5.7	-14	1244	No stop
13 20 40	---	01 39 43	35.8	170.9	-0.5		-5.5	46	1251	13 19 41
13 20 40	MRK1018	01 39 43	36.4	171.5	-0.5		-5.1	-14	1251	No stop
13 24 30	---	01 43 34	36.5	172.7	-0.4		-4.4	216	1281	13 20 41
13 25 00	0205-010	01 44 04	35.9	172.2	-0.4		-4.7	16	1281	13 25 00
13 26 10	---	01 45 14	36.0	172.5	-0.4		-4.5	70	1290	13 25 01
13 26 10	MRK1018	01 45 14	36.5	173.2	-0.4		-4.1	-14	1290	No stop
13 30 00	---	01 49 05	36.6	174.4	-0.3		-3.4	216	1319	13 26 11
13 30 00	0205-010	01 49 05	36.0	173.7	-0.3		-3.8	-13	1319	No stop
13 31 10	---	01 50 15	36.0	174.1	-0.3		-3.5	57	1328	13 30 01
13 31 10	MRK1018	01 50 15	36.6	174.7	-0.3		-3.2	-13	1328	No stop
13 35 00	---	01 54 06	36.6	175.9	-0.2		-2.4	217	1358	13 31 11
13 35 30	0205-010	01 54 36	36.1	175.4	-0.2		-2.7	17	1358	13 35 30
13 36 40	---	01 55 46	36.1	175.8	-0.2		-2.5	70	1367	13 35 31
13 36 40	MRK1018	01 55 46	36.6	176.4	-0.2		-2.1	-13	1367	No stop
13 40 30	---	01 59 37	36.7	177.6	-0.1		-1.4	217	1396	13 36 41
13 40 30	0205-010	01 59 37	36.2	177.0	-0.2		-1.8	-13	1396	No stop
13 41 40	---	02 00 47	36.2	177.3	-0.1		-1.6	57	1405	13 40 31

Schedule for TORUN (Code Tr) Page 7

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 8 Mar 2018 Day 67 ---										
13 41 40	MRK1018	02 00 47	36.7	178.0	-0.1		-1.2	-13	1405	No stop
13 45 30	---	02 04 37	36.7	179.2	-0.0		-0.5	217	1435	13 41 41
13 46 00	0205-010	02 05 08	36.2	178.7	-0.1		-0.8	17	1435	13 46 00
13 47 10	---	02 06 18	36.2	179.1	-0.1		-0.6	70	1444	13 46 01
13 47 10	MRK1018	02 06 18	36.7	179.7	-0.0		-0.2	-13	1444	No stop
13 51 00	---	02 10 08	36.7	180.9	0.0		0.6	217	1473	13 47 11
13 51 00	0205-010	02 10 08	36.2	180.2	0.0		0.1	-13	1473	No stop
13 52 10	---	02 11 19	36.2	180.6	0.0		0.4	57	1482	13 51 01
13 52 10	MRK1018	02 11 19	36.7	181.3	0.1		0.8	-13	1482	No stop
13 56 00	---	02 15 09	36.7	182.5	0.1		1.5	217	1512	13 52 11
13 56 30	0205-010	02 15 39	36.2	182.0	0.1		1.2	17	1512	13 56 30
13 57 40	---	02 16 49	36.2	182.3	0.1		1.4	70	1521	13 56 31
13 57 40	MRK1018	02 16 49	36.7	183.0	0.2		1.8	-13	1521	No stop
14 01 30	---	02 20 40	36.6	184.2	0.2		2.5	217	1550	13 57 41
14 01 30	0205-010	02 20 40	36.1	183.5	0.2		2.1	-13	1550	No stop
14 02 40	---	02 21 50	36.1	183.9	0.2		2.3	57	1559	14 01 31
14 02 40	MRK1018	02 21 50	36.6	184.6	0.2		2.7	-13	1559	No stop
14 06 30	---	02 25 41	36.6	185.8	0.3		3.5	217	1588	14 02 41
14 07 00	0205-010	02 26 11	36.1	185.2	0.3		3.1	17	1588	14 07 00
14 08 10	---	02 27 21	36.1	185.6	0.3		3.3	70	1597	14 07 01
14 08 10	MRK1018	02 27 21	36.5	186.3	0.3		3.8	-13	1597	No stop
14 12 00	---	02 31 12	36.5	187.5	0.4		4.5	217	1627	14 08 11
14 12 00	0205-010	02 31 12	36.0	186.8	0.4		4.1	-13	1627	No stop
14 13 10	---	02 32 22	36.0	187.1	0.4		4.3	57	1636	14 12 01
14 13 10	MRK1018	02 32 22	36.4	187.8	0.4		4.7	-13	1636	No stop
14 17 00	---	02 36 13	36.4	189.0	0.5		5.4	217	1665	14 13 11
14 17 30	0205-010	02 36 43	35.9	188.5	0.5		5.1	17	1665	14 17 30
14 18 40	---	02 37 53	35.9	188.8	0.5		5.3	70	1674	14 17 31
14 18 40	MRK1018	02 37 53	36.3	189.5	0.5		5.7	-13	1674	No stop
14 22 30	---	02 41 44	36.2	190.7	0.6		6.4	217	1704	14 18 41

Schedule for TORUN (Code Tr) Page 8

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
14 22 30	0205-010	02 41 44	35.8	190.0	0.5		6.0	-13	1704	No stop
14 23 40	---	02 42 54	35.7	190.4	0.6		6.2	57	1713	14 22 31
14 23 40	MRK1018	02 42 54	36.2	191.1	0.6		6.6	-13	1713	No stop
14 27 30	---	02 46 44	36.1	192.3	0.7		7.3	217	1742	14 23 41
14 28 00	0205-010	02 47 14	35.6	191.7	0.6		7.0	17	1742	14 28 00
14 29 10	---	02 48 25	35.6	192.0	0.7		7.2	70	1751	14 28 01
14 29 10	MRK1018	02 48 25	36.0	192.8	0.7		7.6	-13	1751	No stop
14 33 00	---	02 52 15	35.9	194.0	0.8		8.3	217	1781	14 29 11
14 33 00	0205-010	02 52 15	35.4	193.2	0.7		7.9	-13	1781	No stop
14 34 10	---	02 53 25	35.4	193.6	0.7		8.1	57	1790	14 33 01
14 34 10	MRK1018	02 53 25	35.8	194.3	0.8		8.5	-13	1790	No stop
14 38 00	---	02 57 16	35.7	195.5	0.8		9.2	217	1819	14 34 11
14 38 30	0205-010	02 57 46	35.2	194.9	0.8		8.9	17	1819	14 38 30
14 39 40	---	02 58 56	35.2	195.2	0.8		9.1	70	1828	14 38 31
14 39 40	MRK1018	02 58 56	35.6	196.0	0.9		9.5	-13	1828	No stop
14 43 30	---	03 02 47	35.4	197.2	0.9		10.2	217	1858	14 39 41
14 43 30	0205-010	03 02 47	35.0	196.4	0.9		9.8	-13	1858	No stop
14 44 40	---	03 03 57	35.0	196.7	0.9		10.0	57	1867	14 43 31
14 44 40	MRK1018	03 03 57	35.4	197.5	0.9		10.4	-13	1867	No stop
14 48 30	---	03 07 48	35.2	198.7	1.0		11.1	217	1896	14 44 41
14 49 00	0205-010	03 08 18	34.8	198.0	1.0		10.7	17	1896	14 49 00
14 50 10	---	03 09 28	34.7	198.4	1.0		10.9	70	1905	14 49 01
14 50 10	MRK1018	03 09 28	35.1	199.2	1.0		11.4	-13	1905	No stop
14 54 00	---	03 13 19	34.9	200.3	1.1		12.0	217	1935	14 50 11
14 54 00	0205-010	03 13 19	34.6	199.5	1.1		11.6	-13	1935	No stop
14 55 10	---	03 14 29	34.5	199.9	1.1		11.8	57	1944	14 54 01
14 55 10	MRK1018	03 14 29	34.9	200.7	1.1		12.2	-13	1944	No stop
14 59 00	---	03 18 20	34.7	201.8	1.2		12.9	217	1973	14 55 11
14 59 30	0205-010	03 18 50	34.3	201.2	1.2		12.5	17	1973	14 59 30
15 00 40	---	03 20 00	34.2	201.5	1.2		12.7	70	1982	14 59 31

Schedule for TORUN (Code Tr) Page 9

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
15 00 40	MRK1018	03 20 00	34.6	202.3	1.2		13.2	-13	1982	No stop
15 04 30	---	03 23 50	34.4	203.4	1.3		13.8	217	2012	15 00 41
15 04 30	0205-010	03 23 50	34.0	202.7	1.2		13.4	-13	2012	No stop
15 05 40	---	03 25 01	33.9	203.0	1.3		13.6	57	2021	15 04 31
15 05 40	MRK1018	03 25 01	34.3	203.8	1.3		14.0	-13	2021	No stop
15 09 30	---	03 28 51	34.0	204.9	1.4		14.6	217	2050	15 05 41
15 10 00	0205-010	03 29 21	33.7	204.3	1.3		14.3	17	2050	15 10 00
15 11 10	---	03 30 32	33.6	204.6	1.4		14.5	70	2059	15 10 01
15 11 10	MRK1018	03 30 32	33.9	205.4	1.4		14.9	-13	2059	No stop
15 15 00	---	03 34 22	33.7	206.5	1.5		15.5	217	2088	15 11 11
15 15 00	0205-010	03 34 22	33.3	205.7	1.4		15.1	-13	2088	No stop
15 16 10	---	03 35 32	33.3	206.1	1.4		15.3	57	2097	15 15 01
15 16 10	MRK1018	03 35 32	33.6	206.8	1.5		15.7	-13	2097	No stop
15 20 00	---	03 39 23	33.3	208.0	1.5		16.3	217	2127	15 16 11
15 20 30	0205-010	03 39 53	33.0	207.3	1.5		16.0	17	2127	15 20 30
15 21 40	---	03 41 03	32.9	207.6	1.5		16.2	70	2136	15 20 31
15 21 40	MRK1018	03 41 03	33.2	208.4	1.6		16.6	-13	2136	No stop
15 25 30	---	03 44 54	32.9	209.5	1.6		17.2	217	2165	15 21 41
15 25 30	0205-010	03 44 54	32.6	208.7	1.6		16.8	-13	2165	No stop
15 26 40	---	03 46 04	32.5	209.1	1.6		17.0	57	2174	15 25 31
15 26 40	MRK1018	03 46 04	32.9	209.9	1.6		17.4	-13	2174	No stop
15 30 30	---	03 49 55	32.6	210.9	1.7		18.0	217	2204	15 26 41
15 31 00	0205-010	03 50 25	32.2	210.3	1.7		17.6	17	2204	15 31 00
15 32 10	---	03 51 35	32.1	210.6	1.7		17.8	70	2213	15 31 01
15 32 10	MRK1018	03 51 35	32.4	211.4	1.7		18.2	-13	2213	No stop
15 36 00	---	03 55 26	32.1	212.5	1.8		18.8	217	2242	15 32 11
15 36 00	0205-010	03 55 26	31.8	211.7	1.8		18.4	-13	2242	No stop
15 37 10	---	03 56 36	31.7	212.0	1.8		18.6	57	2251	15 36 01
15 37 10	MRK1018	03 56 36	32.0	212.8	1.8		19.0	-13	2251	No stop
15 41 00	---	04 00 26	31.7	213.9	1.9		19.6	217	2281	15 37 11

Schedule for TORUN (Code Tr) Page 10

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
15 41 30	0205-010	04 00 57	31.4	213.2	1.9		19.2	17	2281	15 41 30
15 42 40	---	04 02 07	31.3	213.6	1.9		19.4	70	2290	15 41 31
15 42 40	MRK1018	04 02 07	31.6	214.4	1.9		19.8	-13	2290	No stop
15 46 30	---	04 05 57	31.2	215.4	2.0		20.4	217	2319	15 42 41
15 46 30	0205-010	04 05 57	31.0	214.6	1.9		19.9	-13	2319	No stop
15 47 40	---	04 07 08	30.9	214.9	2.0		20.1	57	2328	15 46 31
15 47 40	MRK1018	04 07 08	31.1	215.7	2.0		20.5	-13	2328	No stop
15 51 30	---	04 10 58	30.8	216.8	2.1		21.1	217	2358	15 47 41
15 52 00	0205-010	04 11 28	30.5	216.1	2.0		20.7	17	2358	15 52 00
15 53 10	---	04 12 38	30.4	216.4	2.1		20.9	70	2367	15 52 01
15 53 10	MRK1018	04 12 38	30.6	217.2	2.1		21.3	-13	2367	No stop
15 57 00	---	04 16 29	30.3	218.3	2.2		21.8	217	2396	15 53 11
15 57 00	0205-010	04 16 29	30.0	217.5	2.1		21.4	-13	2396	No stop
15 58 10	---	04 17 39	29.9	217.8	2.1		21.6	57	2405	15 57 01
15 58 10	0154-000	04 17 39	29.8	221.2	2.3		23.3	-22	2405	No stop
15 59 40	---	04 19 09	29.6	221.6	2.4		23.5	68	2417	15 58 11
16 00 10	0205-010	04 19 40	29.7	218.3	2.2		21.9	9	2417	16 00 10
16 01 10	---	04 20 40	29.6	218.6	2.2		22.0	60	2424	16 00 11
16 01 10	MRK1018	04 20 40	29.9	219.4	2.2		22.4	-13	2424	No stop
16 04 20	---	04 23 50	29.6	220.2	2.3		22.8	177	2449	16 01 11
16 04 20	0205-010	04 23 50	29.3	219.4	2.2		22.4	-13	2449	No stop
16 05 20	---	04 24 50	29.2	219.7	2.3		22.6	47	2456	16 04 21
16 05 20	MRK1018	04 24 50	29.5	220.5	2.3		23.0	-13	2456	No stop
16 09 05	---	04 28 36	29.1	221.5	2.4		23.4	212	2485	16 05 21
16 09 35	0205-010	04 29 06	28.8	220.8	2.3		23.1	17	2485	16 09 35
16 10 45	---	04 30 16	28.7	221.1	2.3		23.3	70	2494	16 09 36
16 10 45	MRK1018	04 30 16	29.0	221.9	2.4		23.7	-13	2494	No stop
16 14 30	---	04 34 02	28.6	222.9	2.4		24.1	212	2523	16 10 46
16 14 30	0205-010	04 34 02	28.3	222.1	2.4		23.7	-13	2523	No stop
16 15 40	---	04 35 12	28.2	222.4	2.4		23.9	57	2532	16 14 31

Schedule for TORUN (Code Tr) Page 11

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
16 15 40	MRK1018	04 35 12	28.5	223.2	2.5		24.3	-13	2532	No stop
16 19 25	---	04 38 58	28.1	224.2	2.5		24.7	212	2561	16 15 41
16 19 55	0205-010	04 39 28	27.8	223.5	2.5		24.4	17	2561	16 19 55
16 21 05	---	04 40 38	27.7	223.8	2.5		24.6	70	2570	16 19 56
16 21 05	MRK1018	04 40 38	27.9	224.6	2.6		24.9	-13	2570	No stop
16 24 50	---	04 44 24	27.5	225.6	2.6		25.4	212	2599	16 21 06
16 24 50	0205-010	04 44 24	27.3	224.8	2.6		25.0	-13	2599	No stop
16 26 00	---	04 45 34	27.1	225.1	2.6		25.2	57	2608	16 24 51
16 26 00	MRK1018	04 45 34	27.4	225.9	2.6		25.5	-13	2608	No stop
16 29 45	---	04 49 19	27.0	226.8	2.7		26.0	212	2637	16 26 01
16 30 15	0205-010	04 49 50	26.7	226.2	2.7		25.7	17	2637	16 30 15
16 31 25	---	04 51 00	26.6	226.4	2.7		25.8	70	2646	16 30 16
16 31 25	MRK1018	04 51 00	26.8	227.2	2.7		26.2	-13	2646	No stop
16 35 10	---	04 54 45	26.4	228.2	2.8		26.6	212	2674	16 31 26
16 35 10	0205-010	04 54 45	26.2	227.4	2.8		26.2	-13	2674	No stop
16 36 20	---	04 55 56	26.0	227.7	2.8		26.4	57	2683	16 35 11
16 36 20	MRK1018	04 55 56	26.2	228.5	2.8		26.7	-13	2683	No stop
16 40 05	---	04 59 41	25.8	229.4	2.9		27.1	212	2712	16 36 21
16 40 35	0205-010	05 00 11	25.5	228.7	2.8		26.8	17	2712	16 40 35
16 41 45	---	05 01 21	25.4	229.0	2.9		27.0	70	2721	16 40 36
16 41 45	MRK1018	05 01 21	25.6	229.8	2.9		27.3	-13	2721	No stop
16 45 30	---	05 05 07	25.2	230.7	3.0		27.7	212	2750	16 41 46
16 45 30	0205-010	05 05 07	25.0	230.0	2.9		27.4	-13	2750	No stop
16 46 40	---	05 06 17	24.8	230.2	2.9		27.5	57	2759	16 45 31
16 46 40	MRK1018	05 06 17	25.0	231.0	3.0		27.8	-13	2759	No stop
16 50 25	---	05 10 03	24.6	231.9	3.0		28.2	212	2788	16 46 41
16 50 55	0205-010	05 10 33	24.4	231.3	3.0		27.9	17	2788	16 50 55
16 52 05	---	05 11 43	24.2	231.6	3.0		28.1	70	2797	16 50 56
16 52 05	MRK1018	05 11 43	24.4	232.3	3.1		28.4	-13	2797	No stop
16 55 50	---	05 15 29	24.0	233.3	3.1		28.8	212	2826	16 52 06

Schedule for TORUN (Code Tr) Page 12

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
16 55 50	0205-010	05 15 29	23.8	232.5	3.1		28.4	-13	2826	No stop
16 57 00	---	05 16 39	23.6	232.7	3.1		28.6	57	2835	16 55 51
16 57 00	MRK1018	05 16 39	23.8	233.5	3.2		28.9	-13	2835	No stop
17 00 45	---	05 20 25	23.4	234.4	3.2		29.2	212	2863	16 57 01
17 01 15	0205-010	05 20 55	23.1	233.8	3.2		29.0	17	2863	17 01 15
17 02 25	---	05 22 05	23.0	234.0	3.2		29.1	70	2872	17 01 16
17 02 25	MRK1018	05 22 05	23.2	234.8	3.2		29.4	-13	2872	No stop
17 06 10	---	05 25 50	22.7	235.7	3.3		29.7	212	2901	17 02 26
17 06 10	0205-010	05 25 50	22.5	234.9	3.3		29.4	-13	2901	No stop
17 07 20	---	05 27 01	22.4	235.2	3.3		29.5	57	2910	17 06 11
17 07 20	MRK1018	05 27 01	22.5	236.0	3.3		29.9	-13	2910	No stop
17 11 05	---	05 30 46	22.1	236.9	3.4		30.2	212	2939	17 07 21
17 11 35	0205-010	05 31 16	21.8	236.2	3.4		29.9	17	2939	17 11 35
17 12 45	---	05 32 27	21.7	236.5	3.4		30.0	70	2948	17 11 36
17 12 45	MRK1018	05 32 27	21.9	237.3	3.4		30.3	-13	2948	No stop
17 16 30	---	05 36 12	21.4	238.1	3.5		30.7	212	2977	17 12 46
17 16 30	0205-010	05 36 12	21.2	237.4	3.4		30.4	-13	2977	No stop
17 17 40	---	05 37 22	21.1	237.6	3.5		30.5	57	2986	17 16 31
17 17 40	MRK1018	05 37 22	21.2	238.4	3.5		30.8	-13	2986	No stop
17 21 25	---	05 41 08	20.8	239.3	3.6		31.1	212	3015	17 17 41
17 21 55	0205-010	05 41 38	20.5	238.6	3.5		30.8	17	3015	17 21 55
17 23 05	---	05 42 48	20.4	238.9	3.6		30.9	70	3024	17 21 56
17 23 05	MRK1018	05 42 48	20.5	239.6	3.6		31.2	-13	3024	No stop
17 26 50	---	05 46 34	20.0	240.5	3.7		31.5	212	3053	17 23 06
17 26 50	0205-010	05 46 34	19.9	239.7	3.6		31.2	-13	3053	No stop
17 28 00	---	05 47 44	19.7	240.0	3.6		31.3	57	3062	17 26 51
17 28 00	MRK1018	05 47 44	19.9	240.8	3.7		31.6	-13	3062	No stop
17 31 45	---	05 51 30	19.4	241.6	3.7		31.9	212	3090	17 28 01
17 32 15	0205-010	05 52 00	19.2	241.0	3.7		31.7	17	3090	17 32 15
17 33 25	---	05 53 10	19.0	241.2	3.7		31.8	70	3099	17 32 16

Schedule for TORUN (Code Tr) Page 13

Mrk1018 at 2 Gb/s - C band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 8 Mar 2018 Day 67 ---										
17 33 25	MRK1018	05 53 10	19.2	242.0	3.8		32.0	-13	3099	No stop
17 37 10	---	05 56 56	18.7	242.8	3.8		32.3	212	3128	17 33 26
17 37 10	0205-010	05 56 56	18.5	242.1	3.8		32.0	-13	3128	No stop
17 38 20	---	05 58 06	18.4	242.3	3.8		32.1	57	3137	17 37 11
17 38 20	MRK1018	05 58 06	18.5	243.1	3.8		32.4	-13	3137	No stop
17 42 05	---	06 01 51	18.0	243.9	3.9		32.6	212	3166	17 38 21
17 42 35	0205-010	06 02 21	17.8	243.3	3.9		32.4	17	3166	17 42 35
17 43 45	---	06 03 32	17.7	243.5	3.9		32.5	70	3175	17 42 36
17 43 45	MRK1018	06 03 32	17.8	244.3	3.9		32.8	-13	3175	No stop
17 47 30	---	06 07 17	17.3	245.1	4.0		33.0	212	3204	17 43 46
17 47 30	0205-010	06 07 17	17.2	244.4	4.0		32.8	-13	3204	No stop
17 48 40	---	06 08 27	17.0	244.6	4.0		32.9	57	3213	17 47 31
17 48 40	MRK1018	06 08 27	17.1	245.4	4.0		33.1	-13	3213	No stop
17 52 25	---	06 12 13	16.6	246.2	4.1		33.3	212	3242	17 48 41
17 52 55	0205-010	06 12 43	16.4	245.6	4.1		33.1	17	3242	17 52 55
17 54 05	---	06 13 53	16.3	245.8	4.1		33.2	70	3251	17 52 56
17 54 05	MRK1018	06 13 53	16.4	246.6	4.1		33.4	-13	3251	No stop
17 57 50	---	06 17 39	15.9	247.4	4.2		33.7	212	3279	17 54 06
17 57 50	0205-010	06 17 39	15.7	246.6	4.1		33.5	-13	3279	No stop
17 59 00	---	06 18 49	15.6	246.9	4.2		33.5	57	3288	17 57 51
17 59 00	MRK1018	06 18 49	15.7	247.6	4.2		33.7	-13	3288	No stop
18 02 45	---	06 22 35	15.2	248.4	4.3		34.0	212	3317	17 59 01
18 03 15	0205-010	06 23 05	15.0	247.8	4.2		33.8	17	3317	18 03 15
18 04 25	---	06 24 15	14.8	248.0	4.2		33.8	70	3326	18 03 16
18 04 25	MRK1018	06 24 15	14.9	248.8	4.3		34.0	-13	3326	No stop
18 08 10	---	06 28 01	14.4	249.6	4.3		34.3	212	3355	18 04 26
18 08 10	0205-010	06 28 01	14.3	248.9	4.3		34.1	-13	3355	No stop
18 09 20	---	06 29 11	14.1	249.1	4.3		34.1	57	3364	18 08 11
18 09 20	MRK1018	06 29 11	14.2	249.9	4.4		34.3	-13	3364	No stop
18 13 05	---	06 32 56	13.7	250.7	4.4		34.5	212	3393	18 09 21

```
Schedule for TORUN     (Code Tr )                                Page  14
               Mrk1018 at 2 Gb/s - C band
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu   8 Mar 2018   Day  67 ---

18 13 35  0205-010     06 33 26  13.5 250.0  4.4      34.4    17     3393   18 13 35
18 14 45  ---          06 34 37  13.4 250.3  4.4      34.4    70     3402   18 13 36

18 14 45  MRK1018      06 34 37  13.5 251.0  4.5      34.6   -13     3402   No stop
18 18 30  ---          06 38 22  12.9 251.8  4.5      34.8   212     3431   18 14 46

18 18 30  0205-010     06 38 22  12.8 251.1  4.5      34.6   -13     3431   No stop
18 19 40  ---          06 39 32  12.7 251.3  4.5      34.7    57     3440   18 18 31

18 19 40  MRK1018      06 39 32  12.8 252.1  4.5      34.8   -13     3440   No stop
18 23 25  ---          06 43 18  12.2 252.8  4.6      35.0   212     3469   18 19 41

18 23 55  0205-010     06 43 48  12.1 252.2  4.6      34.9    17     3469   18 23 55
18 25 05  ---          06 44 58  11.9 252.4  4.6      34.9    70     3478   18 23 56

18 25 05  MRK1018      06 44 58  12.0 253.2  4.6      35.1   -13     3478   No stop
18 28 50  ---          06 48 44  11.5 254.0  4.7      35.3   212     3506   18 25 06

18 28 50  0205-010     06 48 44  11.4 253.2  4.7      35.1   -13     3506   No stop
18 30 00  ---          06 49 54  11.2 253.5  4.7      35.1    57     3515   18 28 51



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.C2048

   Setup group:   16         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   9  Setup file default.  Used with PCAL = off
  LO sum=   4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
  BBC fr=    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   9

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off


 POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* MRK1018           02 03 42.480768   * 02 06 15.990000     02 07 10.217015       0.00
                   -00 31 46.69524    *-00 17 29.90000     -00 12 35.05348        0.00

* 0149+218          01 49 31.744134   * 01 52 18.059045     01 53 16.966802       0.02
  J0152+2207        21 52 20.74790    * 22 07 07.69977      22 12 19.26407        0.02
  J0152+22          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   2091 observations.

* 0154-000          01 54 36.737811   * 01 57 10.534893     01 58 04.832002       0.17
  J0157+0011       -00 03 12.25373    * 00 11 24.48441      00 16 26.89007        0.34
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    161 observations.

* 0205-010          02 05 53.149970   * 02 08 26.345906     02 09 20.465320       0.11
  J0208-0047       -01 01 56.11936    *-00 47 44.29360     -00 42 51.41853        0.24
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished     63 observations.


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  MRK1018             43.0
  0149+218            47.0
  0154-000            40.8
  0205-010            43.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
```

```
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18oqtr

RadioAstron AGN Monitoring

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```
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```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu   8 Mar 2018   Day  67 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 40 00  1144+402     08 00 06  49.8  85.5 -3.8     -51.3     0        0   19 40 00
19 54 30  ---          08 14 38  52.0  88.3 -3.6     -51.5   870       28   19 40 01

19 55 00  1144+402     08 15 08  52.1  88.4 -3.5     -51.5    24       28   19 55 00
20 09 30  ---          08 29 41  54.2  91.3 -3.3     -51.5   870       56   19 55 01

20 10 00  1144+402     08 30 11  54.3  91.4 -3.3     -51.5    24       56   20 10 00
20 24 30  ---          08 44 43  56.5  94.5 -3.1     -51.3   870       84   20 10 01

20 25 00  1144+402     08 45 13  56.6  94.6 -3.0     -51.3    24       84   20 25 00
20 40 00  ---          09 00 16  58.8  98.0 -2.8     -50.8   900      112   20 25 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    4         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.103850       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 55.14865        0.00
                    fake circumpolar target for a TS to look at

* 1144+402          11 44 21.020905   * 11 46 58.297917     11 47 55.861331       0.00
  J1146+3958        40 15 14.23942    * 39 58 34.30433      39 52 26.54803        0.00
                    ./rk18oq_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 18887 observations, RA-AO3-04, RA-AO2-1


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1144+402           144.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

ek038btr

Inclination Dependences of Optical-UV Broad Emission Line Profiles

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Observing mode: 6cm EVN/MKV

```
Schedule for TORUN     (Code Tr )                                    Page   2
               Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu   8 Mar 2018   Day  67 ---

 Next scan frequencies:  4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
 Next BBC frequencies:    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

21 30 00  3C273        09 50 24  29.2 132.7 -2.7     -26.2     0        0   21 30 00
21 33 20  ---          09 53 44  29.5 133.6 -2.6     -25.8   200       26   21 30 01

21 34 50  J1153+0955   09 55 15  40.5 139.8 -2.0     -23.2    35       26   21 34 50
21 36 20  =1151+102    09 56 45  40.7 140.2 -2.0     -22.9    90       37   21 34 51

21 36 20  1146+111     09 56 45  42.0 141.2 -1.9     -22.5   -19       37   No stop
21 39 50  ---          10 00 15  42.4 142.3 -1.8     -21.9   191       64   21 36 21

21 39 50  J1153+0955   10 00 15  41.0 141.3 -1.9     -22.4   -18       64   No stop
21 41 20  =1151+102    10 01 46  41.1 141.8 -1.9     -22.2    72       76   21 39 51

21 41 20  1146+111     10 01 46  42.5 142.8 -1.8     -21.7   -19       76   No stop
21 44 50  ---          10 05 16  42.8 143.9 -1.7     -21.1   191      103   21 41 21

21 45 30  J1153+0955   10 05 56  41.5 143.0 -1.8     -21.5    22      103   21 45 30
21 47 00  =1151+102    10 07 27  41.6 143.5 -1.8     -21.3    90      114   21 45 31

21 47 00  1146+111     10 07 27  43.0 144.6 -1.7     -20.8   -19      114   No stop
21 50 30  ---          10 10 57  43.3 145.7 -1.6     -20.2   191      141   21 47 01

21 50 30  J1153+0955   10 10 57  42.0 144.6 -1.7     -20.7   -18      141   No stop
21 52 00  =1151+102    10 12 27  42.1 145.0 -1.7     -20.4    72      153   21 50 31

21 52 00  1146+111     10 12 27  43.4 146.1 -1.6     -19.9   -19      153   No stop
21 55 30  ---          10 15 58  43.7 147.3 -1.6     -19.3   191      179   21 52 01

21 55 30  J1153+0955   10 15 58  42.4 146.1 -1.6     -19.9   -18      179   No stop
21 57 00  =1151+102    10 17 28  42.5 146.6 -1.6     -19.6    72      191   21 55 31
```

21 58 10	J1226+1352	10 18 38	43.1	134.8	-2.1	-26.0	31	191	21 58 10
21 59 40	=1224+141	10 20 09	43.3	135.3	-2.1	-25.8	90	203	21 58 11
21 59 40	1221+113	10 20 09	41.0	137.5	-2.1	-24.4	-22	203	No stop
22 03 10	---	10 23 39	41.4	138.5	-2.0	-23.9	188	229	21 59 41
22 03 10	J1226+1352	10 23 39	43.7	136.3	-2.1	-25.3	-23	229	No stop
22 04 40	=1224+141	10 25 09	43.8	136.8	-2.0	-25.1	67	241	22 03 11
22 04 40	1221+113	10 25 09	41.5	139.0	-2.0	-23.7	-22	241	No stop
22 08 10	---	10 28 40	41.9	140.0	-1.9	-23.1	188	268	22 04 41

Schedule for TORUN (Code Tr) Page 3

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
22 08 50	J1226+1352	10 29 20	44.2	138.1	-2.0		-24.4	17	268	22 08 50
22 10 20	=1224+141	10 30 50	44.4	138.5	-1.9		-24.2	90	279	22 08 51
22 10 20	1221+113	10 30 50	42.1	140.7	-1.9		-22.8	-22	279	No stop
22 13 50	---	10 34 21	42.4	141.8	-1.8		-22.2	188	306	22 10 21
22 13 50	J1226+1352	10 34 21	44.7	139.6	-1.9		-23.6	-23	306	No stop
22 15 20	=1224+141	10 35 51	44.9	140.1	-1.9		-23.4	67	318	22 13 51
22 15 20	1221+113	10 35 51	42.6	142.2	-1.8		-22.0	-22	318	No stop
22 18 50	---	10 39 22	42.9	143.3	-1.8		-21.4	188	345	22 15 21
22 18 50	J1226+1352	10 39 22	45.2	141.2	-1.8		-22.8	-23	345	No stop
22 20 20	=1224+141	10 40 52	45.4	141.7	-1.8		-22.5	67	356	22 18 51
22 21 50	J1153+0955	10 42 22	44.3	154.7	-1.2		-15.1	50	356	22 21 50
22 23 20	=1151+102	10 43 53	44.4	155.2	-1.2		-14.8	90	368	22 21 51
22 23 20	1146+111	10 43 53	45.7	156.5	-1.1		-14.1	-18	368	No stop
22 26 50	---	10 47 23	45.9	157.7	-1.0		-13.4	192	395	22 23 21
22 26 50	J1153+0955	10 47 23	44.7	156.3	-1.1		-14.2	-18	395	No stop
22 28 20	=1151+102	10 48 53	44.7	156.8	-1.1		-13.9	72	406	22 26 51
22 28 20	1146+111	10 48 53	46.0	158.2	-1.0		-13.1	-18	406	No stop
22 31 50	---	10 52 24	46.2	159.4	-1.0		-12.4	192	433	22 28 21
22 32 30	J1153+0955	10 53 04	45.0	158.3	-1.0		-13.0	22	433	22 32 30
22 34 00	=1151+102	10 54 34	45.1	158.8	-1.0		-12.7	90	445	22 32 31
22 34 00	1146+111	10 54 34	46.3	160.2	-0.9		-12.0	-18	445	No stop
22 37 30	---	10 58 05	46.5	161.4	-0.9		-11.2	192	472	22 34 01
22 37 30	J1153+0955	10 58 05	45.3	160.0	-0.9		-12.0	-18	472	No stop
22 39 00	=1151+102	10 59 35	45.3	160.5	-0.9		-11.7	72	483	22 37 31
22 39 00	1146+111	10 59 35	46.5	161.9	-0.8		-10.9	-18	483	No stop
22 42 30	---	11 03 06	46.7	163.2	-0.8		-10.2	192	510	22 39 01
22 42 30	J1153+0955	11 03 06	45.5	161.7	-0.9		-11.0	-18	510	No stop
22 44 00	=1151+102	11 04 36	45.6	162.2	-0.8		-10.7	72	522	22 42 31
22 45 10	J1226+1352	11 05 46	47.5	149.9	-1.4		-18.1	30	522	22 45 10
22 46 40	=1224+141	11 07 16	47.6	150.4	-1.3		-17.8	90	533	22 45 11

Schedule for TORUN (Code Tr) Page 4

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
22 46 40	1221+113	11 07 16	45.1	152.3	-1.3		-16.5	-23	533	No stop
22 50 10	---	11 10 47	45.4	153.5	-1.2		-15.8	187	560	22 46 41
22 50 10	J1226+1352	11 10 47	47.8	151.6	-1.3		-17.1	-23	560	No stop
22 51 40	=1224+141	11 12 17	47.9	152.1	-1.3		-16.8	67	572	22 50 11
22 51 40	1221+113	11 12 17	45.5	154.0	-1.2		-15.5	-23	572	No stop
22 55 10	---	11 15 48	45.7	155.2	-1.2		-14.9	187	599	22 51 41
22 55 50	J1226+1352	11 16 28	48.2	153.6	-1.2		-16.0	17	599	22 55 50
22 57 20	=1224+141	11 17 58	48.3	154.1	-1.2		-15.6	90	610	22 55 51
22 57 20	1221+113	11 17 58	45.8	155.9	-1.1		-14.4	-23	610	No stop
23 00 50	---	11 21 29	46.0	157.1	-1.1		-13.7	187	637	22 57 21
23 00 50	J1226+1352	11 21 29	48.5	155.4	-1.1		-14.9	-23	637	No stop
23 02 20	=1224+141	11 22 59	48.6	155.9	-1.1		-14.6	67	649	23 00 51
23 02 20	1221+113	11 22 59	46.1	157.7	-1.0		-13.4	-23	649	No stop
23 05 50	---	11 26 30	46.3	158.9	-1.0		-12.7	187	676	23 02 21
23 05 50	J1226+1352	11 26 30	48.8	157.2	-1.0		-13.9	-24	676	No stop
23 07 20	=1224+141	11 28 00	48.9	157.7	-1.0		-13.6	66	687	23 05 51
23 12 00	3C345	11 32 41	37.6	71.3	-5.2		-47.8	92	687	23 12 00
23 15 20	---	11 36 01	38.0	71.9	-5.1		-48.0	200	713	23 12 01
23 20 00	3C273	11 40 42	37.8	164.3	-0.8		-9.4	81	713	23 20 00
23 23 20	---	11 44 02	38.0	165.4	-0.8		-8.7	200	738	23 20 01
23 25 40	J1451-0127	11 46 23	23.0	127.9	-3.1		-28.3	50	738	23 25 40
23 27 40	=1449-012	11 48 23	23.3	128.4	-3.1		-28.1	120	754	23 25 41
23 27 40	1443-010	11 48 23	24.1	129.7	-3.0		-27.5	-16	754	No stop
23 31 10	---	11 51 54	24.6	130.5	-2.9		-27.2	194	781	23 27 41
23 31 10	J1451-0127	11 51 54	23.7	129.2	-3.0		-27.7	-16	781	No stop
23 32 40	=1449-012	11 53 24	23.8	129.6	-3.0		-27.6	74	792	23 31 11
23 32 40	1443-010	11 53 24	24.7	130.9	-2.9		-27.0	-16	792	No stop
23 36 10	---	11 56 54	25.1	131.8	-2.8		-26.6	194	819	23 32 41
23 36 50	J1451-0127	11 57 35	24.3	130.6	-2.9		-27.1	24	819	23 36 50
23 38 20	=1449-012	11 59 05	24.5	131.0	-2.9		-27.0	90	831	23 36 51

Schedule for TORUN (Code Tr) Page 5

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 8 Mar 2018 Day 67 ---										
23 38 20	1443-010	11 59 05	25.4	132.3	-2.8		-26.4	-16	831	No stop
23 41 50	---	12 02 35	25.7	133.2	-2.7		-26.0	194	858	23 38 21
23 41 50	J1451-0127	12 02 35	24.9	131.8	-2.8		-26.6	-16	858	No stop
23 43 20	=1449-012	12 04 06	25.1	132.2	-2.8		-26.4	74	869	23 41 51
23 43 20	1443-010	12 04 06	25.9	133.5	-2.7		-25.8	-16	869	No stop
23 46 50	---	12 07 36	26.3	134.4	-2.7		-25.4	194	896	23 43 21
23 46 50	J1451-0127	12 07 36	25.4	133.1	-2.8		-26.0	-15	896	No stop
23 48 20	=1449-012	12 09 06	25.6	133.5	-2.7		-25.9	75	908	23 46 51
23 50 05	1614+051	12 10 52	20.7	110.4	-4.1		-34.4	44	908	23 50 05
23 53 25	---	12 14 12	21.1	111.1	-4.1		-34.2	200	933	23 50 06
23 55 45	J1451-0127	12 16 33	26.4	135.3	-2.6		-25.0	77	933	23 55 45
23 57 45	=1449-012	12 18 33	26.6	135.8	-2.6		-24.7	120	949	23 55 46
--- Start: Thu 8 Mar 2018 Day 67 -- Stop: Fri 9 Mar 2018 Day 68 ---										
23 57 45	1443-010	12 18 33	27.4	137.2	-2.5		-24.1	-16	949	No stop
00 01 15	---	12 22 04	27.8	138.1	-2.4		-23.6	194	976	23 57 46
00 01 15	J1451-0127	12 22 04	27.0	136.7	-2.5		-24.3	-15	976	No stop
00 02 45	=1449-012	12 23 34	27.1	137.1	-2.5		-24.1	75	987	00 01 16
00 02 45	1443-010	12 23 34	27.9	138.5	-2.4		-23.5	-16	987	No stop
00 06 15	---	12 27 04	28.3	139.4	-2.3		-23.0	194	1014	00 02 46
00 06 55	J1451-0127	12 27 45	27.6	138.2	-2.4		-23.6	25	1014	00 06 55
00 08 25	=1449-012	12 29 15	27.7	138.6	-2.4		-23.4	90	1026	00 06 56
00 08 25	1443-010	12 29 15	28.5	140.0	-2.3		-22.7	-16	1026	No stop
00 11 55	---	12 32 45	28.8	140.9	-2.2		-22.3	194	1053	00 08 26
00 11 55	J1451-0127	12 32 45	28.1	139.5	-2.3		-23.0	-15	1053	No stop
00 13 25	=1449-012	12 34 16	28.2	139.9	-2.3		-22.8	75	1064	00 11 56
00 13 25	1443-010	12 34 16	29.0	141.3	-2.2		-22.1	-16	1064	No stop
00 16 55	---	12 37 46	29.3	142.2	-2.2		-21.6	194	1091	00 13 26
00 16 55	J1451-0127	12 37 46	28.5	140.8	-2.2		-22.3	-16	1091	No stop
00 18 25	=1449-012	12 39 16	28.7	141.2	-2.2		-22.1	74	1103	00 16 56

Schedule for TORUN (Code Tr) Page 6

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 9 Mar 2018 Day 68 ---										
00 20 10	1614+051	12 41 02	24.8	117.2	-3.6		-32.4	42	1103	00 20 10
00 23 30	---	12 44 22	25.3	118.0	-3.6		-32.2	200	1128	00 20 11
00 25 50	J1451-0127	12 46 43	29.4	143.2	-2.1		-21.1	75	1128	00 25 50
00 27 50	=1449-012	12 48 43	29.5	143.7	-2.1		-20.8	120	1144	00 25 51
00 27 50	1443-010	12 48 43	30.3	145.2	-2.0		-20.1	-16	1144	No stop
00 31 20	---	12 52 14	30.6	146.1	-1.9		-19.6	194	1171	00 27 51
00 31 20	J1451-0127	12 52 14	29.9	144.7	-2.0		-20.3	-16	1171	No stop
00 32 50	=1449-012	12 53 44	30.0	145.1	-2.0		-20.1	74	1182	00 31 21
00 32 50	1443-010	12 53 44	30.7	146.6	-1.9		-19.3	-16	1182	No stop
00 36 20	---	12 57 14	31.0	147.5	-1.8		-18.8	194	1209	00 32 51
00 37 00	J1451-0127	12 57 54	30.3	146.2	-1.9		-19.5	24	1209	00 37 00
00 38 30	=1449-012	12 59 25	30.5	146.6	-1.9		-19.3	90	1221	00 37 01
00 38 30	1443-010	12 59 25	31.2	148.1	-1.8		-18.5	-16	1221	No stop
00 42 00	---	13 02 55	31.4	149.1	-1.7		-18.0	194	1247	00 38 31
00 42 00	J1451-0127	13 02 55	30.7	147.6	-1.8		-18.8	-16	1247	No stop
00 43 30	=1449-012	13 04 26	30.9	148.0	-1.8		-18.6	74	1259	00 42 01
00 43 30	1443-010	13 04 26	31.5	149.5	-1.7		-17.7	-16	1259	No stop
00 47 00	---	13 07 56	31.8	150.5	-1.6		-17.2	194	1286	00 43 31
00 47 00	J1451-0127	13 07 56	31.1	149.0	-1.7		-18.0	-16	1286	No stop
00 48 30	=1449-012	13 09 26	31.3	149.4	-1.7		-17.8	74	1297	00 47 01
00 50 15	1614+051	13 11 12	28.7	124.4	-3.1		-29.8	40	1297	00 50 15
00 53 35	---	13 14 32	29.1	125.2	-3.0		-29.5	200	1323	00 50 16
00 55 55	J1451-0127	13 16 53	31.8	151.5	-1.6		-16.7	73	1323	00 55 55
00 57 55	=1449-012	13 18 53	32.0	152.0	-1.6		-16.4	120	1338	00 55 56
00 57 55	1443-010	13 18 53	32.6	153.6	-1.5		-15.5	-16	1338	No stop
01 01 25	---	13 22 23	32.8	154.6	-1.4		-14.9	194	1365	00 57 56
01 01 25	J1451-0127	13 22 23	32.2	153.0	-1.5		-15.8	-16	1365	No stop
01 02 55	=1449-012	13 23 54	32.3	153.4	-1.5		-15.6	74	1377	01 01 26
01 02 55	1443-010	13 23 54	32.9	155.0	-1.4		-14.7	-16	1377	No stop
01 06 25	---	13 27 24	33.1	156.0	-1.3		-14.1	194	1404	01 02 56

Schedule for TORUN (Code Tr) Page 7

Inclination Dependences of Optical-UV Broad Emission Line Profiles in Qu

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 9 Mar 2018 Day 68 ---										
01 07 05	J1451-0127	13 28 04	32.6	154.6	-1.4		-14.9	24	1404	01 07 05
01 08 35	=1449-012	13 29 35	32.7	155.1	-1.4		-14.7	90	1415	01 07 06
01 08 35	1443-010	13 29 35	33.3	156.7	-1.3		-13.8	-17	1415	No stop
01 12 05	---	13 33 05	33.5	157.7	-1.2		-13.2	193	1442	01 08 36
01 12 05	J1451-0127	13 33 05	32.9	156.1	-1.3		-14.1	-16	1442	No stop
01 13 35	=1449-012	13 34 35	33.0	156.5	-1.3		-13.8	74	1454	01 12 06
01 13 35	1443-010	13 34 35	33.5	158.1	-1.2		-12.9	-17	1454	No stop
01 17 05	---	13 38 06	33.7	159.2	-1.1		-12.3	193	1481	01 13 36
01 17 05	J1451-0127	13 38 06	33.2	157.5	-1.2		-13.3	-16	1481	No stop
01 18 35	=1449-012	13 39 36	33.3	158.0	-1.2		-13.0	74	1492	01 17 06
01 20 20	1614+051	13 41 22	32.3	132.1	-2.6		-26.6	38	1492	01 20 20
01 23 40	---	13 44 42	32.6	133.0	-2.5		-26.2	200	1518	01 20 21
01 26 30	3C345	13 47 33	57.5	96.2	-2.9		-51.0	63	1518	01 26 30
01 30 00	---	13 51 03	58.0	97.0	-2.9		-50.9	210	1545	01 26 31

SETUP FILE INFORMATION:
NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

======== Setup file: sess118.C1024

Setup group: 16 Station: TORUN Total bit rate: 1024
Format: MARK5B Bits per sample: 2 Sample rate: 64.000
Number of channels: 8 DBE type: DBBC_DDC Speedup factor: 1.00

Disk used to record data.

```
  1st LO=   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   7  Setup file default.  Used with PCAL = off
  LO sum=   4958.49  4958.49  4958.49  4958.49  5022.49  5022.49  5022.49  5022.49
  BBC fr=    758.49   758.49   758.49   758.49   822.49   822.49   822.49   822.49
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:   7

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                      (B1950)             (J2000)             (Date)             (mas)

  3C273B            12 26 33.245833   * 12 29 06.699729     12 30 02.927780       1.05
  J1229+0203        02 19 43.30578    * 02 03 08.59828      01 57 04.54852        1.37
  1226+023          GSFC 2015a astro solution, unpublished  31967 observations.
  J1229+02

* 3C345             16 41 17.606228   * 16 42 58.809966     16 43 35.165383       0.76
  J1642+3948        39 54 10.81496    * 39 48 36.99402      39 46 26.11330        0.52
  J1642+39          GSFC 2015a astro solution, unpublished  53430 observations.

  1151+102          11 51 14.380456   * 11 53 48.527384     11 54 44.987738       0.07
* J1153+0955        10 12 36.39877    * 09 55 54.88822      09 49 46.71410        0.17
                    GSFC 2015a astro solution, unpublished    153 observations.

  1224+141          12 24 01.677403   * 12 26 33.605114     12 27 29.205669       0.34
* J1226+1352        14 08 39.06944    * 13 52 03.14654      13 45 57.40485        0.54
                    rfc_2015a Petrov, 2015, unpublished.  45 observations

  1449-012          14 49 12.563209   * 14 51 47.412309     14 52 43.706264       0.15
* J1451-0127       -01 15 17.95896    *-01 27 35.30776     -01 32 01.58881        0.32
                    GSFC 2015a astro solution, unpublished     68 observations.

* 1614+051          16 14 09.076765   * 16 16 37.556816     16 17 31.092620       0.01
  J1616+0459        05 06 54.39684    * 04 59 32.73667      04 56 52.30419        0.02
                    GSFC 2015a astro solution, unpublished   2597 observations.

* 1146+111          11 46 13.359636   * 11 48 47.830099     11 49 44.404492       0.00
                    11 11 38.97762    * 10 54 58.42699      10 48 50.43961        0.00
                    Target

* 1221+113          12 21 47.390302   * 12 24 19.816999     12 25 15.615395       0.00
                    11 24 00.02111    * 11 07 23.05402      11 01 17.12585        0.00
                    Target

* 1443-010          14 43 24.912884   * 14 45 59.546899     14 46 55.788726       0.00
```

```
                    -01 00 43.34945    *-01 13 17.62201     -01 17 50.21146        0.00
                     Target


EFFECT OF SOLAR CORONA

  The solar corona can cause unstable phases for sources too close to the Sun.
  SCHED provides warnings at individual scans for distances less than 10 degrees.
  The distance from the Sun to each source in this schedule is:
    Source         Sun distance (deg)
   3C273              161.6
   3C345               99.4
   J1153+0955         169.3
   J1226+1352         160.4
   J1451-0127         125.8
   1614+051           105.2
   1146+111           169.8
   1221+113           162.0
   1443-010           127.3

  Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
  that the Sun will cause amplitude reductions on the  longest VLBA baselines
  at a solar distance of 60deg F^(-0.6) where F is in GHz.
  For common VLBI bands, this is:
       1.6 GHz         45. deg
       2.3 GHz         36. deg
       5.0 GHz         23. deg
       8.4 GHz         17. deg
      15.0 GHz         12. deg
      22.0 GHz          9. deg
```

rk18ortr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   9 Mar 2018   Day  68 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  0829+046     13 20 58  14.3 258.1  4.8      36.1     0        0   01 00 00
01 19 30  ---          13 40 31  11.4 262.2  5.1      36.6  1170       37   01 00 01

01 20 00  0829+046     13 41 02  11.3 262.3  5.1      36.6    24       37   01 20 00
01 39 30  ---          14 00 35   8.4 266.2  5.5      36.9  1170       75   01 20 01

01 40 00  0829+046     14 01 05   8.3 266.3  5.5      36.9    24       75   01 40 00
02 00 00  ---          14 21 08   5.3 270.3  5.8      37.0  1200      113   01 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.114904       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 55.21066        0.00
                    fake circumpolar target for a TS to look at

* 0829+046          08 29 10.894139   * 08 31 48.876958     08 32 46.498300       0.00
  J0831+0429        04 39 50.82946    * 04 29 39.08580      04 25 45.68973        0.00
                    ./rk18or_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 1604 observations, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 0829+046           139.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18ostr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Fri   9 Mar 2018   Day  68 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

22 00 00  1222+216     10 24 25  50.6 132.1 -2.0     -28.6     0        0   22 00 00
22 14 30  ---          10 38 58  52.2 136.9 -1.8     -26.1   870       28   22 00 01

22 15 00  1222+216     10 39 28  52.2 137.1 -1.8     -26.0    24       28   22 15 00
22 29 30  ---          10 54 00  53.7 142.2 -1.5     -23.3   870       56   22 15 01

22 30 00  1222+216     10 54 30  53.7 142.4 -1.5     -23.2    24       56   22 30 00
22 44 30  ---          11 09 03  54.9 147.8 -1.3     -20.1   870       84   22 30 01

22 45 00  1222+216     11 09 33  55.0 148.0 -1.3     -20.0    24       84   22 45 00
23 00 00  ---          11 24 35  56.1 153.8 -1.0     -16.5   900      112   22 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.163423       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 55.46691        0.00
                    fake circumpolar target for a TS to look at

* 1222+216          12 22 23.408709   * 12 24 54.458394     12 25 49.734181       0.00
  J1224+2122        21 39 23.03696    * 21 22 46.38857      21 16 39.87817        0.00
                    ./rk18os_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 406 observations, RA-AO4-07, RA-AO3-04,


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1222+216           156.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18ottr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sat  10 Mar 2018   Day  69 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

02 00 00  1253-055     14 25 05  28.2 205.0  1.5      14.8     0        0   02 00 00
02 19 30  ---          14 44 38  26.8 210.2  1.8      17.7  1170       37   02 00 01

02 20 00  1253-055     14 45 08  26.8 210.4  1.8      17.8    24       37   02 20 00
02 39 30  ---          15 04 41  25.2 215.5  2.1      20.5  1170       75   02 20 01

02 40 00  1253-055     15 05 11  25.1 215.6  2.1      20.6    24       75   02 40 00
03 00 00  ---          15 25 15  23.3 220.7  2.5      23.2  1200      113   02 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.173236       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 55.51589        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 08.119563       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 15.90598        0.00
  3C279             ./rk18ot_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           154.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18ovtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  11 Mar 2018   Day  70 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1253-055     13 28 51  30.6 189.2  0.5       5.5     0        0   01 00 00
01 14 30  ---          13 43 24  30.2 193.3  0.8       8.0   870       28   01 00 01

01 15 00  1253-055     13 43 54  30.2 193.5  0.8       8.1    24       28   01 15 00
01 29 30  ---          13 58 26  29.6 197.6  1.0      10.5   870       56   01 15 01

01 30 00  1253-055     13 58 56  29.6 197.7  1.0      10.6    24       56   01 30 00
01 44 30  ---          14 13 29  28.8 201.8  1.3      13.0   870       84   01 30 01

01 45 00  1253-055     14 13 59  28.8 201.9  1.3      13.0    24       84   01 45 00
02 00 00  ---          14 29 01  27.9 206.1  1.5      15.4   900      112   01 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    6         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.231316       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 55.79075        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 08.137626       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 16.01970        0.00
  3C279             ./rk18ov_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           155.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18owtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  11 Mar 2018   Day  70 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 00 00  1546+027     17 29 31  35.5 210.9  1.7      18.0     0        0   05 00 00
05 19 30  ---          17 49 04  33.8 216.5  2.0      21.0  1170       37   05 00 01

05 20 00  1546+027     17 49 34  33.8 216.7  2.0      21.0    24       37   05 20 00
05 39 30  ---          18 09 07  31.9 222.1  2.3      23.7  1170       75   05 20 01

05 40 00  1546+027     18 09 37  31.9 222.2  2.3      23.8    24       75   05 40 00
06 00 00  ---          18 29 41  29.8 227.5  2.7      26.3  1200      113   05 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   4  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.242180       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 55.83992        0.00
                    fake circumpolar target for a TS to look at

* 1546+027          15 46 58.292171   * 15 49 29.436845     15 50 24.157275       0.00
  J1549+0237        02 46 06.07581    * 02 37 01.16316      02 33 43.89191        0.00
                    ./rk18ow_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 15857 observations, RA-AO3-04, RA-AO2-1
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1546+027           113.9

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

rk18oxtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Fax:      +7-495-3332378                 Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Sun  11 Mar 2018   Day  70 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

16 00 00  0851+202     04 31 19  30.1  96.5 -4.4     -39.4     0        0   16 00 00
16 14 30  ---          04 45 52  32.3  99.6 -4.2     -39.1   870       28   16 00 01

16 15 00  0851+202     04 46 22  32.4  99.7 -4.2     -39.0    24       28   16 15 00
16 29 30  ---          05 00 54  34.5 102.9 -3.9     -38.5   870       56   16 15 01

16 30 00  0851+202     05 01 24  34.6 103.0 -3.9     -38.5    24       56   16 30 00
16 45 00  ---          05 16 27  36.8 106.4 -3.7     -37.8   900       84   16 30 01

 ---------- C-band VLBI scans ----------

16 45 30  0851+202     05 16 57  36.9 106.6 -3.6     -37.8    24       84   16 45 30
17 00 00  ---          05 31 29  38.9 110.0 -3.4     -36.9   870      112   16 45 31



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.271907       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 55.97198        0.00
                    fake circumpolar target for a TS to look at

* 0851+202          08 51 57.250618   * 08 54 48.874930     08 55 51.389452       0.00
  J0854+2006        20 17 58.41733    * 20 06 30.64078      20 02 13.48797        0.00
  OJ287             ./rk18ox_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 213710 observations, RA-AO4-06, RA-AO3-
```

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0851+202           139.6

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

gg084atr

BNS merger counterpart

PI: *Giancarlo Ghirlanda*

```
Address:  JIVE

Schedule for TORUN     (Code Tr )                                  Page   2
               BNS merger counterpart
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Sun  11 Mar 2018   Day  70 ---
 Next scan frequencies:  4900.00  4900.00  4900.00  4900.00  4964.00  4964.00  4964.00  4964.00
 Next BBC frequencies:    700.00   700.00   700.00   700.00   764.00   764.00   764.00   764.00
 Next scan bandwidths:     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00

23 23 00  J1337-1257   11 55 32  20.3 153.2 -1.7     -16.2     0        0   23 23 00
23 26 00  =1334-127    11 58 32  20.5 153.9 -1.7     -15.7   180       23   23 23 01

23 27 10  J1311-2329   11 59 43  11.7 163.0 -1.2     -11.1    23       23   23 27 10
23 29 10  ---          12 01 43  11.8 163.4 -1.2     -10.8   120       38   23 27 11

23 29 10  EM170817     12 01 43  12.0 163.8 -1.2     -10.5   -11       38   No stop
23 31 40  ---          12 04 13  12.1 164.4 -1.1     -10.1   139       58   23 29 11

23 31 40  J1311-2329   12 04 13  11.9 164.0 -1.1     -10.4   -10       58   No stop
23 33 10  ---          12 05 44  11.9 164.4 -1.1     -10.2    80       69   23 31 41

23 33 10  EM170817     12 05 44  12.1 164.8 -1.1      -9.9   -11       69   No stop
23 35 40  ---          12 08 14  12.2 165.3 -1.0      -9.5   139       88   23 33 11

23 36 10  J1311-2329   12 08 44  12.1 165.1 -1.1      -9.7    19       88   23 36 10
23 37 10  ---          12 09 44  12.1 165.3 -1.0      -9.6    60       96   23 36 11

23 37 10  EM170817     12 09 44  12.3 165.7 -1.0      -9.3   -11       96   No stop
23 39 40  ---          12 12 15  12.4 166.3 -1.0      -8.9   139      115   23 37 11

23 39 40  J1311-2329   12 12 15  12.2 165.9 -1.0      -9.2   -11      115   No stop
23 41 10  ---          12 13 45  12.2 166.2 -1.0      -9.0    79      127   23 39 41

23 41 10  J1312-2350   12 13 45  11.9 166.0 -1.0      -9.1   -12      127   No stop
23 43 40  ---          12 16 15  12.0 166.6 -1.0      -8.8   138      146   23 41 11

23 44 20  J1311-2329   12 16 55  12.4 167.0 -0.9      -8.5    28      146   23 44 20
23 45 20  ---          12 17 56  12.4 167.2 -0.9      -8.4    60      154   23 44 21

23 45 20  EM170817     12 17 56  12.6 167.6 -0.9      -8.1   -11      154   No stop
23 47 50  ---          12 20 26  12.6 168.2 -0.8      -7.7   139      173   23 45 21

23 47 50  J1311-2329   12 20 26  12.5 167.8 -0.9      -8.0   -11      173   No stop
23 49 20  ---          12 21 56  12.5 168.1 -0.8      -7.8    79      185   23 47 51

23 49 20  EM170817     12 21 56  12.7 168.5 -0.8      -7.5   -11      185   No stop
23 51 50  ---          12 24 27  12.8 169.1 -0.8      -7.1   139      204   23 49 21
```

Schedule for TORUN (Code Tr) Page 3

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
-- Sun 11 Mar 2018		Day 70 ---								
23 52 20	J1311-2329	12 24 57	12.6	168.8	-0.8		-7.3	19	204	23 52 20
23 53 20	---	12 25 57	12.6	169.1	-0.8		-7.1	60	212	23 52 21
23 53 20	EM170817	12 25 57	12.8	169.5	-0.7		-6.9	-11	212	No stop
23 55 50	---	12 28 27	12.9	170.0	-0.7		-6.5	139	231	23 53 21
23 55 50	J1311-2329	12 28 27	12.7	169.6	-0.7		-6.8	-11	231	No stop
23 57 20	---	12 29 58	12.8	170.0	-0.7		-6.5	79	242	23 55 51
23 57 20	J1312-2350	12 29 58	12.4	169.8	-0.7		-6.7	-12	242	No stop
23 59 50	---	12 32 28	12.4	170.3	-0.7		-6.3	138	262	23 57 21
--- Start: Sun 11 Mar 2018		Day 70 -- Stop: Mon 12 Mar 2018							Day 71 ---	
23 59 50	J1311-2329	12 32 28	12.8	170.6	-0.7		-6.2	-12	262	No stop
00 01 20	---	12 33 58	12.9	170.9	-0.6		-5.9	78	273	23 59 51
00 01 20	J1303-2405	12 33 58	12.4	172.9	-0.5		-4.7	-18	273	No stop
00 03 50	---	12 36 29	12.5	173.5	-0.5		-4.3	132	292	00 01 21
00 04 30	J1311-2329	12 37 09	12.9	171.7	-0.6		-5.5	23	292	00 04 30
00 05 30	---	12 38 09	12.9	171.9	-0.6		-5.3	60	300	00 04 31
00 05 30	EM170817	12 38 09	13.1	172.3	-0.5		-5.0	-11	300	No stop
00 08 00	---	12 40 39	13.1	172.9	-0.5		-4.6	139	319	00 05 31
00 08 00	J1311-2329	12 40 39	13.0	172.5	-0.5		-4.9	-11	319	No stop
00 09 30	---	12 42 10	13.0	172.8	-0.5		-4.7	79	331	00 08 01
00 09 30	EM170817	12 42 10	13.2	173.3	-0.5		-4.4	-11	331	No stop
00 12 00	---	12 44 40	13.2	173.8	-0.4		-4.0	139	350	00 09 31
00 12 30	J1311-2329	12 45 10	13.1	173.5	-0.5		-4.2	19	350	00 12 30
00 13 30	---	12 46 10	13.1	173.8	-0.4		-4.1	60	358	00 12 31
00 13 30	EM170817	12 46 10	13.2	174.2	-0.4		-3.8	-11	358	No stop
00 16 00	---	12 48 41	13.3	174.8	-0.4		-3.4	139	377	00 13 31
00 16 00	J1311-2329	12 48 41	13.1	174.4	-0.4		-3.7	-11	377	No stop
00 17 30	---	12 50 11	13.2	174.7	-0.4		-3.5	79	388	00 16 01
00 17 30	J1312-2350	12 50 11	12.8	174.5	-0.4		-3.6	-12	388	No stop
00 20 00	---	12 52 41	12.8	175.1	-0.4		-3.2	138	408	00 17 31
00 20 40	J1311-2329	12 53 21	13.2	175.5	-0.3		-3.0	28	408	00 20 40
00 21 40	---	12 54 22	13.2	175.7	-0.3		-2.8	60	415	00 20 41

Schedule for TORUN (Code Tr) Page 4

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
00 21 40	EM170817	12 54 22	13.3	176.1	-0.3		-2.5	-11	415	No stop
00 24 10	---	12 56 52	13.4	176.7	-0.2		-2.1	139	435	00 21 41
00 24 10	J1311-2329	12 56 52	13.2	176.3	-0.3		-2.4	-11	435	No stop
00 25 40	---	12 58 22	13.2	176.6	-0.2		-2.2	79	446	00 24 11
00 25 40	EM170817	12 58 22	13.4	177.1	-0.2		-1.9	-11	446	No stop
00 28 10	---	13 00 53	13.4	177.7	-0.2		-1.5	139	465	00 25 41
00 28 40	J1311-2329	13 01 23	13.3	177.4	-0.2		-1.7	19	465	00 28 40
00 29 40	---	13 02 23	13.3	177.6	-0.2		-1.6	60	473	00 28 41
00 29 40	EM170817	13 02 23	13.4	178.0	-0.1		-1.3	-11	473	No stop
00 32 10	---	13 04 53	13.4	178.6	-0.1		-0.9	139	492	00 29 41
00 32 10	J1311-2329	13 04 53	13.3	178.2	-0.1		-1.2	-11	492	No stop
00 33 40	---	13 06 24	13.3	178.5	-0.1		-1.0	79	504	00 32 11
00 33 40	J1312-2350	13 06 24	12.9	178.3	-0.1		-1.1	-12	504	No stop
00 36 10	---	13 08 54	13.0	178.8	-0.1		-0.8	138	523	00 33 41
00 36 10	J1311-2329	13 08 54	13.3	179.1	-0.1		-0.6	-12	523	No stop
00 37 40	---	13 10 24	13.3	179.5	-0.0		-0.3	78	535	00 36 11
00 37 40	J1303-2405	13 10 24	12.7	181.4	0.1		0.9	-18	535	No stop
00 40 10	---	13 12 55	12.7	182.0	0.1		1.3	132	554	00 37 41
00 40 50	J1311-2329	13 13 35	13.3	180.2	0.0		0.1	23	554	00 40 50
00 41 50	---	13 14 35	13.3	180.5	0.0		0.3	60	562	00 40 51
00 41 50	EM170817	13 14 35	13.4	180.9	0.1		0.6	-11	562	No stop
00 44 20	---	13 17 05	13.4	181.5	0.1		1.0	139	581	00 41 51
00 44 20	J1311-2329	13 17 05	13.3	181.1	0.1		0.7	-11	581	No stop
00 45 50	---	13 18 36	13.3	181.4	0.1		0.9	79	592	00 44 21
00 45 50	EM170817	13 18 36	13.4	181.8	0.1		1.2	-11	592	No stop
00 48 20	---	13 21 06	13.4	182.4	0.2		1.6	139	612	00 45 51
00 48 50	J1311-2329	13 21 36	13.3	182.1	0.1		1.4	19	612	00 48 50
00 49 50	---	13 22 36	13.3	182.4	0.2		1.5	60	619	00 48 51
00 49 50	EM170817	13 22 36	13.4	182.8	0.2		1.8	-11	619	No stop
00 52 20	---	13 25 07	13.4	183.4	0.2		2.2	139	638	00 49 51

Schedule for TORUN (Code Tr) Page 5

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
00 52 20	J1311-2329	13 25 07	13.3	182.9	0.2		1.9	-11	638	No stop
00 53 50	---	13 26 37	13.2	183.3	0.2		2.2	79	650	00 52 21
00 53 50	J1312-2350	13 26 37	12.9	183.0	0.2		2.0	-12	650	No stop
00 56 20	---	13 29 07	12.9	183.6	0.3		2.4	138	669	00 53 51
00 57 00	J1311-2329	13 29 47	13.2	184.0	0.3		2.6	28	669	00 57 00
00 58 00	---	13 30 48	13.2	184.3	0.3		2.8	60	677	00 57 01
00 58 00	EM170817	13 30 48	13.3	184.7	0.3		3.1	-11	677	No stop
01 00 30	---	13 33 18	13.3	185.3	0.4		3.5	139	696	00 58 01
01 00 30	J1311-2329	13 33 18	13.2	184.9	0.3		3.2	-11	696	No stop
01 02 00	---	13 34 48	13.2	185.2	0.4		3.4	79	708	01 00 31
01 02 00	EM170817	13 34 48	13.2	185.7	0.4		3.7	-11	708	No stop
01 04 30	---	13 37 19	13.2	186.2	0.4		4.1	139	727	01 02 01
01 05 00	J1311-2329	13 37 49	13.1	185.9	0.4		3.9	19	727	01 05 00
01 06 00	---	13 38 49	13.1	186.2	0.4		4.0	60	735	01 05 01
01 06 00	EM170817	13 38 49	13.2	186.6	0.5		4.3	-11	735	No stop
01 08 30	---	13 41 19	13.1	187.2	0.5		4.7	139	754	01 06 01
01 08 30	J1311-2329	13 41 19	13.1	186.7	0.5		4.4	-11	754	No stop
01 10 00	---	13 42 50	13.0	187.1	0.5		4.6	79	765	01 08 31
01 10 00	J1312-2350	13 42 50	12.7	186.8	0.5		4.5	-12	765	No stop
01 12 30	---	13 45 20	12.7	187.4	0.5		4.8	138	785	01 10 01
01 12 30	J1311-2329	13 45 20	13.0	187.7	0.5		5.0	-12	785	No stop
01 14 00	---	13 46 50	12.9	188.0	0.6		5.3	78	796	01 12 31
01 14 00	J1303-2405	13 46 50	12.2	189.9	0.7		6.5	-17	796	No stop
01 16 30	---	13 49 21	12.1	190.5	0.8		6.9	133	815	01 14 01
01 17 10	J1311-2329	13 50 01	12.9	188.8	0.6		5.7	23	815	01 17 10
01 18 10	---	13 51 01	12.9	189.0	0.6		5.9	60	823	01 17 11
01 18 10	EM170817	13 51 01	12.9	189.5	0.7		6.2	-11	823	No stop
01 20 40	---	13 53 31	12.9	190.0	0.7		6.6	139	842	01 18 11
01 20 40	J1311-2329	13 53 31	12.8	189.6	0.7		6.3	-11	842	No stop
01 22 10	---	13 55 02	12.8	190.0	0.7		6.5	79	854	01 20 41

Schedule for TORUN (Code Tr) Page 6

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
01 22 10	EM170817	13 55 02	12.8	190.4	0.7		6.8	-11	854	No stop
01 24 40	---	13 57 32	12.8	191.0	0.8		7.2	139	873	01 22 11
01 25 10	J1311-2329	13 58 02	12.7	190.7	0.8		7.0	19	873	01 25 10
01 26 10	---	13 59 02	12.6	190.9	0.8		7.1	60	881	01 25 11
01 26 10	EM170817	13 59 02	12.7	191.3	0.8		7.4	-11	881	No stop
01 28 40	---	14 01 33	12.6	191.9	0.8		7.8	139	900	01 26 11
01 28 40	J1311-2329	14 01 33	12.6	191.5	0.8		7.5	-11	900	No stop
01 30 10	---	14 03 03	12.5	191.8	0.8		7.7	79	912	01 28 41
01 30 10	J1312-2350	14 03 03	12.2	191.5	0.8		7.5	-11	912	No stop
01 32 40	---	14 05 33	12.1	192.1	0.9		7.9	139	931	01 30 11
01 33 20	J1311-2329	14 06 13	12.4	192.6	0.9		8.2	29	931	01 33 20
01 34 20	---	14 07 14	12.4	192.8	0.9		8.3	60	938	01 33 21
01 34 20	EM170817	14 07 14	12.5	193.2	0.9		8.6	-11	938	No stop
01 36 50	---	14 09 44	12.4	193.8	1.0		9.0	139	958	01 34 21
01 36 50	J1311-2329	14 09 44	12.3	193.4	1.0		8.7	-11	958	No stop
01 38 20	---	14 11 14	12.3	193.7	1.0		8.9	79	969	01 36 51
01 38 20	EM170817	14 11 14	12.3	194.2	1.0		9.2	-11	969	No stop
01 40 50	---	14 13 45	12.2	194.7	1.0		9.6	139	988	01 38 21
01 41 20	J1311-2329	14 14 15	12.1	194.4	1.0		9.4	19	988	01 41 20
01 42 20	---	14 15 15	12.1	194.7	1.0		9.5	60	996	01 41 21
01 42 20	EM170817	14 15 15	12.2	195.1	1.1		9.8	-11	996	No stop
01 44 50	---	14 17 45	12.1	195.7	1.1		10.2	139	1015	01 42 21
01 44 50	J1311-2329	14 17 45	12.0	195.2	1.1		9.9	-11	1015	No stop
01 46 20	---	14 19 16	12.0	195.6	1.1		10.1	79	1027	01 44 51
01 46 20	J1312-2350	14 19 16	11.7	195.2	1.1		9.9	-11	1027	No stop
01 48 50	---	14 21 46	11.6	195.8	1.1		10.3	139	1046	01 46 21
01 48 50	J1311-2329	14 21 46	11.9	196.2	1.2		10.5	-11	1046	No stop
01 50 20	---	14 23 16	11.8	196.5	1.2		10.7	79	1058	01 48 51
01 50 20	J1303-2405	14 23 16	10.8	198.3	1.3		11.9	-17	1058	No stop
01 52 50	---	14 25 47	10.7	198.9	1.4		12.3	133	1077	01 50 21

Schedule for TORUN (Code Tr) Page 7

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
01 53 30	J1311-2329	14 26 27	11.6	197.2	1.2		11.2	23	1077	01 53 30
01 54 30	---	14 27 27	11.6	197.5	1.2		11.3	60	1085	01 53 31
01 55 40	J1337-1257	14 28 37	23.0	193.2	0.8		8.1	13	1085	01 55 40
01 58 40	=1334-127	14 31 38	22.9	194.0	0.9		8.6	180	1108	01 55 41
01 59 50	J1311-2329	14 32 48	11.4	198.7	1.3		12.1	13	1108	01 59 50
02 01 50	---	14 34 48	11.3	199.1	1.4		12.4	120	1123	01 59 51
02 01 50	EM170817	14 34 48	11.3	199.6	1.4		12.7	-11	1123	No stop
02 04 20	---	14 37 18	11.2	200.2	1.4		13.0	139	1142	02 01 51
02 04 20	J1311-2329	14 37 18	11.1	199.7	1.4		12.8	-11	1142	No stop
02 05 50	---	14 38 49	11.1	200.1	1.4		13.0	79	1154	02 04 21
02 05 50	EM170817	14 38 49	11.1	200.5	1.5		13.3	-11	1154	No stop
02 08 20	---	14 41 19	10.9	201.1	1.5		13.6	139	1173	02 05 51
02 08 50	J1311-2329	14 41 49	10.9	200.7	1.5		13.4	19	1173	02 08 50
02 09 50	---	14 42 49	10.8	201.0	1.5		13.6	60	1181	02 08 51
02 09 50	EM170817	14 42 49	10.9	201.4	1.5		13.8	-11	1181	No stop
02 12 20	---	14 45 20	10.7	202.0	1.6		14.2	139	1200	02 09 51
02 12 20	J1311-2329	14 45 20	10.7	201.5	1.5		13.9	-11	1200	No stop
02 13 50	---	14 46 50	10.6	201.9	1.6		14.1	79	1212	02 12 21
02 13 50	J1312-2350	14 46 50	10.4	201.5	1.6		13.9	-11	1212	No stop
02 16 20	---	14 49 20	10.2	202.1	1.6		14.3	139	1231	02 13 51
02 17 00	J1311-2329	14 50 01	10.4	202.6	1.6		14.6	29	1231	02 17 00
02 18 00	---	14 51 01	10.4	202.8	1.6		14.7	60	1238	02 17 01
02 18 00	EM170817	14 51 01	10.4	203.3	1.7		15.0	-11	1238	No stop
02 20 30	---	14 53 31	10.2	203.8	1.7		15.3	139	1258	02 18 01
02 20 30	J1311-2329	14 53 31	10.2	203.4	1.7		15.1	-11	1258	No stop
02 22 00	---	14 55 01	10.1	203.7	1.7		15.3	79	1269	02 20 31
02 22 00	EM170817	14 55 01	10.2	204.2	1.7		15.5	-11	1269	No stop
02 24 30	---	14 57 32	10.0	204.7	1.8		15.9	139	1288	02 22 01
02 25 00	J1311-2329	14 58 02	10.0	204.4	1.8		15.7	19	1288	02 25 00
02 26 00	---	14 59 02	9.9	204.6	1.8		15.8	60	1296	02 25 01

Schedule for TORUN (Code Tr) Page 8

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 12 Mar 2018 Day 71 ---										
02 26 00	EM170817	14 59 02	9.9	205.1	1.8		16.1	-11	1296	No stop
02 28 30	---	15 01 32	9.7	205.6	1.8		16.4	139	1315	02 26 01
02 28 30	J1311-2329	15 01 32	9.7	205.2	1.8		16.2	-11	1315	No stop
02 30 00	---	15 03 03	9.6	205.5	1.8		16.4	79	1327	02 28 31
02 30 00	J1312-2350	15 03 03	9.4	205.2	1.8		16.2	-11	1327	No stop
02 32 30	---	15 05 33	9.2	205.7	1.9		16.6	139	1346	02 30 01
02 32 30	J1311-2329	15 05 33	9.5	206.1	1.9		16.7	-11	1346	No stop
02 34 00	---	15 07 03	9.4	206.4	1.9		16.9	79	1358	02 32 31
02 34 00	J1303-2405	15 07 03	8.3	208.1	2.0		18.0	-17	1358	No stop
02 36 30	---	15 09 34	8.1	208.6	2.1		18.4	133	1377	02 34 01
02 37 10	J1311-2329	15 10 14	9.2	207.1	2.0		17.4	23	1377	02 37 10
02 38 10	---	15 11 14	9.1	207.3	2.0		17.5	60	1385	02 37 11
02 38 10	EM170817	15 11 14	9.1	207.8	2.0		17.8	-11	1385	No stop
02 40 40	---	15 13 44	8.9	208.3	2.0		18.1	139	1404	02 38 11
02 40 40	J1311-2329	15 13 44	8.9	207.9	2.0		17.8	-11	1404	No stop
02 42 10	---	15 15 15	8.8	208.2	2.0		18.0	79	1415	02 40 41
02 42 10	EM170817	15 15 15	8.8	208.7	2.1		18.3	-11	1415	No stop
02 44 40	---	15 17 45	8.6	209.2	2.1		18.6	139	1435	02 42 11
02 45 10	J1311-2329	15 18 15	8.6	208.9	2.1		18.5	19	1435	02 45 10
02 46 10	---	15 19 15	8.5	209.1	2.1		18.6	60	1442	02 45 11
02 46 10	EM170817	15 19 15	8.5	209.5	2.1		18.8	-11	1442	No stop
02 48 40	---	15 21 46	8.3	210.1	2.2		19.2	139	1462	02 46 11
02 48 40	J1311-2329	15 21 46	8.3	209.7	2.2		18.9	-11	1462	No stop
02 50 10	---	15 23 16	8.2	210.0	2.2		19.1	79	1473	02 48 41
02 50 10	J1312-2350	15 23 16	8.0	209.6	2.2		18.9	-11	1473	No stop
02 52 40	---	15 25 46	7.8	210.2	2.2		19.3	139	1492	02 50 11
02 53 20	J1311-2329	15 26 27	8.0	210.7	2.2		19.5	29	1492	02 53 20
02 54 20	---	15 27 27	7.9	210.9	2.2		19.7	60	1500	02 53 21
02 54 20	EM170817	15 27 27	7.9	211.3	2.3		19.9	-11	1500	No stop
02 56 50	---	15 29 57	7.7	211.9	2.3		20.2	139	1519	02 54 21

Schedule for TORUN (Code Tr) Page 9

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 12 Mar 2018 Day 71 ---										
02 56 50	J1311-2329	15 29 57	7.7	211.4	2.3		20.0	-11	1519	No stop
02 58 20	---	15 31 27	7.6	211.8	2.3		20.2	79	1531	02 56 51
02 58 20	EM170817	15 31 27	7.6	212.2	2.3		20.4	-11	1531	No stop
03 00 50	---	15 33 58	7.4	212.7	2.4		20.7	139	1550	02 58 21
03 01 20	J1311-2329	15 34 28	7.4	212.4	2.4		20.6	19	1550	03 01 20
03 02 20	---	15 35 28	7.3	212.6	2.4		20.7	60	1558	03 01 21
03 02 20	EM170817	15 35 28	7.2	213.1	2.4		20.9	-11	1558	No stop
03 04 50	---	15 37 58	7.0	213.6	2.5		21.2	139	1577	03 02 21
03 04 50	J1311-2329	15 37 58	7.1	213.2	2.4		21.0	-11	1577	No stop
03 06 20	---	15 39 29	7.0	213.5	2.4		21.2	79	1588	03 04 51
03 06 20	J1312-2350	15 39 29	6.7	213.1	2.4		21.0	-11	1588	No stop
03 08 50	---	15 41 59	6.5	213.7	2.5		21.4	139	1608	03 06 21
03 08 50	J1311-2329	15 41 59	6.7	214.0	2.5		21.5	-11	1608	No stop
03 10 20	---	15 43 29	6.6	214.4	2.5		21.7	79	1619	03 08 51
03 10 20	J1303-2405	15 43 29	5.4	215.9	2.7		22.7	-18	1619	No stop
03 12 50	---	15 46 00	5.1	216.4	2.7		23.0	132	1638	03 10 21
03 13 30	J1311-2329	15 46 40	6.3	215.0	2.6		22.1	22	1638	03 13 30
03 14 30	---	15 47 40	6.3	215.3	2.6		22.2	60	1646	03 13 31
03 14 30	EM170817	15 47 40	6.2	215.7	2.6		22.5	-11	1646	No stop
03 17 00	---	15 50 10	6.0	216.2	2.7		22.8	139	1665	03 14 31
03 17 00	J1311-2329	15 50 10	6.0	215.8	2.6		22.5	-11	1665	No stop
03 18 30	---	15 51 41	5.9	216.1	2.7		22.7	79	1677	03 17 01
03 18 30	EM170817	15 51 41	5.9	216.5	2.7		22.9	-11	1677	No stop
03 21 00	---	15 54 11	5.6	217.1	2.7		23.2	139	1696	03 18 31
03 21 30	J1311-2329	15 54 41	5.6	216.7	2.7		23.1	19	1696	03 21 30
03 22 30	---	15 55 41	5.5	217.0	2.7		23.2	60	1704	03 21 31
03 22 30	EM170817	15 55 41	5.5	217.4	2.7		23.4	-11	1704	No stop
03 25 00	---	15 58 12	5.3	217.9	2.8		23.7	139	1723	03 22 31
03 25 00	J1311-2329	15 58 12	5.3	217.5	2.8		23.5	-11	1723	No stop
03 26 30	---	15 59 42	5.2	217.8	2.8		23.7	79	1735	03 25 01

Schedule for TORUN (Code Tr) Page 10

BNS merger counterpart

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
03 26 30	J1312-2350	15 59 42	5.0	217.4	2.8		23.5	-10	1735	No stop
03 29 00	---	16 02 12	4.7	217.9	2.8		23.8	140	1754	03 26 31
03 29 40	J1311-2329	16 02 53	4.9	218.5	2.8		24.1	29	1754	03 29 40
03 30 40	---	16 03 53	4.8	218.7	2.9		24.2	60	1762	03 29 41
03 30 40	EM170817	16 03 53	4.7	219.1	2.9		24.4	-11	1762	No stop
03 33 10	---	16 06 23	4.5	219.6	2.9		24.7	139	1781	03 30 41
03 33 10	J1311-2329	16 06 23	4.6	219.2	2.9		24.5	-11	1781	No stop
03 34 40	---	16 07 53	4.4	219.5	2.9		24.6	79	1792	03 33 11
03 34 40	EM170817	16 07 53	4.3	220.0	3.0		24.9	-11	1792	No stop
03 37 10	---	16 10 24	4.1	220.5	3.0		25.1	139	1812	03 34 41
03 37 40	J1311-2329	16 10 54	4.1	220.1	3.0		25.0	19	1812	03 37 40
03 38 40	---	16 11 54	4.0	220.4	3.0		25.1	60	1819	03 37 41
03 38 40	EM170817	16 11 54	4.0	220.8	3.0		25.3	-11	1819	No stop
03 41 10	---	16 14 24	3.7	221.3	3.1		25.6	139	1838	03 38 41
03 41 10	J1311-2329	16 14 24	3.8	220.9	3.0		25.4	-11	1838	No stop
03 42 40	---	16 15 55	3.6	221.2	3.1		25.6	79	1850	03 41 11
03 42 40	J1312-2350	16 15 55	3.4	220.8	3.0		25.4	-10	1850	No stop
03 45 10	---	16 18 25	3.2	221.3	3.1		25.7	140	1869	03 42 41
03 45 10	J1311-2329	16 18 25	3.4	221.7	3.1		25.8	-11	1869	No stop
03 46 40	---	16 19 55	3.2	222.0	3.1		26.0	79	1881	03 45 11
04 00 10	J1337-1257	16 33 28	14.0	223.9	2.9		25.3	751	1881	04 00 10
04 03 10	=1334-127	16 36 28	13.7	224.6	3.0		25.7	180	1904	04 00 11

SETUP FILE INFORMATION:
NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

======== Setup file: sess118.C2048glob

Setup group: 29 Station: TORUN Total bit rate: 1024
Format: MARK5B Bits per sample: 2 Sample rate: 64.000
Number of channels: 8 DBE type: DBBC_DDC Speedup factor: 1.00

Disk used to record data.

```
  1st LO=   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00   4200.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:  19  Setup file default.  Used with PCAL = off
  LO sum=   4900.00  4900.00  4900.00  4900.00  4964.00  4964.00  4964.00  4964.00
  BBC fr=    700.00   700.00   700.00   700.00   764.00   764.00   764.00   764.00
  Bandwd=     32.00    32.00    32.00    32.00    32.00    32.00    32.00    32.00
   Matching frequency sets:  19

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* EM170817          13 07 05.876058   * 13 09 48.089000     13 10 47.788605       0.00
                   -23 06 55.47686    *-23 22 53.35000     -23 28 38.30163        0.00

* J1303-2405        13 00 37.951987   * 13 03 19.646900     13 04 19.193675       0.00
                   -23 48 57.23719    *-24 05 03.05600     -24 10 51.14860        0.00

* J1312-2350        13 10 05.987814   * 13 12 48.758100     13 13 48.658933       0.00
                   -23 34 53.02797    *-23 50 46.95300     -23 56 30.19216        0.00

* J1311-2329        13 08 54.934098   * 13 11 37.413987     13 12 37.206648       0.00
                   -23 14 01.14446    *-23 29 56.64651     -23 35 40.60279        0.00

  1256-229          12 56 27.604314   * 12 59 08.462031     13 00 07.699580       0.09
* J1259-2310       -22 54 28.11906    *-23 10 38.65427     -23 16 28.89761        0.21
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    244 observations.

* 3C286             13 28 49.657758   * 13 31 08.288051     13 31 59.000385       0.18
  J1331+3030        30 45 58.64059    * 30 30 32.95924      30 24 51.51461        0.17
  1328+307          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1331+30          GSFC 2015a astro solution, unpublished    225 observations.

  1334-127          13 34 59.803873   * 13 37 39.782778     13 38 38.411011       0.00
* J1337-1257       -12 42 09.74301    *-12 57 24.69328     -13 02 54.87645        0.00
  J1337-12          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished  91811 observations.
```

n18k1tr

Network Monitoring Experiment

PI: *Jay Blanchard*

Address: JIVE

Schedule for TORUN (Code Tr) Page 2

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

--- Mon 12 Mar 2018 Day 71 ---

Start UT / Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
Next scan frequencies:			22203.49	22203.49	22203.49	22203.49	22267.49	22267.49	22267.49	22267.4
Next BBC frequencies:			703.49	703.49	703.49	703.49	767.49	767.49	767.49	767.4
Next scan bandwidths:			32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.0
13 00 00	0234+285	01 34 46	63.1	147.7	-1.1		-21.5	0	0	13 00 00
13 15 00	---	01 49 49	64.2	154.7	-0.8		-17.0	900	115	13 00 01
13 17 00	0234+285	01 51 49	64.3	155.7	-0.8		-16.4	113	115	13 17 00
13 30 00	---	02 04 51	65.0	162.1	-0.6		-12.1	780	215	13 17 01
13 32 00	0234+285	02 06 51	65.1	163.2	-0.5		-11.5	113	215	13 32 00
13 45 00	---	02 19 54	65.5	169.9	-0.3		-6.9	780	315	13 32 01
13 47 00	DA193	02 21 54	51.7	88.1	-3.6		-51.4	-58	315	13 47 00
14 00 00	---	02 34 56	53.7	90.6	-3.4		-51.4	722	415	13 47 01
14 02 00	DA193	02 36 56	54.0	91.0	-3.3		-51.4	114	415	14 02 00
14 15 00	---	02 49 59	55.9	93.8	-3.1		-51.3	780	515	14 02 01
14 17 00	DA193	02 51 59	56.2	94.2	-3.1		-51.2	114	515	14 17 00
14 30 00	---	03 05 01	58.2	97.1	-2.9		-50.9	780	615	14 17 01
14 32 00	DA193	03 07 01	58.5	97.6	-2.8		-50.8	114	615	14 32 00
14 45 00	---	03 20 03	60.4	100.7	-2.6		-50.2	780	715	14 32 01
14 47 00	0454+039	03 22 04	37.1	149.5	-1.6		-17.8	7	715	14 47 00
15 00 00	---	03 35 06	38.1	153.4	-1.4		-15.6	780	815	14 47 01
15 02 00	0454+039	03 37 06	38.2	154.1	-1.3		-15.3	113	815	15 02 00
15 15 00	---	03 50 08	39.0	158.1	-1.1		-13.0	780	915	15 02 01
15 17 00	0528+134	03 52 09	45.8	144.0	-1.7		-21.3	76	915	15 17 00
15 30 00	---	04 05 11	46.9	148.3	-1.4		-18.9	780	1015	15 17 01
15 32 00	0528+134	04 07 11	47.0	149.0	-1.4		-18.6	113	1015	15 32 00
15 45 00	---	04 20 13	48.0	153.4	-1.2		-16.0	780	1115	15 32 01
15 47 00	0528+134	04 22 14	48.1	154.1	-1.2		-15.6	113	1115	15 47 00
16 00 00	---	04 35 16	48.9	158.8	-0.9		-12.9	780	1215	15 47 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

```
======== Setup file: sess118.K1024nme

  Setup group:   14         Station: TORUN            Total bit rate:  1024
  Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
  Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

  Disk used to record data.

  1st LO=  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.49
  BBC fr=     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.49
  Bandwd=      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* 0234+285          02 34 55.589590   * 02 37 52.405677     02 38 55.251536       0.00
  J0237+2848        28 35 11.40776    * 28 48 08.99001      28 52 42.37045        0.00
  J0237+28          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished  54650 observations.

* 0454+039          04 54 08.968859   * 04 56 47.174717     04 57 43.880312       0.22
  J0456+0400        03 56 14.46649    * 04 00 52.94701      04 02 17.87570        0.42
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    144 observations.

* 0528+134          05 28 06.759216   * 05 30 56.416747     05 31 57.421250       0.21
  J0530+1331        13 29 42.28885    * 13 31 55.14952      13 32 30.66110        0.24
  J0530+13          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished 135789 observations.

  0552+398          05 52 01.407169   * 05 55 30.805611     05 56 46.257878       0.00
  J0555+3948        39 48 21.94581    * 39 48 49.16496      39 48 55.19860        0.00
* DA193             /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J0555+39          GSFC 2015a astro solution, unpublished 394383 observations.
```

rp030ctr

GRB171205A AT 1 GB/S - K BAND

PI: *Miguel A. Perez-Torres*

```
Address:  IAA - CSIC

Observing mode: 1024 Mbps
Schedule for TORUN     (Code Tr )                                  Page   2
               GRB171205A at 1 Gb/s - K band
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------
 --- Mon  12 Mar 2018   Day  71 ---
 Next scan frequencies:  22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.4
 Next BBC frequencies:     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.4
 Next scan bandwidths:      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.0

19 30 00  J0927+3902   08 05 50  70.0 126.8 -1.4     -38.2     0        0   19 30 00
19 34 00  =0923+392    08 09 51  70.5 128.6 -1.3     -37.1   240       31   19 30 01

19 38 00  J1118-1232   08 13 52  13.3 133.5 -3.1     -26.5    11       31   19 38 00
19 42 00  ---          08 17 52  13.7 134.4 -3.0     -26.1   240       62   19 38 01

19 42 00  GRB171205A   08 17 52  14.6 136.4 -2.9     -25.1   -18       62   No stop
19 43 00  ---          08 18 52  14.7 136.6 -2.9     -25.0    42       69   19 42 01

19 43 00  J1118-1232   08 18 52  13.8 134.6 -3.0     -26.0   -17       69   No stop
19 44 00  ---          08 19 53  13.9 134.9 -3.0     -25.9    43       77   19 43 01

19 44 00  GRB171205A   08 19 53  14.8 136.8 -2.8     -24.9   -18       77   No stop
19 45 00  ---          08 20 53  14.9 137.1 -2.8     -24.8    42       85   19 44 01

19 45 00  J1118-1232   08 20 53  14.0 135.1 -3.0     -25.7   -17       85   No stop
19 46 00  ---          08 21 53  14.1 135.3 -3.0     -25.6    43       92   19 45 01

19 46 00  GRB171205A   08 21 53  15.0 137.3 -2.8     -24.7   -18       92   No stop
19 47 00  ---          08 22 53  15.1 137.5 -2.8     -24.6    42      100   19 46 01

19 47 00  J1118-1232   08 22 53  14.2 135.6 -2.9     -25.5   -17      100   No stop
19 48 00  ---          08 23 53  14.3 135.8 -2.9     -25.4    43      108   19 47 01

19 48 00  GRB171205A   08 23 53  15.2 137.8 -2.8     -24.4   -18      108   No stop
19 49 00  ---          08 24 53  15.3 138.0 -2.8     -24.3    42      115   19 48 01

19 49 00  J1118-1232   08 24 53  14.4 136.0 -2.9     -25.3   -17      115   No stop
19 50 00  ---          08 25 54  14.5 136.2 -2.9     -25.2    43      123   19 49 01

19 50 00  GRB171205A   08 25 54  15.4 138.2 -2.7     -24.2   -18      123   No stop
19 51 00  ---          08 26 54  15.5 138.5 -2.7     -24.1    42      131   19 50 01

19 51 00  J1118-1232   08 26 54  14.6 136.5 -2.9     -25.1   -17      131   No stop
19 52 00  ---          08 27 54  14.7 136.7 -2.9     -25.0    43      138   19 51 01

19 52 00  GRB171205A   08 27 54  15.6 138.7 -2.7     -24.0   -18      138   No stop
19 53 00  ---          08 28 54  15.7 138.9 -2.7     -23.9    42      146   19 52 01
```

Schedule for TORUN (Code Tr) Page 3

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 12 Mar 2018 Day 71 ---										
19 53 40	J1118-1232	08 29 34	14.9	137.1	-2.8		-24.8	22	146	19 53 40
19 54 20	---	08 30 14	15.0	137.2	-2.8		-24.7	40	151	19 53 41
19 54 20	GRB171205A	08 30 14	15.8	139.2	-2.7		-23.7	-18	151	No stop
19 55 20	---	08 31 14	15.9	139.5	-2.7		-23.6	42	159	19 54 21
19 55 20	J1118-1232	08 31 14	15.1	137.5	-2.8		-24.6	-18	159	No stop
19 56 20	---	08 32 15	15.2	137.7	-2.8		-24.5	42	167	19 55 21
19 56 20	GRB171205A	08 32 15	16.0	139.7	-2.6		-23.5	-18	167	No stop
19 57 20	---	08 33 15	16.1	139.9	-2.6		-23.3	42	174	19 56 21
19 57 20	J1118-1232	08 33 15	15.3	137.9	-2.8		-24.4	-18	174	No stop
19 58 20	---	08 34 15	15.4	138.2	-2.7		-24.2	42	182	19 57 21
19 58 20	GRB171205A	08 34 15	16.2	140.2	-2.6		-23.2	-18	182	No stop
19 59 20	---	08 35 15	16.3	140.4	-2.6		-23.1	42	190	19 58 21
19 59 20	J1118-1232	08 35 15	15.5	138.4	-2.7		-24.1	-18	190	No stop
20 00 20	---	08 36 15	15.6	138.6	-2.7		-24.0	42	197	19 59 21
20 00 20	GRB171205A	08 36 15	16.4	140.6	-2.6		-23.0	-18	197	No stop
20 01 20	---	08 37 15	16.5	140.9	-2.6		-22.9	42	205	20 00 21
20 01 20	J1118-1232	08 37 15	15.7	138.8	-2.7		-23.9	-18	205	No stop
20 02 20	---	08 38 16	15.8	139.1	-2.7		-23.8	42	213	20 01 21
20 02 20	GRB171205A	08 38 16	16.6	141.1	-2.5		-22.7	-18	213	No stop
20 03 20	---	08 39 16	16.7	141.3	-2.5		-22.6	42	221	20 02 21
20 03 20	J1118-1232	08 39 16	15.9	139.3	-2.7		-23.7	-18	221	No stop
20 04 20	---	08 40 16	16.0	139.5	-2.6		-23.5	42	228	20 03 21
20 04 20	GRB171205A	08 40 16	16.8	141.6	-2.5		-22.5	-18	228	No stop
20 05 20	---	08 41 16	16.9	141.8	-2.5		-22.4	42	236	20 04 21
20 06 00	J1118-1232	08 41 56	16.2	139.9	-2.6		-23.3	22	236	20 06 00
20 06 40	---	08 42 36	16.2	140.1	-2.6		-23.3	40	241	20 06 01
20 06 40	GRB171205A	08 42 36	17.0	142.1	-2.5		-22.2	-18	241	No stop
20 07 40	---	08 43 36	17.1	142.4	-2.4		-22.1	42	249	20 06 41
20 07 40	J1118-1232	08 43 36	16.3	140.3	-2.6		-23.1	-18	249	No stop
20 08 40	---	08 44 37	16.4	140.6	-2.6		-23.0	42	256	20 07 41
20 08 40	GRB171205A	08 44 37	17.2	142.6	-2.4		-21.9	-18	256	No stop
20 09 40	---	08 45 37	17.3	142.8	-2.4		-21.8	42	264	20 08 41

Schedule for TORUN (Code Tr) Page 4

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
20 09 40	J1118-1232	08 45 37	16.5	140.8	-2.6		-22.9	-18	264	No stop
20 10 40	---	08 46 37	16.6	141.0	-2.5		-22.8	42	272	20 09 41
20 10 40	GRB171205A	08 46 37	17.4	143.1	-2.4		-21.7	-18	272	No stop
20 11 40	---	08 47 37	17.4	143.3	-2.4		-21.6	42	279	20 10 41
20 11 40	J1118-1232	08 47 37	16.7	141.3	-2.5		-22.6	-18	279	No stop
20 12 40	---	08 48 37	16.8	141.5	-2.5		-22.5	42	287	20 11 41
20 12 40	GRB171205A	08 48 37	17.5	143.6	-2.4		-21.4	-18	287	No stop
20 13 40	---	08 49 37	17.6	143.8	-2.3		-21.3	42	295	20 12 41
20 13 40	J1118-1232	08 49 37	16.9	141.7	-2.5		-22.4	-18	295	No stop
20 14 40	---	08 50 38	17.0	142.0	-2.5		-22.3	42	303	20 13 41
20 14 40	GRB171205A	08 50 38	17.7	144.0	-2.3		-21.2	-18	303	No stop
20 15 40	---	08 51 38	17.8	144.3	-2.3		-21.1	42	310	20 14 41
20 15 40	J1118-1232	08 51 38	17.1	142.2	-2.5		-22.2	-18	310	No stop
20 16 40	---	08 52 38	17.2	142.4	-2.4		-22.0	42	318	20 15 41
20 16 40	GRB171205A	08 52 38	17.9	144.5	-2.3		-20.9	-18	318	No stop
20 17 40	---	08 53 38	18.0	144.8	-2.3		-20.8	42	326	20 16 41
20 18 20	J1118-1232	08 54 18	17.3	142.8	-2.4		-21.8	22	326	20 18 20
20 19 00	---	08 54 58	17.4	143.0	-2.4		-21.7	40	331	20 18 21
20 19 00	GRB171205A	08 54 58	18.1	145.1	-2.3		-20.6	-18	331	No stop
20 20 00	---	08 55 58	18.2	145.3	-2.2		-20.5	42	338	20 19 01
20 20 00	J1118-1232	08 55 58	17.5	143.2	-2.4		-21.6	-18	338	No stop
20 21 00	---	08 56 59	17.6	143.5	-2.4		-21.5	42	346	20 20 01
20 21 00	GRB171205A	08 56 59	18.3	145.6	-2.2		-20.4	-18	346	No stop
20 22 00	---	08 57 59	18.4	145.8	-2.2		-20.2	42	354	20 21 01
20 22 00	J1118-1232	08 57 59	17.6	143.7	-2.4		-21.4	-18	354	No stop
20 23 00	---	08 58 59	17.7	144.0	-2.3		-21.2	42	362	20 22 01
20 23 00	GRB171205A	08 58 59	18.4	146.0	-2.2		-20.1	-18	362	No stop
20 24 00	---	08 59 59	18.5	146.3	-2.2		-20.0	42	369	20 23 01
20 24 00	J1118-1232	08 59 59	17.8	144.2	-2.3		-21.1	-18	369	No stop
20 25 00	---	09 00 59	17.9	144.4	-2.3		-21.0	42	377	20 24 01

Schedule for TORUN (Code Tr) Page 5

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
20 25 00	GRB171205A	09 00 59	18.6	146.5	-2.2		-19.8	-18	377	No stop
20 26 00	---	09 01 59	18.7	146.8	-2.1		-19.7	42	385	20 25 01
20 26 00	J1118-1232	09 01 59	18.0	144.7	-2.3		-20.8	-18	385	No stop
20 27 00	---	09 03 00	18.1	144.9	-2.3		-20.7	42	392	20 26 01
20 27 00	GRB171205A	09 03 00	18.8	147.0	-2.1		-19.6	-18	392	No stop
20 28 00	---	09 04 00	18.8	147.3	-2.1		-19.4	42	400	20 27 01
20 28 00	J1118-1232	09 04 00	18.2	145.2	-2.3		-20.6	-18	400	No stop
20 29 00	---	09 05 00	18.3	145.4	-2.2		-20.5	42	408	20 28 01
20 29 00	GRB171205A	09 05 00	18.9	147.5	-2.1		-19.3	-18	408	No stop
20 30 00	---	09 06 00	19.0	147.7	-2.1		-19.2	42	415	20 29 01
20 30 40	J1118-1232	09 06 40	18.4	145.8	-2.2		-20.2	22	415	20 30 40
20 31 20	---	09 07 20	18.4	146.0	-2.2		-20.1	40	421	20 30 41
20 31 20	GRB171205A	09 07 20	19.1	148.1	-2.1		-19.0	-18	421	No stop
20 32 20	---	09 08 21	19.2	148.3	-2.0		-18.9	42	428	20 31 21
20 32 20	J1118-1232	09 08 21	18.5	146.2	-2.2		-20.0	-18	428	No stop
20 33 20	---	09 09 21	18.6	146.4	-2.2		-19.9	42	436	20 32 21
20 33 20	GRB171205A	09 09 21	19.3	148.6	-2.0		-18.7	-18	436	No stop
20 34 20	---	09 10 21	19.4	148.8	-2.0		-18.6	42	444	20 33 21
20 34 20	J1118-1232	09 10 21	18.7	146.7	-2.1		-19.8	-18	444	No stop
20 35 20	---	09 11 21	18.8	146.9	-2.1		-19.6	42	451	20 34 21
20 35 20	GRB171205A	09 11 21	19.4	149.1	-2.0		-18.5	-18	451	No stop
20 36 20	---	09 12 21	19.5	149.3	-2.0		-18.3	42	459	20 35 21
20 36 20	J1118-1232	09 12 21	18.9	147.2	-2.1		-19.5	-18	459	No stop
20 37 20	---	09 13 21	18.9	147.4	-2.1		-19.4	42	467	20 36 21
20 37 20	GRB171205A	09 13 21	19.6	149.5	-2.0		-18.2	-18	467	No stop
20 38 20	---	09 14 21	19.7	149.8	-1.9		-18.0	42	474	20 37 21
20 38 20	J1118-1232	09 14 21	19.0	147.7	-2.1		-19.2	-18	474	No stop
20 39 20	---	09 15 22	19.1	147.9	-2.1		-19.1	42	482	20 38 21
20 39 20	GRB171205A	09 15 22	19.7	150.0	-1.9		-17.9	-18	482	No stop
20 40 20	---	09 16 22	19.8	150.3	-1.9		-17.8	42	490	20 39 21

Schedule for TORUN (Code Tr) Page 6

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
20 40 20	J1118-1232	09 16 22	19.2	148.2	-2.0		-18.9	-18	490	No stop
20 41 20	---	09 17 22	19.3	148.4	-2.0		-18.8	42	497	20 40 21
20 41 20	GRB171205A	09 17 22	19.9	150.5	-1.9		-17.6	-18	497	No stop
20 42 20	---	09 18 22	20.0	150.8	-1.9		-17.5	42	505	20 41 21
20 43 00	J1118-1232	09 19 02	19.4	148.8	-2.0		-18.6	22	505	20 43 00
20 43 40	---	09 19 42	19.4	149.0	-2.0		-18.5	40	510	20 43 01
20 43 40	GRB171205A	09 19 42	20.1	151.1	-1.8		-17.3	-18	510	No stop
20 44 40	---	09 20 43	20.1	151.4	-1.8		-17.2	42	518	20 43 41
20 44 40	J1118-1232	09 20 43	19.5	149.2	-2.0		-18.4	-18	518	No stop
20 45 40	---	09 21 43	19.6	149.5	-2.0		-18.2	42	526	20 44 41
20 45 40	GRB171205A	09 21 43	20.2	151.6	-1.8		-17.0	-18	526	No stop
20 46 40	---	09 22 43	20.3	151.9	-1.8		-16.9	42	533	20 45 41
20 46 40	J1118-1232	09 22 43	19.7	149.7	-1.9		-18.1	-18	533	No stop
20 47 40	---	09 23 43	19.8	150.0	-1.9		-17.9	42	541	20 46 41
20 47 40	GRB171205A	09 23 43	20.3	152.1	-1.8		-16.7	-18	541	No stop
20 48 40	---	09 24 43	20.4	152.4	-1.8		-16.6	42	549	20 47 41
20 48 40	J1118-1232	09 24 43	19.8	150.2	-1.9		-17.8	-18	549	No stop
20 49 40	---	09 25 43	19.9	150.5	-1.9		-17.7	42	556	20 48 41
20 49 40	GRB171205A	09 25 43	20.5	152.6	-1.7		-16.4	-18	556	No stop
20 50 40	---	09 26 44	20.6	152.9	-1.7		-16.3	42	564	20 49 41
20 50 40	J1118-1232	09 26 44	20.0	150.7	-1.9		-17.5	-18	564	No stop
20 51 40	---	09 27 44	20.0	151.0	-1.9		-17.4	42	572	20 50 41
20 51 40	GRB171205A	09 27 44	20.6	153.1	-1.7		-16.2	-18	572	No stop
20 52 40	---	09 28 44	20.7	153.4	-1.7		-16.0	42	579	20 51 41
20 52 40	J1118-1232	09 28 44	20.1	151.2	-1.8		-17.2	-18	579	No stop
20 53 40	---	09 29 44	20.2	151.4	-1.8		-17.1	42	587	20 52 41
20 53 40	GRB171205A	09 29 44	20.8	153.6	-1.7		-15.9	-18	587	No stop
20 54 40	---	09 30 44	20.8	153.9	-1.7		-15.7	42	595	20 53 41
20 55 20	J1118-1232	09 31 24	20.3	151.9	-1.8		-16.9	22	595	20 55 20
20 56 00	---	09 32 04	20.4	152.0	-1.8		-16.8	40	600	20 55 21

Schedule for TORUN (Code Tr) Page 7

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
20 56 00	GRB171205A	09 32 04	20.9	154.2	-1.6		-15.5	-18	600	No stop
20 57 00	---	09 33 05	21.0	154.5	-1.6		-15.4	42	608	20 56 01
20 57 00	J1118-1232	09 33 05	20.4	152.3	-1.8		-16.6	-18	608	No stop
20 58 00	---	09 34 05	20.5	152.5	-1.8		-16.5	42	615	20 57 01
20 58 00	GRB171205A	09 34 05	21.0	154.7	-1.6		-15.2	-18	615	No stop
20 59 00	---	09 35 05	21.1	155.0	-1.6		-15.1	42	623	20 58 01
20 59 00	J1118-1232	09 35 05	20.6	152.8	-1.7		-16.3	-18	623	No stop
21 00 00	---	09 36 05	20.6	153.0	-1.7		-16.2	42	631	20 59 01
21 00 00	GRB171205A	09 36 05	21.2	155.2	-1.6		-15.0	-18	631	No stop
21 01 00	---	09 37 05	21.2	155.5	-1.6		-14.8	42	638	21 00 01
21 01 00	J1118-1232	09 37 05	20.7	153.3	-1.7		-16.1	-18	638	No stop
21 02 00	---	09 38 05	20.8	153.5	-1.7		-15.9	42	646	21 01 01
21 02 00	GRB171205A	09 38 05	21.3	155.7	-1.5		-14.7	-18	646	No stop
21 03 00	---	09 39 06	21.4	156.0	-1.5		-14.5	42	654	21 02 01
21 03 00	J1118-1232	09 39 06	20.8	153.8	-1.7		-15.8	-18	654	No stop
21 04 00	---	09 40 06	20.9	154.0	-1.7		-15.6	42	662	21 03 01
21 04 00	GRB171205A	09 40 06	21.4	156.2	-1.5		-14.4	-18	662	No stop
21 05 00	---	09 41 06	21.5	156.5	-1.5		-14.2	42	669	21 04 01
21 05 00	J1118-1232	09 41 06	21.0	154.3	-1.6		-15.5	-18	669	No stop
21 06 00	---	09 42 06	21.0	154.5	-1.6		-15.3	42	677	21 05 01
21 06 00	GRB171205A	09 42 06	21.5	156.7	-1.5		-14.1	-18	677	No stop
21 07 00	---	09 43 06	21.6	157.0	-1.5		-13.9	42	685	21 06 01
21 07 40	J1118-1232	09 43 46	21.1	155.0	-1.6		-15.1	22	685	21 07 40
21 08 20	---	09 44 26	21.2	155.1	-1.6		-15.0	40	690	21 07 41
21 08 20	GRB171205A	09 44 26	21.7	157.3	-1.4		-13.7	-18	690	No stop
21 09 20	---	09 45 27	21.7	157.6	-1.4		-13.6	42	697	21 08 21
21 09 20	J1118-1232	09 45 27	21.3	155.4	-1.6		-14.9	-18	697	No stop
21 10 20	---	09 46 27	21.3	155.6	-1.5		-14.7	42	705	21 09 21
21 10 20	GRB171205A	09 46 27	21.8	157.8	-1.4		-13.4	-18	705	No stop
21 11 20	---	09 47 27	21.8	158.1	-1.4		-13.3	42	713	21 10 21

Schedule for TORUN (Code Tr) Page 8

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
21 11 20	J1118-1232	09 47 27	21.4	155.9	-1.5		-14.6	-18	713	No stop
21 12 20	---	09 48 27	21.4	156.1	-1.5		-14.4	42	721	21 11 21
21 12 20	GRB171205A	09 48 27	21.9	158.4	-1.4		-13.1	-18	721	No stop
21 13 20	---	09 49 27	22.0	158.6	-1.4		-13.0	42	728	21 12 21
21 13 20	J1118-1232	09 49 27	21.5	156.4	-1.5		-14.3	-18	728	No stop
21 14 20	---	09 50 27	21.6	156.7	-1.5		-14.1	42	736	21 13 21
21 14 20	GRB171205A	09 50 27	22.0	158.9	-1.3		-12.8	-18	736	No stop
21 15 20	---	09 51 28	22.1	159.1	-1.3		-12.7	42	744	21 14 21
21 15 20	J1118-1232	09 51 28	21.6	156.9	-1.5		-14.0	-18	744	No stop
21 16 20	---	09 52 28	21.7	157.2	-1.4		-13.8	42	751	21 15 21
21 16 20	GRB171205A	09 52 28	22.1	159.4	-1.3		-12.5	-18	751	No stop
21 17 20	---	09 53 28	22.2	159.6	-1.3		-12.4	42	759	21 16 21
21 17 20	J1118-1232	09 53 28	21.7	157.4	-1.4		-13.7	-18	759	No stop
21 18 20	---	09 54 28	21.8	157.7	-1.4		-13.5	42	767	21 17 21
21 18 20	GRB171205A	09 54 28	22.2	159.9	-1.3		-12.2	-19	767	No stop
21 19 20	---	09 55 28	22.3	160.2	-1.3		-12.1	41	774	21 18 21
21 20 00	J1118-1232	09 56 08	21.9	158.1	-1.4		-13.3	22	774	21 20 00
21 20 40	---	09 56 48	21.9	158.3	-1.4		-13.2	40	779	21 20 01
21 20 40	GRB171205A	09 56 48	22.3	160.5	-1.2		-11.9	-19	779	No stop
21 21 40	---	09 57 49	22.4	160.8	-1.2		-11.7	41	787	21 20 41
21 21 40	J1118-1232	09 57 49	22.0	158.5	-1.4		-13.0	-18	787	No stop
21 22 40	---	09 58 49	22.0	158.8	-1.3		-12.9	42	795	21 21 41
21 22 40	GRB171205A	09 58 49	22.4	161.0	-1.2		-11.5	-19	795	No stop
21 23 40	---	09 59 49	22.5	161.3	-1.2		-11.4	41	803	21 22 41
21 23 40	J1118-1232	09 59 49	22.1	159.1	-1.3		-12.7	-18	803	No stop
21 24 40	---	10 00 49	22.1	159.3	-1.3		-12.6	42	810	21 23 41
21 24 40	GRB171205A	10 00 49	22.5	161.5	-1.2		-11.2	-19	810	No stop
21 25 40	---	10 01 49	22.6	161.8	-1.1		-11.1	41	818	21 24 41
21 25 40	J1118-1232	10 01 49	22.2	159.6	-1.3		-12.4	-18	818	No stop
21 26 40	---	10 02 49	22.2	159.8	-1.3		-12.3	42	826	21 25 41

Schedule for TORUN (Code Tr) Page 9

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 12 Mar 2018 Day 71 ---										
21 26 40	GRB171205A	10 02 49	22.6	162.1	-1.1		-10.9	-19	826	No stop
21 27 40	---	10 03 50	22.7	162.3	-1.1		-10.8	41	833	21 26 41
21 27 40	J1118-1232	10 03 50	22.3	160.1	-1.3		-12.1	-18	833	No stop
21 28 40	---	10 04 50	22.3	160.3	-1.2		-11.9	42	841	21 27 41
21 28 40	GRB171205A	10 04 50	22.7	162.6	-1.1		-10.6	-19	841	No stop
21 29 40	---	10 05 50	22.8	162.8	-1.1		-10.5	41	849	21 28 41
21 29 40	J1118-1232	10 05 50	22.4	160.6	-1.2		-11.8	-18	849	No stop
21 30 40	---	10 06 50	22.4	160.9	-1.2		-11.6	42	856	21 29 41
21 30 40	GRB171205A	10 06 50	22.8	163.1	-1.1		-10.3	-19	856	No stop
21 31 40	---	10 07 50	22.9	163.4	-1.0		-10.1	41	864	21 30 41
21 32 20	J1118-1232	10 08 30	22.5	161.3	-1.2		-11.4	22	864	21 32 20
21 33 00	---	10 09 10	22.6	161.5	-1.2		-11.3	40	869	21 32 21
21 33 00	GRB171205A	10 09 10	22.9	163.7	-1.0		-9.9	-19	869	No stop
21 34 00	---	10 10 11	23.0	164.0	-1.0		-9.8	41	877	21 33 01
21 34 00	J1118-1232	10 10 11	22.6	161.7	-1.2		-11.1	-18	877	No stop
21 35 00	---	10 11 11	22.7	162.0	-1.1		-11.0	42	885	21 34 01
21 35 00	GRB171205A	10 11 11	23.0	164.2	-1.0		-9.6	-19	885	No stop
21 36 00	---	10 12 11	23.0	164.5	-1.0		-9.5	41	892	21 35 01
21 36 00	J1118-1232	10 12 11	22.7	162.2	-1.1		-10.8	-18	892	No stop
21 37 00	---	10 13 11	22.7	162.5	-1.1		-10.7	42	900	21 36 01
21 37 00	GRB171205A	10 13 11	23.1	164.8	-1.0		-9.3	-19	900	No stop
21 38 00	---	10 14 11	23.1	165.0	-0.9		-9.2	41	908	21 37 01
21 38 00	J1118-1232	10 14 11	22.8	162.8	-1.1		-10.5	-18	908	No stop
21 39 00	---	10 15 11	22.8	163.0	-1.1		-10.3	42	915	21 38 01
21 39 00	GRB171205A	10 15 11	23.2	165.3	-0.9		-9.0	-19	915	No stop
21 40 00	---	10 16 12	23.2	165.6	-0.9		-8.8	41	923	21 39 01
21 40 00	J1118-1232	10 16 12	22.9	163.3	-1.1		-10.2	-18	923	No stop
21 41 00	---	10 17 12	22.9	163.5	-1.0		-10.0	42	931	21 40 01
21 41 00	GRB171205A	10 17 12	23.2	165.8	-0.9		-8.7	-19	931	No stop
21 42 00	---	10 18 12	23.3	166.1	-0.9		-8.5	41	938	21 41 01

Schedule for TORUN (Code Tr) Page 10

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
21 42 00	J1118-1232	10 18 12	23.0	163.8	-1.0		-9.9	-18	938	No stop
21 43 00	---	10 19 12	23.0	164.1	-1.0		-9.7	42	946	21 42 01
21 43 00	GRB171205A	10 19 12	23.3	166.3	-0.9		-8.4	-19	946	No stop
21 44 00	---	10 20 12	23.3	166.6	-0.8		-8.2	41	954	21 43 01
21 44 40	J1118-1232	10 20 52	23.1	164.5	-1.0		-9.5	22	954	21 44 40
21 45 20	---	10 21 33	23.1	164.7	-1.0		-9.4	40	959	21 44 41
21 45 20	GRB171205A	10 21 33	23.4	167.0	-0.8		-8.0	-19	959	No stop
21 46 20	---	10 22 33	23.4	167.2	-0.8		-7.8	41	967	21 45 21
21 46 20	J1118-1232	10 22 33	23.1	164.9	-0.9		-9.2	-18	967	No stop
21 47 20	---	10 23 33	23.2	165.2	-0.9		-9.0	42	974	21 46 21
21 47 20	GRB171205A	10 23 33	23.4	167.5	-0.8		-7.7	-19	974	No stop
21 48 20	---	10 24 33	23.5	167.7	-0.8		-7.5	41	982	21 47 21
21 48 20	J1118-1232	10 24 33	23.2	165.5	-0.9		-8.9	-18	982	No stop
21 49 20	---	10 25 33	23.3	165.7	-0.9		-8.7	42	990	21 48 21
21 49 20	GRB171205A	10 25 33	23.5	168.0	-0.8		-7.3	-19	990	No stop
21 50 20	---	10 26 33	23.5	168.3	-0.7		-7.2	41	997	21 49 21
21 50 20	J1118-1232	10 26 33	23.3	166.0	-0.9		-8.6	-18	997	No stop
21 51 20	---	10 27 33	23.3	166.3	-0.9		-8.4	42	1005	21 50 21
21 51 20	GRB171205A	10 27 33	23.6	168.5	-0.7		-7.0	-19	1005	No stop
21 52 20	---	10 28 34	23.6	168.8	-0.7		-6.9	41	1013	21 51 21
21 52 20	J1118-1232	10 28 34	23.4	166.5	-0.8		-8.2	-18	1013	No stop
21 53 20	---	10 29 34	23.4	166.8	-0.8		-8.1	42	1021	21 52 21
21 53 20	GRB171205A	10 29 34	23.6	169.1	-0.7		-6.7	-19	1021	No stop
21 54 20	---	10 30 34	23.7	169.3	-0.7		-6.5	41	1028	21 53 21
21 54 20	J1118-1232	10 30 34	23.4	167.1	-0.8		-7.9	-18	1028	No stop
21 55 20	---	10 31 34	23.5	167.3	-0.8		-7.8	42	1036	21 54 21
21 55 20	GRB171205A	10 31 34	23.7	169.6	-0.7		-6.4	-19	1036	No stop
21 56 20	---	10 32 34	23.7	169.9	-0.6		-6.2	41	1044	21 55 21
21 57 00	J1118-1232	10 33 14	23.5	167.8	-0.8		-7.5	22	1044	21 57 00
21 57 40	---	10 33 55	23.5	167.9	-0.8		-7.4	40	1049	21 57 01

Schedule for TORUN (Code Tr) Page 11

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
21 57 40	GRB171205A	10 33 55	23.7	170.2	-0.6		-6.0	-19	1049	No stop
21 58 40	---	10 34 55	23.8	170.5	-0.6		-5.8	41	1056	21 57 41
21 58 40	J1118-1232	10 34 55	23.6	168.2	-0.7		-7.2	-18	1056	No stop
21 59 40	---	10 35 55	23.6	168.5	-0.7		-7.1	42	1064	21 58 41
21 59 40	GRB171205A	10 35 55	23.8	170.8	-0.6		-5.7	-19	1064	No stop
22 00 40	---	10 36 55	23.8	171.0	-0.6		-5.5	41	1072	21 59 41
22 00 40	J1118-1232	10 36 55	23.6	168.7	-0.7		-6.9	-18	1072	No stop
22 01 40	---	10 37 55	23.7	169.0	-0.7		-6.7	42	1079	22 00 41
22 01 40	GRB171205A	10 37 55	23.8	171.3	-0.5		-5.4	-19	1079	No stop
22 02 40	---	10 38 55	23.9	171.6	-0.5		-5.2	41	1087	22 01 41
22 02 40	J1118-1232	10 38 55	23.7	169.3	-0.7		-6.6	-18	1087	No stop
22 03 40	---	10 39 56	23.7	169.5	-0.7		-6.4	42	1095	22 02 41
22 03 40	GRB171205A	10 39 56	23.9	171.8	-0.5		-5.0	-19	1095	No stop
22 04 40	---	10 40 56	23.9	172.1	-0.5		-4.9	41	1103	22 03 41
22 04 40	J1118-1232	10 40 56	23.7	169.8	-0.6		-6.3	-18	1103	No stop
22 05 40	---	10 41 56	23.8	170.1	-0.6		-6.1	42	1110	22 04 41
22 05 40	GRB171205A	10 41 56	23.9	172.4	-0.5		-4.7	-19	1110	No stop
22 06 40	---	10 42 56	23.9	172.6	-0.5		-4.5	41	1118	22 05 41
22 06 40	J1118-1232	10 42 56	23.8	170.3	-0.6		-5.9	-18	1118	No stop
22 07 40	---	10 43 56	23.8	170.6	-0.6		-5.8	42	1126	22 06 41
22 07 40	GRB171205A	10 43 56	24.0	172.9	-0.4		-4.4	-19	1126	No stop
22 08 40	---	10 44 56	24.0	173.2	-0.4		-4.2	41	1133	22 07 41
22 09 20	J1118-1232	10 45 36	23.9	171.0	-0.6		-5.5	22	1133	22 09 20
22 10 00	---	10 46 17	23.9	171.2	-0.5		-5.4	40	1138	22 09 21
22 10 00	GRB171205A	10 46 17	24.0	173.5	-0.4		-4.0	-19	1138	No stop
22 11 00	---	10 47 17	24.0	173.8	-0.4		-3.8	41	1146	22 10 01
22 11 00	J1118-1232	10 47 17	23.9	171.5	-0.5		-5.2	-18	1146	No stop
22 12 00	---	10 48 17	23.9	171.7	-0.5		-5.1	42	1154	22 11 01
22 12 00	GRB171205A	10 48 17	24.0	174.0	-0.4		-3.7	-19	1154	No stop
22 13 00	---	10 49 17	24.1	174.3	-0.4		-3.5	41	1162	22 12 01

Schedule for TORUN (Code Tr) Page 12

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
22 13 00	J1118-1232	10 49 17	23.9	172.0	-0.5		-4.9	-18	1162	No stop
22 14 00	---	10 50 17	24.0	172.3	-0.5		-4.7	42	1169	22 13 01
22 14 00	GRB171205A	10 50 17	24.1	174.6	-0.3		-3.3	-19	1169	No stop
22 15 00	---	10 51 17	24.1	174.8	-0.3		-3.2	41	1177	22 14 01
22 15 00	J1118-1232	10 51 17	24.0	172.5	-0.5		-4.6	-18	1177	No stop
22 16 00	---	10 52 18	24.0	172.8	-0.4		-4.4	42	1185	22 15 01
22 16 00	GRB171205A	10 52 18	24.1	175.1	-0.3		-3.0	-19	1185	No stop
22 17 00	---	10 53 18	24.1	175.4	-0.3		-2.8	41	1192	22 16 01
22 17 00	J1118-1232	10 53 18	24.0	173.1	-0.4		-4.3	-18	1192	No stop
22 18 00	---	10 54 18	24.0	173.3	-0.4		-4.1	42	1200	22 17 01
22 18 00	GRB171205A	10 54 18	24.1	175.6	-0.3		-2.7	-19	1200	No stop
22 19 00	---	10 55 18	24.1	175.9	-0.3		-2.5	41	1208	22 18 01
22 19 00	J1118-1232	10 55 18	24.1	173.6	-0.4		-3.9	-18	1208	No stop
22 20 00	---	10 56 18	24.1	173.9	-0.4		-3.8	42	1215	22 19 01
22 20 00	GRB171205A	10 56 18	24.1	176.2	-0.2		-2.3	-19	1215	No stop
22 21 00	---	10 57 18	24.2	176.5	-0.2		-2.2	41	1223	22 20 01
22 21 40	J1118-1232	10 57 58	24.1	174.3	-0.4		-3.5	22	1223	22 21 40
22 22 20	---	10 58 39	24.1	174.5	-0.3		-3.4	40	1228	22 21 41
22 22 20	GRB171205A	10 58 39	24.2	176.8	-0.2		-2.0	-19	1228	No stop
22 23 20	---	10 59 39	24.2	177.1	-0.2		-1.8	41	1236	22 22 21
22 23 20	J1118-1232	10 59 39	24.1	174.8	-0.3		-3.2	-18	1236	No stop
22 24 20	---	11 00 39	24.1	175.0	-0.3		-3.1	42	1244	22 23 21
22 24 20	GRB171205A	11 00 39	24.2	177.3	-0.2		-1.6	-19	1244	No stop
22 25 20	---	11 01 39	24.2	177.6	-0.1		-1.5	41	1251	22 24 21
22 25 20	J1118-1232	11 01 39	24.1	175.3	-0.3		-2.9	-18	1251	No stop
22 26 20	---	11 02 39	24.2	175.6	-0.3		-2.7	42	1259	22 25 21
22 26 20	GRB171205A	11 02 39	24.2	177.9	-0.1		-1.3	-19	1259	No stop
22 27 20	---	11 03 39	24.2	178.1	-0.1		-1.1	41	1267	22 26 21
22 27 20	J1118-1232	11 03 39	24.2	175.8	-0.3		-2.6	-18	1267	No stop
22 28 20	---	11 04 40	24.2	176.1	-0.2		-2.4	42	1274	22 27 21

Schedule for TORUN (Code Tr) Page 13

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
22 28 20	GRB171205A	11 04 40	24.2	178.4	-0.1		-1.0	-19	1274	No stop
22 29 20	---	11 05 40	24.2	178.7	-0.1		-0.8	41	1282	22 28 21
22 29 20	J1118-1232	11 05 40	24.2	176.4	-0.2		-2.2	-18	1282	No stop
22 30 20	---	11 06 40	24.2	176.6	-0.2		-2.1	42	1290	22 29 21
22 30 20	GRB171205A	11 06 40	24.2	179.0	-0.1		-0.6	-19	1290	No stop
22 31 20	---	11 07 40	24.2	179.2	-0.0		-0.5	41	1297	22 30 21
22 31 20	J1118-1232	11 07 40	24.2	176.9	-0.2		-1.9	-18	1297	No stop
22 32 20	---	11 08 40	24.2	177.2	-0.2		-1.7	42	1305	22 31 21
22 32 20	GRB171205A	11 08 40	24.2	179.5	-0.0		-0.3	-19	1305	No stop
22 33 20	---	11 09 40	24.2	179.8	-0.0		-0.1	41	1313	22 32 21
22 34 00	J1118-1232	11 10 20	24.2	177.6	-0.1		-1.5	22	1313	22 34 00
22 34 40	---	11 11 01	24.2	177.8	-0.1		-1.4	40	1318	22 34 01
22 34 40	GRB171205A	11 11 01	24.2	180.1	0.0		0.1	-19	1318	No stop
22 35 40	---	11 12 01	24.2	180.4	0.0		0.2	41	1326	22 34 41
22 35 40	J1118-1232	11 12 01	24.2	178.1	-0.1		-1.2	-18	1326	No stop
22 36 40	---	11 13 01	24.2	178.3	-0.1		-1.0	42	1333	22 35 41
22 36 40	GRB171205A	11 13 01	24.2	180.7	0.0		0.4	-19	1333	No stop
22 37 40	---	11 14 01	24.2	180.9	0.1		0.6	41	1341	22 36 41
22 37 40	J1118-1232	11 14 01	24.2	178.6	-0.1		-0.9	-18	1341	No stop
22 38 40	---	11 15 01	24.2	178.9	-0.1		-0.7	42	1349	22 37 41
22 38 40	GRB171205A	11 15 01	24.2	181.2	0.1		0.7	-19	1349	No stop
22 39 40	---	11 16 01	24.2	181.5	0.1		0.9	41	1356	22 38 41
22 39 40	J1118-1232	11 16 01	24.3	179.1	-0.1		-0.5	-18	1356	No stop
22 40 40	---	11 17 02	24.3	179.4	-0.0		-0.4	42	1364	22 39 41
22 40 40	GRB171205A	11 17 02	24.2	181.7	0.1		1.1	-19	1364	No stop
22 41 40	---	11 18 02	24.2	182.0	0.1		1.2	41	1372	22 40 41
22 41 40	J1118-1232	11 18 02	24.3	179.7	-0.0		-0.2	-18	1372	No stop
22 42 40	---	11 19 02	24.3	180.0	-0.0		-0.0	42	1379	22 41 41
22 42 40	GRB171205A	11 19 02	24.2	182.3	0.1		1.4	-19	1379	No stop
22 43 40	---	11 20 02	24.2	182.5	0.2		1.6	41	1387	22 42 41

Schedule for TORUN (Code Tr) Page 14

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 12 Mar 2018 Day 71 ---										
22 43 40	J1118-1232	11 20 02	24.3	180.2	0.0		0.1	-18	1387	No stop
22 44 40	---	11 21 02	24.3	180.5	0.0		0.3	42	1395	22 43 41
22 44 40	GRB171205A	11 21 02	24.2	182.8	0.2		1.7	-19	1395	No stop
22 45 40	---	11 22 02	24.2	183.1	0.2		1.9	41	1403	22 44 41
22 46 20	J1118-1232	11 22 43	24.3	180.9	0.1		0.6	22	1403	22 46 20
22 47 00	---	11 23 23	24.2	181.1	0.1		0.7	40	1408	22 46 21
22 47 00	GRB171205A	11 23 23	24.2	183.4	0.2		2.1	-19	1408	No stop
22 48 00	---	11 24 23	24.1	183.7	0.2		2.3	41	1415	22 47 01
22 48 00	J1118-1232	11 24 23	24.2	181.4	0.1		0.9	-18	1415	No stop
22 49 00	---	11 25 23	24.2	181.7	0.1		1.0	42	1423	22 48 01
22 49 00	GRB171205A	11 25 23	24.1	184.0	0.2		2.4	-19	1423	No stop
22 50 00	---	11 26 23	24.1	184.2	0.3		2.6	41	1431	22 49 01
22 50 00	J1118-1232	11 26 23	24.2	181.9	0.1		1.2	-18	1431	No stop
22 51 00	---	11 27 23	24.2	182.2	0.1		1.3	42	1438	22 50 01
22 51 00	GRB171205A	11 27 23	24.1	184.5	0.3		2.8	-19	1438	No stop
22 52 00	---	11 28 23	24.1	184.8	0.3		2.9	41	1446	22 51 01
22 52 00	J1118-1232	11 28 23	24.2	182.5	0.2		1.5	-18	1446	No stop
22 53 00	---	11 29 24	24.2	182.7	0.2		1.7	42	1454	22 52 01
22 53 00	GRB171205A	11 29 24	24.1	185.0	0.3		3.1	-19	1454	No stop
22 54 00	---	11 30 24	24.1	185.3	0.3		3.3	41	1462	22 53 01
22 54 00	J1118-1232	11 30 24	24.2	183.0	0.2		1.8	-18	1462	No stop
22 55 00	---	11 31 24	24.2	183.3	0.2		2.0	42	1469	22 54 01
22 55 00	GRB171205A	11 31 24	24.1	185.6	0.3		3.4	-19	1469	No stop
22 56 00	---	11 32 24	24.0	185.8	0.4		3.6	41	1477	22 55 01
22 56 00	J1118-1232	11 32 24	24.2	183.5	0.2		2.2	-18	1477	No stop
22 57 00	---	11 33 24	24.2	183.8	0.2		2.3	42	1485	22 56 01
22 57 00	GRB171205A	11 33 24	24.0	186.1	0.4		3.7	-19	1485	No stop
22 58 00	---	11 34 24	24.0	186.4	0.4		3.9	41	1492	22 57 01
22 58 40	J1118-1232	11 35 05	24.2	184.2	0.3		2.6	22	1492	22 58 40
22 59 20	---	11 35 45	24.2	184.4	0.3		2.7	40	1497	22 58 41

Schedule for TORUN (Code Tr) Page 15

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
22 59 20	GRB171205A	11 35 45	24.0	186.7	0.4		4.1	-19	1497	No stop
23 00 20	---	11 36 45	24.0	187.0	0.4		4.3	41	1505	22 59 21
23 00 20	J1118-1232	11 36 45	24.1	184.7	0.3		2.9	-18	1505	No stop
23 01 20	---	11 37 45	24.1	185.0	0.3		3.0	42	1513	23 00 21
23 01 20	GRB171205A	11 37 45	24.0	187.3	0.5		4.5	-19	1513	No stop
23 02 20	---	11 38 45	23.9	187.5	0.5		4.6	41	1521	23 01 21
23 02 20	J1118-1232	11 38 45	24.1	185.2	0.3		3.2	-18	1521	No stop
23 03 20	---	11 39 45	24.1	185.5	0.3		3.4	42	1528	23 02 21
23 03 20	GRB171205A	11 39 45	23.9	187.8	0.5		4.8	-19	1528	No stop
23 04 20	---	11 40 45	23.9	188.1	0.5		4.9	41	1536	23 03 21
23 04 20	J1118-1232	11 40 45	24.1	185.8	0.4		3.5	-18	1536	No stop
23 05 20	---	11 41 46	24.1	186.0	0.4		3.7	42	1544	23 04 21
23 05 20	GRB171205A	11 41 46	23.9	188.3	0.5		5.1	-19	1544	No stop
23 06 20	---	11 42 46	23.9	188.6	0.5		5.3	41	1551	23 05 21
23 06 20	J1118-1232	11 42 46	24.1	186.3	0.4		3.9	-18	1551	No stop
23 07 20	---	11 43 46	24.0	186.6	0.4		4.0	42	1559	23 06 21
23 07 20	GRB171205A	11 43 46	23.8	188.9	0.6		5.4	-19	1559	No stop
23 08 20	---	11 44 46	23.8	189.1	0.6		5.6	41	1567	23 07 21
23 08 20	J1118-1232	11 44 46	24.0	186.8	0.4		4.2	-18	1567	No stop
23 09 20	---	11 45 46	24.0	187.1	0.4		4.4	42	1574	23 08 21
23 09 20	GRB171205A	11 45 46	23.8	189.4	0.6		5.8	-19	1574	No stop
23 10 20	---	11 46 46	23.8	189.6	0.6		5.9	41	1582	23 09 21
23 11 00	J1118-1232	11 47 27	24.0	187.5	0.5		4.6	22	1582	23 11 00
23 11 40	---	11 48 07	24.0	187.7	0.5		4.7	40	1587	23 11 01
23 11 40	GRB171205A	11 48 07	23.7	190.0	0.6		6.1	-19	1587	No stop
23 12 40	---	11 49 07	23.7	190.3	0.6		6.3	41	1595	23 11 41
23 12 40	J1118-1232	11 49 07	23.9	188.0	0.5		4.9	-18	1595	No stop
23 13 40	---	11 50 07	23.9	188.3	0.5		5.1	42	1603	23 12 41
23 13 40	GRB171205A	11 50 07	23.7	190.5	0.7		6.5	-19	1603	No stop
23 14 40	---	11 51 07	23.6	190.8	0.7		6.6	41	1610	23 13 41

Schedule for TORUN (Code Tr) Page 16

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
23 14 40	J1118-1232	11 51 07	23.9	188.5	0.5		5.2	-18	1610	No stop
23 15 40	---	11 52 07	23.9	188.8	0.5		5.4	42	1618	23 14 41
23 15 40	GRB171205A	11 52 07	23.6	191.1	0.7		6.8	-19	1618	No stop
23 16 40	---	11 53 08	23.6	191.3	0.7		6.9	41	1626	23 15 41
23 16 40	J1118-1232	11 53 08	23.9	189.0	0.6		5.6	-18	1626	No stop
23 17 40	---	11 54 08	23.8	189.3	0.6		5.7	42	1633	23 16 41
23 17 40	GRB171205A	11 54 08	23.6	191.6	0.7		7.1	-19	1633	No stop
23 18 40	---	11 55 08	23.5	191.9	0.7		7.3	41	1641	23 17 41
23 18 40	J1118-1232	11 55 08	23.8	189.6	0.6		5.9	-18	1641	No stop
23 19 40	---	11 56 08	23.8	189.8	0.6		6.0	42	1649	23 18 41
23 19 40	GRB171205A	11 56 08	23.5	192.1	0.8		7.4	-19	1649	No stop
23 20 40	---	11 57 08	23.5	192.4	0.8		7.6	41	1656	23 19 41
23 20 40	J1118-1232	11 57 08	23.8	190.1	0.6		6.2	-18	1656	No stop
23 21 40	---	11 58 08	23.7	190.4	0.6		6.4	42	1664	23 20 41
23 21 40	GRB171205A	11 58 08	23.4	192.7	0.8		7.7	-19	1664	No stop
23 22 40	---	11 59 08	23.4	192.9	0.8		7.9	41	1672	23 21 41
23 23 20	J1118-1232	11 59 49	23.7	190.8	0.7		6.6	22	1672	23 23 20
23 24 00	---	12 00 29	23.7	191.0	0.7		6.7	40	1677	23 23 21
23 24 00	GRB171205A	12 00 29	23.4	193.3	0.8		8.1	-19	1677	No stop
23 25 00	---	12 01 29	23.3	193.5	0.8		8.3	41	1685	23 24 01
23 25 00	J1118-1232	12 01 29	23.6	191.3	0.7		6.9	-18	1685	No stop
23 26 00	---	12 02 29	23.6	191.5	0.7		7.1	42	1692	23 25 01
23 26 00	GRB171205A	12 02 29	23.3	193.8	0.9		8.4	-19	1692	No stop
23 27 00	---	12 03 29	23.2	194.1	0.9		8.6	41	1700	23 26 01
23 27 00	J1118-1232	12 03 29	23.6	191.8	0.7		7.2	-18	1700	No stop
23 28 00	---	12 04 29	23.5	192.1	0.8		7.4	42	1708	23 27 01
23 28 00	GRB171205A	12 04 29	23.2	194.3	0.9		8.8	-19	1708	No stop
23 29 00	---	12 05 30	23.2	194.6	0.9		8.9	41	1715	23 28 01
23 29 00	J1118-1232	12 05 30	23.5	192.3	0.8		7.5	-18	1715	No stop
23 30 00	---	12 06 30	23.5	192.6	0.8		7.7	42	1723	23 29 01

Schedule for TORUN (Code Tr) Page 17

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
23 30 00	GRB171205A	12 06 30	23.1	194.8	0.9		9.1	-19	1723	No stop
23 31 00	---	12 07 30	23.1	195.1	0.9		9.2	41	1731	23 30 01
23 31 00	J1118-1232	12 07 30	23.4	192.9	0.8		7.9	-18	1731	No stop
23 32 00	---	12 08 30	23.4	193.1	0.8		8.0	42	1738	23 31 01
23 32 00	GRB171205A	12 08 30	23.1	195.4	1.0		9.4	-19	1738	No stop
23 33 00	---	12 09 30	23.0	195.6	1.0		9.5	41	1746	23 32 01
23 33 00	J1118-1232	12 09 30	23.4	193.4	0.8		8.2	-18	1746	No stop
23 34 00	---	12 10 30	23.3	193.6	0.9		8.3	42	1754	23 33 01
23 34 00	GRB171205A	12 10 30	23.0	195.9	1.0		9.7	-19	1754	No stop
23 35 00	---	12 11 31	22.9	196.2	1.0		9.9	41	1762	23 34 01
23 35 40	J1118-1232	12 12 11	23.3	194.1	0.9		8.6	22	1762	23 35 40
23 36 20	---	12 12 51	23.3	194.3	0.9		8.7	40	1767	23 35 41
23 36 20	GRB171205A	12 12 51	22.9	196.5	1.0		10.1	-19	1767	No stop
23 37 20	---	12 13 51	22.8	196.8	1.1		10.2	41	1774	23 36 21
23 37 20	J1118-1232	12 13 51	23.2	194.5	0.9		8.9	-18	1774	No stop
23 38 20	---	12 14 51	23.2	194.8	0.9		9.0	42	1782	23 37 21
23 38 20	GRB171205A	12 14 51	22.8	197.0	1.1		10.4	-19	1782	No stop
23 39 20	---	12 15 51	22.7	197.3	1.1		10.5	41	1790	23 38 21
23 39 20	J1118-1232	12 15 51	23.1	195.0	0.9		9.2	-18	1790	No stop
23 40 20	---	12 16 51	23.1	195.3	1.0		9.4	42	1797	23 39 21
23 40 20	GRB171205A	12 16 51	22.7	197.6	1.1		10.7	-19	1797	No stop
23 41 20	---	12 17 52	22.7	197.8	1.1		10.9	41	1805	23 40 21
23 41 20	J1118-1232	12 17 52	23.1	195.6	1.0		9.5	-18	1805	No stop
23 42 20	---	12 18 52	23.0	195.8	1.0		9.7	42	1813	23 41 21
23 42 20	GRB171205A	12 18 52	22.6	198.1	1.1		11.0	-19	1813	No stop
23 43 20	---	12 19 52	22.6	198.3	1.2		11.2	41	1821	23 42 21
23 43 20	J1118-1232	12 19 52	23.0	196.1	1.0		9.8	-18	1821	No stop
23 44 20	---	12 20 52	22.9	196.4	1.0		10.0	42	1828	23 43 21
23 44 20	GRB171205A	12 20 52	22.5	198.6	1.2		11.3	-19	1828	No stop
23 45 20	---	12 21 52	22.5	198.9	1.2		11.5	41	1836	23 44 21

Schedule for TORUN (Code Tr) Page 18

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 12 Mar 2018 Day 71 ---										
23 45 20	J1118-1232	12 21 52	22.9	196.6	1.0		10.1	-18	1836	No stop
23 46 20	---	12 22 52	22.9	196.9	1.1		10.3	42	1844	23 45 21
23 46 20	GRB171205A	12 22 52	22.4	199.1	1.2		11.6	-19	1844	No stop
23 47 20	---	12 23 53	22.4	199.4	1.2		11.8	41	1851	23 46 21
23 48 00	J1118-1232	12 24 33	22.8	197.3	1.1		10.6	22	1851	23 48 00
23 48 40	---	12 25 13	22.7	197.5	1.1		10.7	40	1856	23 48 01
23 48 40	GRB171205A	12 25 13	22.3	199.7	1.2		12.0	-19	1856	No stop
23 49 40	---	12 26 13	22.2	200.0	1.3		12.1	41	1864	23 48 41
23 49 40	J1118-1232	12 26 13	22.7	197.7	1.1		10.8	-18	1864	No stop
23 50 40	---	12 27 13	22.7	198.0	1.1		11.0	42	1872	23 49 41
23 50 40	GRB171205A	12 27 13	22.2	200.2	1.3		12.3	-19	1872	No stop
23 51 40	---	12 28 13	22.1	200.5	1.3		12.4	41	1879	23 50 41
23 51 40	J1118-1232	12 28 13	22.6	198.3	1.2		11.1	-18	1879	No stop
23 52 40	---	12 29 13	22.6	198.5	1.2		11.3	42	1887	23 51 41
23 52 40	GRB171205A	12 29 13	22.1	200.7	1.3		12.6	-18	1887	No stop
23 53 40	---	12 30 14	22.0	201.0	1.3		12.7	42	1895	23 52 41
23 53 40	J1118-1232	12 30 14	22.5	198.8	1.2		11.4	-18	1895	No stop
23 54 40	---	12 31 14	22.5	199.0	1.2		11.6	42	1903	23 53 41
23 54 40	GRB171205A	12 31 14	22.0	201.3	1.3		12.9	-18	1903	No stop
23 55 40	---	12 32 14	21.9	201.5	1.4		13.0	42	1910	23 54 41
23 55 40	J1118-1232	12 32 14	22.4	199.3	1.2		11.7	-18	1910	No stop
23 56 40	---	12 33 14	22.4	199.6	1.2		11.9	42	1918	23 55 41
23 56 40	GRB171205A	12 33 14	21.9	201.8	1.4		13.2	-18	1918	No stop
23 57 40	---	12 34 14	21.8	202.0	1.4		13.3	42	1926	23 56 41
23 57 40	J1118-1232	12 34 14	22.3	199.8	1.3		12.0	-18	1926	No stop
23 58 40	---	12 35 14	22.3	200.1	1.3		12.2	42	1933	23 57 41
23 58 40	GRB171205A	12 35 14	21.8	202.3	1.4		13.5	-18	1933	No stop
23 59 40	---	12 36 15	21.7	202.5	1.4		13.6	42	1941	23 58 41

Schedule for TORUN (Code Tr) Page 19

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
00 00 20	J1118-1232	12 36 55	22.2	200.5	1.3		12.5	22	1941	00 00 20
00 01 00	---	12 37 35	22.1	200.7	1.3		12.6	40	1946	00 00 21
00 01 00	GRB171205A	12 37 35	21.6	202.9	1.4		13.8	-18	1946	No stop
00 02 00	---	12 38 35	21.6	203.1	1.5		14.0	42	1954	00 01 01
00 02 00	J1118-1232	12 38 35	22.1	200.9	1.3		12.7	-18	1954	No stop
00 03 00	---	12 39 35	22.0	201.2	1.3		12.9	42	1962	00 02 01
00 03 00	GRB171205A	12 39 35	21.5	203.4	1.5		14.1	-18	1962	No stop
00 04 00	---	12 40 35	21.4	203.6	1.5		14.3	42	1969	00 03 01
00 04 00	J1118-1232	12 40 35	22.0	201.5	1.4		13.0	-18	1969	No stop
00 05 00	---	12 41 35	21.9	201.7	1.4		13.2	42	1977	00 04 01
00 05 00	GRB171205A	12 41 35	21.4	203.9	1.5		14.4	-18	1977	No stop
00 06 00	---	12 42 36	21.3	204.2	1.5		14.6	42	1985	00 05 01
00 06 00	J1118-1232	12 42 36	21.9	202.0	1.4		13.3	-18	1985	No stop
00 07 00	---	12 43 36	21.8	202.2	1.4		13.5	42	1992	00 06 01
00 07 00	GRB171205A	12 43 36	21.3	204.4	1.6		14.7	-18	1992	No stop
00 08 00	---	12 44 36	21.2	204.7	1.6		14.9	42	2000	00 07 01
00 08 00	J1118-1232	12 44 36	21.8	202.5	1.4		13.6	-18	2000	No stop
00 09 00	---	12 45 36	21.7	202.7	1.4		13.8	42	2008	00 08 01
00 09 00	GRB171205A	12 45 36	21.1	204.9	1.6		15.0	-18	2008	No stop
00 10 00	---	12 46 36	21.1	205.2	1.6		15.2	42	2015	00 09 01
00 10 00	J1118-1232	12 46 36	21.6	203.0	1.5		13.9	-18	2015	No stop
00 11 00	---	12 47 36	21.6	203.2	1.5		14.1	42	2023	00 10 01
00 11 00	GRB171205A	12 47 36	21.0	205.4	1.6		15.3	-18	2023	No stop
00 12 00	---	12 48 37	20.9	205.7	1.6		15.5	42	2031	00 11 01
00 12 40	J1118-1232	12 49 17	21.5	203.7	1.5		14.3	22	2031	00 12 40
00 13 20	---	12 49 57	21.4	203.8	1.5		14.4	40	2036	00 12 41
00 13 20	GRB171205A	12 49 57	20.9	206.0	1.7		15.7	-18	2036	No stop
00 14 20	---	12 50 57	20.8	206.3	1.7		15.8	42	2044	00 13 21
00 14 20	J1118-1232	12 50 57	21.4	204.1	1.5		14.6	-18	2044	No stop
00 15 20	---	12 51 57	21.3	204.4	1.5		14.7	42	2051	00 14 21

Schedule for TORUN (Code Tr) Page 20

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
00 15 20	GRB171205A	12 51 57	20.7	206.5	1.7		15.9	-18	2051	No stop
00 16 20	---	12 52 57	20.7	206.8	1.7		16.1	42	2059	00 15 21
00 16 20	J1118-1232	12 52 57	21.3	204.6	1.6		14.8	-18	2059	No stop
00 17 20	---	12 53 57	21.2	204.9	1.6		15.0	42	2067	00 16 21
00 17 20	GRB171205A	12 53 57	20.6	207.0	1.7		16.2	-18	2067	No stop
00 18 20	---	12 54 58	20.5	207.3	1.7		16.4	42	2074	00 17 21
00 18 20	J1118-1232	12 54 58	21.1	205.1	1.6		15.1	-18	2074	No stop
00 19 20	---	12 55 58	21.1	205.4	1.6		15.3	42	2082	00 18 21
00 19 20	GRB171205A	12 55 58	20.4	207.5	1.8		16.5	-18	2082	No stop
00 20 20	---	12 56 58	20.4	207.8	1.8		16.7	42	2090	00 19 21
00 20 20	J1118-1232	12 56 58	21.0	205.6	1.6		15.4	-18	2090	No stop
00 21 20	---	12 57 58	20.9	205.9	1.6		15.6	42	2097	00 20 21
00 21 20	GRB171205A	12 57 58	20.3	208.0	1.8		16.8	-18	2097	No stop
00 22 20	---	12 58 58	20.2	208.3	1.8		16.9	42	2105	00 21 21
00 22 20	J1118-1232	12 58 58	20.9	206.1	1.7		15.7	-18	2105	No stop
00 23 20	---	12 59 58	20.8	206.4	1.7		15.9	42	2113	00 22 21
00 23 20	GRB171205A	12 59 58	20.2	208.5	1.8		17.1	-18	2113	No stop
00 24 20	---	13 00 59	20.1	208.8	1.8		17.2	42	2121	00 23 21
00 25 00	J1118-1232	13 01 39	20.7	206.8	1.7		16.1	22	2121	00 25 00
00 25 40	---	13 02 19	20.6	207.0	1.7		16.2	40	2126	00 25 01
00 25 40	GRB171205A	13 02 19	20.0	209.1	1.9		17.4	-18	2126	No stop
00 26 40	---	13 03 19	19.9	209.3	1.9		17.6	42	2133	00 25 41
00 26 40	J1118-1232	13 03 19	20.6	207.2	1.7		16.3	-18	2133	No stop
00 27 40	---	13 04 19	20.5	207.5	1.8		16.5	42	2141	00 26 41
00 27 40	GRB171205A	13 04 19	19.8	209.6	1.9		17.7	-18	2141	No stop
00 28 40	---	13 05 19	19.8	209.8	1.9		17.8	42	2149	00 27 41
00 28 40	J1118-1232	13 05 19	20.4	207.7	1.8		16.6	-18	2149	No stop
00 29 40	---	13 06 19	20.4	208.0	1.8		16.8	42	2156	00 28 41
00 29 40	GRB171205A	13 06 19	19.7	210.1	1.9		18.0	-18	2156	No stop
00 30 40	---	13 07 20	19.6	210.3	1.9		18.1	42	2164	00 29 41

Schedule for TORUN (Code Tr) Page 21

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Mar 2018 Day 72 ---										
00 30 40	J1118-1232	13 07 20	20.3	208.2	1.8		16.9	-18	2164	No stop
00 31 40	---	13 08 20	20.2	208.5	1.8		17.1	42	2172	00 30 41
00 31 40	GRB171205A	13 08 20	19.5	210.6	2.0		18.2	-18	2172	No stop
00 32 40	---	13 09 20	19.5	210.8	2.0		18.4	42	2179	00 31 41
00 32 40	J1118-1232	13 09 20	20.1	208.7	1.8		17.2	-18	2179	No stop
00 33 40	---	13 10 20	20.1	209.0	1.9		17.3	42	2187	00 32 41
00 33 40	GRB171205A	13 10 20	19.4	211.1	2.0		18.5	-18	2187	No stop
00 34 40	---	13 11 20	19.3	211.3	2.0		18.7	42	2195	00 33 41
00 34 40	J1118-1232	13 11 20	20.0	209.2	1.9		17.5	-18	2195	No stop
00 35 40	---	13 12 20	19.9	209.5	1.9		17.6	42	2203	00 34 41
00 35 40	GRB171205A	13 12 20	19.2	211.6	2.0		18.8	-18	2203	No stop
00 36 40	---	13 13 21	19.2	211.8	2.0		18.9	42	2210	00 35 41
00 37 20	J1118-1232	13 14 01	19.8	209.9	1.9		17.8	22	2210	00 37 20
00 38 00	---	13 14 41	19.8	210.0	1.9		17.9	40	2215	00 37 21
00 38 00	GRB171205A	13 14 41	19.0	212.1	2.1		19.1	-18	2215	No stop
00 39 00	---	13 15 41	19.0	212.4	2.1		19.2	42	2223	00 38 01
00 39 00	J1118-1232	13 15 41	19.7	210.3	1.9		18.1	-18	2223	No stop
00 40 00	---	13 16 41	19.6	210.5	2.0		18.2	42	2231	00 39 01
00 40 00	GRB171205A	13 16 41	18.9	212.6	2.1		19.4	-18	2231	No stop
00 41 00	---	13 17 41	18.8	212.9	2.1		19.5	42	2238	00 40 01
00 41 00	J1118-1232	13 17 41	19.5	210.8	2.0		18.4	-18	2238	No stop
00 42 00	---	13 18 42	19.4	211.0	2.0		18.5	42	2246	00 41 01
00 42 00	GRB171205A	13 18 42	18.7	213.1	2.1		19.6	-18	2246	No stop
00 43 00	---	13 19 42	18.6	213.4	2.2		19.8	42	2254	00 42 01
00 43 00	J1118-1232	13 19 42	19.4	211.3	2.0		18.6	-18	2254	No stop
00 44 00	---	13 20 42	19.3	211.5	2.0		18.8	42	2262	00 43 01
00 44 00	GRB171205A	13 20 42	18.6	213.6	2.2		19.9	-18	2262	No stop
00 45 00	---	13 21 42	18.5	213.8	2.2		20.0	42	2269	00 44 01
00 45 00	J1118-1232	13 21 42	19.2	211.8	2.0		18.9	-18	2269	No stop
00 46 00	---	13 22 42	19.1	212.0	2.1		19.0	42	2277	00 45 01

Schedule for TORUN (Code Tr) Page 22

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
00 46 00	GRB171205A	13 22 42	18.4	214.1	2.2		20.2	-18	2277	No stop
00 47 00	---	13 23 42	18.3	214.3	2.2		20.3	42	2285	00 46 01
00 47 00	J1118-1232	13 23 42	19.1	212.2	2.1		19.2	-18	2285	No stop
00 48 00	---	13 24 43	19.0	212.5	2.1		19.3	42	2292	00 47 01
00 48 00	GRB171205A	13 24 43	18.2	214.6	2.2		20.4	-18	2292	No stop
00 49 00	---	13 25 43	18.1	214.8	2.3		20.6	42	2300	00 48 01
00 49 40	J1118-1232	13 26 23	18.8	212.9	2.1		19.5	22	2300	00 49 40
00 50 20	---	13 27 03	18.8	213.1	2.1		19.6	40	2305	00 49 41
00 50 20	GRB171205A	13 27 03	18.0	215.1	2.3		20.7	-18	2305	No stop
00 51 20	---	13 28 03	17.9	215.4	2.3		20.9	42	2313	00 50 21
00 51 20	J1118-1232	13 28 03	18.7	213.3	2.1		19.7	-18	2313	No stop
00 52 20	---	13 29 03	18.6	213.5	2.2		19.9	42	2321	00 51 21
00 52 20	GRB171205A	13 29 03	17.8	215.6	2.3		21.0	-18	2321	No stop
00 53 20	---	13 30 03	17.8	215.8	2.3		21.1	42	2328	00 52 21
00 53 20	J1118-1232	13 30 03	18.5	213.8	2.2		20.0	-18	2328	No stop
00 54 20	---	13 31 04	18.5	214.0	2.2		20.1	42	2336	00 53 21
00 54 20	GRB171205A	13 31 04	17.7	216.1	2.3		21.3	-18	2336	No stop
00 55 20	---	13 32 04	17.6	216.3	2.4		21.4	42	2344	00 54 21
00 55 20	J1118-1232	13 32 04	18.4	214.3	2.2		20.3	-18	2344	No stop
00 56 20	---	13 33 04	18.3	214.5	2.2		20.4	42	2351	00 55 21
00 56 20	GRB171205A	13 33 04	17.5	216.6	2.4		21.5	-18	2351	No stop
00 57 20	---	13 34 04	17.4	216.8	2.4		21.6	42	2359	00 56 21
00 57 20	J1118-1232	13 34 04	18.2	214.8	2.2		20.5	-18	2359	No stop
00 58 20	---	13 35 04	18.1	215.0	2.3		20.7	42	2367	00 57 21
00 58 20	GRB171205A	13 35 04	17.3	217.0	2.4		21.8	-18	2367	No stop
00 59 20	---	13 36 04	17.2	217.3	2.4		21.9	42	2374	00 58 21
00 59 20	J1118-1232	13 36 04	18.0	215.2	2.3		20.8	-18	2374	No stop
01 00 20	---	13 37 05	17.9	215.5	2.3		20.9	42	2382	00 59 21
01 00 20	GRB171205A	13 37 05	17.1	217.5	2.4		22.0	-18	2382	No stop
01 01 20	---	13 38 05	17.0	217.8	2.5		22.1	42	2390	01 00 21

Schedule for TORUN (Code Tr) Page 23

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 13 Mar 2018 Day 72 ---										
01 02 00	J1118-1232	13 38 45	17.8	215.9	2.3		21.1	22	2390	01 02 00
01 02 40	---	13 39 25	17.7	216.0	2.3		21.2	40	2395	01 02 01
01 02 40	GRB171205A	13 39 25	16.9	218.1	2.5		22.3	-18	2395	No stop
01 03 40	---	13 40 25	16.8	218.3	2.5		22.4	42	2403	01 02 41
01 03 40	J1118-1232	13 40 25	17.6	216.3	2.4		21.4	-18	2403	No stop
01 04 40	---	13 41 25	17.6	216.5	2.4		21.5	42	2410	01 03 41
01 04 40	GRB171205A	13 41 25	16.7	218.5	2.5		22.6	-18	2410	No stop
01 05 40	---	13 42 25	16.6	218.8	2.5		22.7	42	2418	01 04 41
01 05 40	J1118-1232	13 42 25	17.5	216.8	2.4		21.6	-18	2418	No stop
01 06 40	---	13 43 26	17.4	217.0	2.4		21.7	42	2426	01 05 41
01 06 40	GRB171205A	13 43 26	16.5	219.0	2.5		22.8	-18	2426	No stop
01 07 40	---	13 44 26	16.4	219.2	2.6		22.9	42	2433	01 06 41
01 07 40	J1118-1232	13 44 26	17.3	217.2	2.4		21.9	-18	2433	No stop
01 08 40	---	13 45 26	17.2	217.5	2.4		22.0	42	2441	01 07 41
01 08 40	GRB171205A	13 45 26	16.3	219.5	2.6		23.0	-18	2441	No stop
01 09 40	---	13 46 26	16.3	219.7	2.6		23.2	42	2449	01 08 41
01 09 40	J1118-1232	13 46 26	17.1	217.7	2.5		22.1	-18	2449	No stop
01 10 40	---	13 47 26	17.0	217.9	2.5		22.2	42	2456	01 09 41
01 10 40	GRB171205A	13 47 26	16.2	220.0	2.6		23.3	-18	2456	No stop
01 11 40	---	13 48 26	16.1	220.2	2.6		23.4	42	2464	01 10 41
01 11 40	J1118-1232	13 48 26	16.9	218.2	2.5		22.4	-18	2464	No stop
01 12 40	---	13 49 27	16.8	218.4	2.5		22.5	42	2472	01 11 41
01 12 40	GRB171205A	13 49 27	16.0	220.4	2.6		23.5	-18	2472	No stop
01 13 40	---	13 50 27	15.9	220.7	2.7		23.6	42	2479	01 12 41
01 14 20	J1118-1232	13 51 07	16.7	218.8	2.5		22.7	22	2479	01 14 20
01 15 00	---	13 51 47	16.6	219.0	2.5		22.8	40	2485	01 14 21
01 15 00	GRB171205A	13 51 47	15.7	221.0	2.7		23.8	-18	2485	No stop
01 16 00	---	13 52 47	15.6	221.2	2.7		23.9	42	2492	01 15 01
01 16 00	J1118-1232	13 52 47	16.5	219.2	2.6		22.9	-17	2492	No stop
01 17 00	---	13 53 47	16.4	219.4	2.6		23.0	43	2500	01 16 01

Schedule for TORUN (Code Tr) Page 24

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
01 17 00	GRB171205A	13 53 47	15.5	221.4	2.7		24.0	-18	2500	No stop
01 18 00	---	13 54 47	15.4	221.7	2.7		24.1	42	2508	01 17 01
01 18 00	J1118-1232	13 54 47	16.3	219.7	2.6		23.1	-17	2508	No stop
01 19 00	---	13 55 48	16.2	219.9	2.6		23.3	43	2515	01 18 01
01 19 00	GRB171205A	13 55 48	15.3	221.9	2.8		24.3	-18	2515	No stop
01 20 00	---	13 56 48	15.2	222.1	2.8		24.4	42	2523	01 19 01
01 20 00	J1118-1232	13 56 48	16.1	220.1	2.6		23.4	-17	2523	No stop
01 21 00	---	13 57 48	16.0	220.4	2.6		23.5	43	2531	01 20 01
01 21 00	GRB171205A	13 57 48	15.1	222.4	2.8		24.5	-18	2531	No stop
01 22 00	---	13 58 48	15.0	222.6	2.8		24.6	42	2538	01 21 01
01 22 00	J1118-1232	13 58 48	15.9	220.6	2.7		23.6	-17	2538	No stop
01 23 00	---	13 59 48	15.8	220.8	2.7		23.7	43	2546	01 22 01
01 23 00	GRB171205A	13 59 48	14.9	222.8	2.8		24.7	-18	2546	No stop
01 24 00	---	14 00 48	14.8	223.0	2.8		24.8	42	2554	01 23 01
01 24 00	J1118-1232	14 00 48	15.7	221.1	2.7		23.8	-17	2554	No stop
01 25 00	---	14 01 49	15.6	221.3	2.7		24.0	43	2562	01 24 01
01 25 00	GRB171205A	14 01 49	14.7	223.3	2.9		25.0	-18	2562	No stop
01 26 00	---	14 02 49	14.6	223.5	2.9		25.1	42	2569	01 25 01
01 26 40	J1118-1232	14 03 29	15.5	221.7	2.7		24.2	23	2569	01 26 40
01 27 20	---	14 04 09	15.4	221.8	2.7		24.2	40	2574	01 26 41
01 27 20	GRB171205A	14 04 09	14.5	223.8	2.9		25.2	-18	2574	No stop
01 28 20	---	14 05 09	14.4	224.0	2.9		25.3	42	2582	01 27 21
01 28 20	J1118-1232	14 05 09	15.3	222.1	2.8		24.4	-17	2582	No stop
01 29 20	---	14 06 09	15.2	222.3	2.8		24.5	43	2590	01 28 21
01 29 20	GRB171205A	14 06 09	14.3	224.3	2.9		25.4	-18	2590	No stop
01 30 20	---	14 07 09	14.2	224.5	2.9		25.6	42	2597	01 29 21
01 30 20	J1118-1232	14 07 09	15.1	222.5	2.8		24.6	-17	2597	No stop
01 31 20	---	14 08 10	15.0	222.8	2.8		24.7	43	2605	01 30 21
01 31 20	GRB171205A	14 08 10	14.1	224.7	3.0		25.7	-18	2605	No stop
01 32 20	---	14 09 10	14.0	224.9	3.0		25.8	42	2613	01 31 21

Schedule for TORUN (Code Tr) Page 25

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
01 32 20	J1118-1232	14 09 10	14.9	223.0	2.8		24.8	-17	2613	No stop
01 33 20	---	14 10 10	14.8	223.2	2.8		24.9	43	2621	01 32 21
01 33 20	GRB171205A	14 10 10	13.8	225.2	3.0		25.9	-18	2621	No stop
01 34 20	---	14 11 10	13.7	225.4	3.0		26.0	42	2628	01 33 21
01 34 20	J1118-1232	14 11 10	14.7	223.5	2.9		25.0	-17	2628	No stop
01 35 20	---	14 12 10	14.6	223.7	2.9		25.2	43	2636	01 34 21
01 35 20	GRB171205A	14 12 10	13.6	225.6	3.0		26.1	-18	2636	No stop
01 36 20	---	14 13 10	13.5	225.8	3.0		26.2	42	2644	01 35 21
01 36 20	J1118-1232	14 13 10	14.5	223.9	2.9		25.3	-17	2644	No stop
01 37 20	---	14 14 11	14.4	224.1	2.9		25.4	43	2651	01 36 21
01 37 20	GRB171205A	14 14 11	13.4	226.1	3.1		26.3	-18	2651	No stop
01 38 20	---	14 15 11	13.3	226.3	3.1		26.4	42	2659	01 37 21
01 39 00	J1118-1232	14 15 51	14.2	224.5	2.9		25.6	23	2659	01 39 00
01 39 40	---	14 16 31	14.1	224.7	3.0		25.6	40	2664	01 39 01
01 39 40	GRB171205A	14 16 31	13.2	226.6	3.1		26.6	-18	2664	No stop
01 40 40	---	14 17 31	13.1	226.8	3.1		26.7	42	2672	01 39 41
01 40 40	J1118-1232	14 17 31	14.0	224.9	3.0		25.7	-17	2672	No stop
01 41 40	---	14 18 31	13.9	225.1	3.0		25.9	43	2679	01 40 41
01 41 40	GRB171205A	14 18 31	12.9	227.0	3.1		26.8	-18	2679	No stop
01 42 40	---	14 19 31	12.8	227.3	3.1		26.9	42	2687	01 41 41
01 42 40	J1118-1232	14 19 31	13.8	225.4	3.0		26.0	-17	2687	No stop
01 43 40	---	14 20 32	13.7	225.6	3.0		26.1	43	2695	01 42 41
01 43 40	GRB171205A	14 20 32	12.7	227.5	3.2		27.0	-18	2695	No stop
01 44 40	---	14 21 32	12.6	227.7	3.2		27.1	42	2703	01 43 41
01 44 40	J1118-1232	14 21 32	13.6	225.8	3.0		26.2	-17	2703	No stop
01 45 40	---	14 22 32	13.5	226.0	3.1		26.3	43	2710	01 44 41
01 45 40	GRB171205A	14 22 32	12.5	227.9	3.2		27.2	-18	2710	No stop
01 46 40	---	14 23 32	12.4	228.2	3.2		27.3	42	2718	01 45 41
01 46 40	J1118-1232	14 23 32	13.4	226.3	3.1		26.4	-17	2718	No stop
01 47 40	---	14 24 32	13.3	226.5	3.1		26.5	43	2726	01 46 41

Schedule for TORUN (Code Tr) Page 26

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
01 47 40	GRB171205A	14 24 32	12.3	228.4	3.2		27.4	-17	2726	No stop
01 48 40	---	14 25 32	12.2	228.6	3.2		27.5	43	2733	01 47 41
01 48 40	J1118-1232	14 25 32	13.2	226.7	3.1		26.6	-17	2733	No stop
01 49 40	---	14 26 33	13.0	226.9	3.1		26.7	43	2741	01 48 41
01 49 40	GRB171205A	14 26 33	12.0	228.8	3.3		27.6	-17	2741	No stop
01 50 40	---	14 27 33	11.9	229.1	3.3		27.7	43	2749	01 49 41
01 51 20	J1118-1232	14 28 13	12.9	227.3	3.2		26.9	23	2749	01 51 20
01 52 00	---	14 28 53	12.8	227.5	3.2		27.0	40	2754	01 51 21
01 52 00	GRB171205A	14 28 53	11.8	229.3	3.3		27.8	-17	2754	No stop
01 53 00	---	14 29 53	11.7	229.6	3.3		27.9	43	2762	01 52 01
01 53 00	J1118-1232	14 29 53	12.7	227.7	3.2		27.1	-17	2762	No stop
01 54 00	---	14 30 53	12.6	227.9	3.2		27.2	43	2769	01 53 01
01 54 00	GRB171205A	14 30 53	11.6	229.8	3.3		28.0	-17	2769	No stop
01 55 00	---	14 31 54	11.4	230.0	3.4		28.1	43	2777	01 54 01
01 55 00	J1118-1232	14 31 54	12.5	228.1	3.2		27.3	-17	2777	No stop
01 56 00	---	14 32 54	12.3	228.3	3.2		27.4	43	2785	01 55 01
01 56 00	GRB171205A	14 32 54	11.3	230.2	3.4		28.2	-17	2785	No stop
01 57 00	---	14 33 54	11.2	230.4	3.4		28.3	43	2792	01 56 01
01 57 00	J1118-1232	14 33 54	12.2	228.6	3.2		27.5	-17	2792	No stop
01 58 00	---	14 34 54	12.1	228.8	3.3		27.6	43	2800	01 57 01
01 58 00	GRB171205A	14 34 54	11.1	230.7	3.4		28.4	-17	2800	No stop
01 59 00	---	14 35 54	11.0	230.9	3.4		28.5	43	2808	01 58 01
01 59 00	J1118-1232	14 35 54	12.0	229.0	3.3		27.7	-17	2808	No stop
02 00 00	---	14 36 54	11.9	229.2	3.3		27.8	43	2815	01 59 01
02 00 00	GRB171205A	14 36 54	10.9	231.1	3.4		28.6	-17	2815	No stop
02 01 00	---	14 37 54	10.7	231.3	3.5		28.7	43	2823	02 00 01
02 01 00	J1118-1232	14 37 54	11.8	229.5	3.3		27.9	-17	2823	No stop
02 02 00	---	14 38 55	11.7	229.7	3.3		28.0	43	2831	02 01 01
02 02 00	GRB171205A	14 38 55	10.6	231.5	3.5		28.8	-17	2831	No stop
02 03 00	---	14 39 55	10.5	231.8	3.5		28.9	43	2838	02 02 01

Schedule for TORUN (Code Tr) Page 27

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
02 03 40	J1118-1232	14 40 35	11.5	230.0	3.4		28.1	23	2838	02 03 40
02 04 20	---	14 41 15	11.4	230.2	3.4		28.2	40	2844	02 03 41
02 04 20	GRB171205A	14 41 15	10.3	232.0	3.5		29.0	-17	2844	No stop
02 05 20	---	14 42 15	10.2	232.3	3.5		29.1	43	2851	02 04 21
02 05 20	J1118-1232	14 42 15	11.3	230.4	3.4		28.3	-17	2851	No stop
02 06 20	---	14 43 15	11.2	230.6	3.4		28.4	43	2859	02 05 21
02 06 20	GRB171205A	14 43 15	10.1	232.5	3.5		29.2	-17	2859	No stop
02 07 20	---	14 44 16	10.0	232.7	3.6		29.3	43	2867	02 06 21
02 07 20	J1118-1232	14 44 16	11.0	230.8	3.4		28.5	-17	2867	No stop
02 08 20	---	14 45 16	10.9	231.1	3.4		28.6	43	2874	02 07 21
02 08 20	GRB171205A	14 45 16	9.9	232.9	3.6		29.4	-17	2874	No stop
02 09 20	---	14 46 16	9.8	233.1	3.6		29.5	43	2882	02 08 21
02 09 20	J1118-1232	14 46 16	10.8	231.3	3.5		28.7	-17	2882	No stop
02 10 20	---	14 47 16	10.7	231.5	3.5		28.8	43	2890	02 09 21
02 10 20	GRB171205A	14 47 16	9.6	233.3	3.6		29.6	-17	2890	No stop
02 11 20	---	14 48 16	9.5	233.6	3.6		29.7	43	2897	02 10 21
02 11 20	J1118-1232	14 48 16	10.6	231.7	3.5		28.9	-17	2897	No stop
02 12 20	---	14 49 16	10.5	231.9	3.5		29.0	43	2905	02 11 21
02 12 20	GRB171205A	14 49 16	9.4	233.8	3.6		29.8	-17	2905	No stop
02 13 20	---	14 50 17	9.3	234.0	3.7		29.9	43	2913	02 12 21
02 13 20	J1118-1232	14 50 17	10.3	232.2	3.5		29.1	-17	2913	No stop
02 14 20	---	14 51 17	10.2	232.4	3.5		29.2	43	2921	02 13 21
02 14 20	GRB171205A	14 51 17	9.1	234.2	3.7		30.0	-17	2921	No stop
02 15 20	---	14 52 17	9.0	234.4	3.7		30.0	43	2928	02 14 21
02 16 00	J1118-1232	14 52 57	10.0	232.7	3.6		29.3	23	2928	02 16 00
02 16 40	---	14 53 37	9.9	232.9	3.6		29.4	40	2933	02 16 01
02 16 40	GRB171205A	14 53 37	8.9	234.7	3.7		30.2	-17	2933	No stop
02 17 40	---	14 54 37	8.7	234.9	3.7		30.2	43	2941	02 16 41
02 17 40	J1118-1232	14 54 37	9.8	233.1	3.6		29.5	-17	2941	No stop
02 18 40	---	14 55 37	9.7	233.3	3.6		29.6	43	2949	02 17 41

Schedule for TORUN (Code Tr) Page 28

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
02 18 40	GRB171205A	14 55 37	8.6	235.1	3.8		30.3	-17	2949	No stop
02 19 40	---	14 56 38	8.5	235.3	3.8		30.4	43	2956	02 18 41
02 19 40	J1118-1232	14 56 38	9.6	233.5	3.6		29.7	-17	2956	No stop
02 20 40	---	14 57 38	9.5	233.7	3.6		29.8	43	2964	02 19 41
02 20 40	GRB171205A	14 57 38	8.4	235.6	3.8		30.5	-17	2964	No stop
02 21 40	---	14 58 38	8.2	235.8	3.8		30.6	43	2972	02 20 41
02 21 40	J1118-1232	14 58 38	9.3	234.0	3.7		29.8	-17	2972	No stop
02 22 40	---	14 59 38	9.2	234.2	3.7		29.9	43	2979	02 21 41
02 22 40	GRB171205A	14 59 38	8.1	236.0	3.8		30.7	-17	2979	No stop
02 23 40	---	15 00 38	8.0	236.2	3.8		30.8	43	2987	02 22 41
02 23 40	J1118-1232	15 00 38	9.1	234.4	3.7		30.0	-17	2987	No stop
02 24 40	---	15 01 38	9.0	234.6	3.7		30.1	43	2995	02 23 41
02 24 40	GRB171205A	15 01 38	7.9	236.4	3.9		30.8	-17	2995	No stop
02 25 40	---	15 02 39	7.7	236.6	3.9		30.9	43	3003	02 24 41
02 25 40	J1118-1232	15 02 39	8.8	234.8	3.7		30.2	-17	3003	No stop
02 26 40	---	15 03 39	8.7	235.0	3.7		30.3	43	3010	02 25 41
02 26 40	GRB171205A	15 03 39	7.6	236.8	3.9		31.0	-17	3010	No stop
02 27 40	---	15 04 39	7.5	237.0	3.9		31.1	43	3018	02 26 41
02 28 20	J1118-1232	15 05 19	8.5	235.4	3.8		30.4	23	3018	02 28 20
02 29 00	---	15 05 59	8.4	235.5	3.8		30.5	40	3023	02 28 21
02 29 00	GRB171205A	15 05 59	7.3	237.3	3.9		31.2	-17	3023	No stop
02 30 00	---	15 06 59	7.2	237.5	3.9		31.3	43	3031	02 29 01
02 30 00	J1118-1232	15 06 59	8.3	235.7	3.8		30.6	-17	3031	No stop
02 31 00	---	15 07 59	8.2	236.0	3.8		30.7	43	3038	02 30 01
02 31 00	GRB171205A	15 07 59	7.1	237.7	4.0		31.4	-17	3038	No stop
02 32 00	---	15 09 00	6.9	238.0	4.0		31.5	43	3046	02 31 01
02 32 00	J1118-1232	15 09 00	8.1	236.2	3.8		30.7	-17	3046	No stop
02 33 00	---	15 10 00	7.9	236.4	3.8		30.8	43	3054	02 32 01
02 33 00	GRB171205A	15 10 00	6.8	238.2	4.0		31.5	-17	3054	No stop
02 34 00	---	15 11 00	6.7	238.4	4.0		31.6	43	3062	02 33 01

Schedule for TORUN (Code Tr) Page 29

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
02 34 00	J1118-1232	15 11 00	7.8	236.6	3.9		30.9	-17	3062	No stop
02 35 00	---	15 12 00	7.7	236.8	3.9		31.0	43	3069	02 34 01
02 35 00	GRB171205A	15 12 00	6.6	238.6	4.0		31.7	-17	3069	No stop
02 36 00	---	15 13 00	6.4	238.8	4.0		31.8	43	3077	02 35 01
02 36 00	J1118-1232	15 13 00	7.6	237.0	3.9		31.1	-17	3077	No stop
02 37 00	---	15 14 00	7.4	237.2	3.9		31.2	43	3085	02 36 01
02 37 00	GRB171205A	15 14 00	6.3	239.0	4.1		31.8	-17	3085	No stop
02 38 00	---	15 15 01	6.2	239.2	4.1		31.9	43	3092	02 37 01
02 38 00	J1118-1232	15 15 01	7.3	237.4	3.9		31.2	-17	3092	No stop
02 39 00	---	15 16 01	7.2	237.6	3.9		31.3	43	3100	02 38 01
02 39 00	GRB171205A	15 16 01	6.0	239.4	4.1		32.0	-17	3100	No stop
02 40 00	---	15 17 01	5.9	239.6	4.1		32.1	43	3108	02 39 01
02 40 40	J1118-1232	15 17 41	7.0	238.0	4.0		31.5	23	3108	02 40 40
02 41 20	---	15 18 21	6.9	238.1	4.0		31.5	40	3113	02 40 41
02 41 20	GRB171205A	15 18 21	5.7	239.9	4.1		32.2	-17	3113	No stop
02 42 20	---	15 19 21	5.6	240.1	4.1		32.3	43	3121	02 41 21
02 42 20	J1118-1232	15 19 21	6.7	238.3	4.0		31.6	-17	3121	No stop
02 43 20	---	15 20 21	6.6	238.6	4.0		31.7	43	3128	02 42 21
02 43 20	GRB171205A	15 20 21	5.5	240.3	4.2		32.3	-18	3128	No stop
02 44 20	---	15 21 22	5.3	240.5	4.2		32.4	42	3136	02 43 21
02 44 20	J1118-1232	15 21 22	6.5	238.8	4.0		31.7	-17	3136	No stop
02 45 20	---	15 22 22	6.4	239.0	4.1		31.8	43	3144	02 44 21
02 45 20	GRB171205A	15 22 22	5.2	240.7	4.2		32.5	-18	3144	No stop
02 46 20	---	15 23 22	5.1	240.9	4.2		32.6	42	3151	02 45 21
02 46 20	J1118-1232	15 23 22	6.2	239.2	4.1		31.9	-17	3151	No stop
02 47 20	---	15 24 22	6.1	239.4	4.1		32.0	43	3159	02 46 21
02 47 20	GRB171205A	15 24 22	4.9	241.2	4.2		32.6	-18	3159	No stop
02 48 20	---	15 25 22	4.8	241.4	4.2		32.7	42	3167	02 47 21
02 48 20	J1118-1232	15 25 22	6.0	239.6	4.1		32.1	-17	3167	No stop
02 49 20	---	15 26 22	5.8	239.8	4.1		32.1	43	3174	02 48 21

Schedule for TORUN (Code Tr) Page 30

GRB171205A at 1 Gb/s - K band

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 13 Mar 2018 Day 72 ---										
02 49 20	GRB171205A	15 26 22	4.7	241.6	4.3		32.8	-18	3174	No stop
02 50 20	---	15 27 23	4.6	241.8	4.3		32.8	42	3182	02 49 21
02 50 20	J1118-1232	15 27 23	5.7	240.0	4.1		32.2	-17	3182	No stop
02 51 20	---	15 28 23	5.6	240.2	4.2		32.3	43	3190	02 50 21
02 51 20	GRB171205A	15 28 23	4.4	242.0	4.3		32.9	-18	3190	No stop
02 52 20	---	15 29 23	4.3	242.2	4.3		33.0	42	3197	02 51 21
02 53 00	J1118-1232	15 30 03	5.4	240.6	4.2		32.4	23	3197	02 53 00
02 53 40	---	15 30 43	5.3	240.7	4.2		32.5	40	3203	02 53 01
02 53 40	GRB171205A	15 30 43	4.1	242.5	4.3		33.1	-18	3203	No stop
02 54 40	---	15 31 43	4.0	242.7	4.4		33.1	42	3210	02 53 41
02 54 40	J1118-1232	15 31 43	5.1	240.9	4.2		32.5	-17	3210	No stop
02 55 40	---	15 32 43	5.0	241.1	4.2		32.6	43	3218	02 54 41
02 55 40	GRB171205A	15 32 43	3.8	242.9	4.4		33.2	-18	3218	No stop
02 56 40	---	15 33 44	3.7	243.1	4.4		33.3	42	3226	02 55 41
02 56 40	J1118-1232	15 33 44	4.9	241.3	4.2		32.7	-17	3226	No stop
02 57 40	---	15 34 44	4.8	241.5	4.3		32.8	43	3233	02 56 41
02 57 40	GRB171205A	15 34 44	3.6	243.3	4.4		33.4	-18	3233	No stop
02 58 40	---	15 35 44	3.4	243.5	4.4		33.4	42	3241	02 57 41
02 58 40	J1118-1232	15 35 44	4.6	241.7	4.3		32.8	-17	3241	No stop
02 59 40	---	15 36 44	4.5	241.9	4.3		32.9	43	3249	02 58 41
02 59 40	GRB171205A	15 36 44	3.3	243.7	4.4		33.5	-18	3249	No stop
03 00 40	---	15 37 44	3.2	243.9	4.5		33.6	42	3256	02 59 41
03 00 40	J1118-1232	15 37 44	4.4	242.2	4.3		33.0	-17	3256	No stop
03 01 40	---	15 38 44	4.2	242.4	4.3		33.0	43	3264	03 00 41
03 01 40	GRB171205A	15 38 44	3.0	244.1	4.5		33.6	-18	3264	No stop
03 02 40	---	15 39 45	2.9	244.3	4.5	D	33.7	0	3272	03 01 41
03 02 40	J1118-1232	15 39 45	4.1	242.6	4.3		33.1	-17	3272	No stop
03 03 40	---	15 40 45	4.0	242.8	4.4		33.2	43	3279	03 02 41
03 05 20	J1118-1232	15 42 25	3.7	243.1	4.4		33.3	94	3279	03 05 20
03 06 00	---	15 43 05	3.6	243.2	4.4		33.3	40	3285	03 05 21

```
Schedule for TORUN     (Code Tr )                                Page  31
               GRB171205A at 1 Gb/s - K band
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Tue  13 Mar 2018   Day  72 ---

03 07 00  J1118-1232   15 44 05   3.5 243.5  4.4      33.4    54     3285   03 07 00
03 08 00  ---          15 45 06   3.4 243.7  4.4      33.5    60     3292   03 07 01

03 09 00  J1118-1232   15 46 06   3.2 243.9  4.4      33.5    54     3292   03 09 00
03 10 00  ---          15 47 06   3.1 244.1  4.5      33.6    60     3300   03 09 01

03 25 40  J1310+3220   16 02 48  53.0 253.1  2.9      42.8   732     3300   03 25 40
03 30 00  =1308+326    16 07 09  52.4 254.2  2.9      43.1   260     3333   03 25 41



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.K2048

   Setup group:   14         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.49
  BBC fr=     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.49
  Bandwd=      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* GRB171205A        11 07 09.055718   * 11 09 39.517961     11 10 34.936556       0.00
                   -12 19 01.57826    *-12 35 18.45925     -12 41 19.10642        0.00

* J1118-1232        11 15 46.125715   * 11 18 17.141395     11 19 12.763241       0.00
                   -12 16 29.65621    *-12 32 54.26119     -12 38 57.21484        0.00

  0923+392          09 23 55.319219   * 09 27 03.013940     09 28 11.382720       0.13
* J0927+3902        39 15 23.56641    * 39 02 20.85181      38 57 33.52466        0.10
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.rfc
                    rfc_2015a Petrov, 2015, unpublished.  252917 observations

  1308+326          13 08 07.560134   * 13 10 28.663853     13 11 20.344497       0.12
* J1310+3220        32 36 40.23877    * 32 20 43.78284      32 14 51.34253        0.10
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.rfc
                    rfc_2015a Petrov, 2015, unpublished.  119714 observations
```

rk18pbtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Tue  13 Mar 2018   Day  72 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

03 45 00  1253-055     16 22 12  17.0 234.2  3.4      29.3     0        0   03 45 00
03 59 30  ---          16 36 44  15.2 237.5  3.7      30.6   870       28   03 45 01

04 00 00  1253-055     16 37 14  15.1 237.6  3.7      30.6    24       28   04 00 00
04 15 00  ---          16 52 17  13.2 240.9  3.9      31.8   900       57   04 00 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    4         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.374093       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 56.41524        0.00
                    fake circumpolar target for a TS to look at

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 57 08.174431       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 53 16.26323        0.00
  3C279             ./rk18pb_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-AO4-07, RA-AO3-04


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           157.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

eb064atr

Does Cygnus A harbor a binary black hole?

PI: *Uwe Bach*

```
Address:  Max-Planck-Institut fuer Radioastronomie

Schedule for TORUN     (Code Tr )                                  Page   2
               Does Cygnus A harbor a binary black hole?
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Tue  13 Mar 2018   Day  72 ---
 Next scan frequencies:  22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.4
 Next BBC frequencies:     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.4
 Next scan bandwidths:      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.0

04 30 00  CYG-A        17 07 19  58.6  95.4 -2.9     -52.1     0        0   04 30 00
04 40 00  ---          17 17 21  60.1  97.7 -2.7     -51.8   600       77   04 30 01

04 40 30  CYG-A        17 17 51  60.2  97.8 -2.7     -51.8    24       77   04 40 30
04 50 30  ---          17 27 52  61.7 100.3 -2.5     -51.3   600      154   04 40 31

04 51 30  2013+370     17 28 53  57.2 101.8 -2.8     -47.6    29      154   04 51 30
04 56 30  ---          17 33 53  57.9 103.1 -2.7     -47.3   300      192   04 51 31

04 57 30  CYG-A        17 34 53  62.7 102.1 -2.4     -50.9    28      192   04 57 30
05 07 30  ---          17 44 55  64.2 104.8 -2.3     -50.1   600      269   04 57 31

05 08 00  CYG-A        17 45 25  64.3 104.9 -2.2     -50.0    24      269   05 08 00
05 18 00  ---          17 55 27  65.7 107.8 -2.1     -49.0   600      346   05 08 01

05 18 30  CYG-A        17 55 57  65.8 108.0 -2.1     -49.0    24      346   05 18 30
05 28 30  ---          18 05 59  67.2 111.1 -1.9     -47.7   600      423   05 18 31

05 29 00  CYG-A        18 06 29  67.3 111.3 -1.9     -47.6    24      423   05 29 00
05 39 00  ---          18 16 30  68.6 114.8 -1.7     -46.1   600      500   05 29 01

05 39 30  CYG-A        18 17 00  68.7 114.9 -1.7     -46.0    24      500   05 39 30
05 49 30  ---          18 27 02  70.1 118.8 -1.6     -44.0   600      577   05 39 31

05 50 00  CYG-A        18 27 32  70.1 119.0 -1.5     -43.9    24      577   05 50 00
06 00 00  ---          18 37 34  71.4 123.2 -1.4     -41.6   600      654   05 50 01

 ---------- 5-min gap for pointing ----------

06 06 45  BLLAC        18 44 20  55.6  87.7 -3.3     -54.3   317      654   06 06 45
06 11 45  ---          18 49 21  56.4  88.6 -3.2     -54.3   300      692   06 06 46

06 13 30  CYG-A        18 51 06  73.0 129.7 -1.1     -37.6     8      692   06 13 30
06 23 30  ---          19 01 08  74.2 135.1 -1.0     -34.0   600      769   06 13 31

06 24 00  CYG-A        19 01 38  74.2 135.4 -1.0     -33.8    23      769   06 24 00
06 34 00  ---          19 11 39  75.2 141.5 -0.8     -29.6   600      846   06 24 01
```

```
Schedule for TORUN     (Code Tr )                                  Page   3
              Does Cygnus A harbor a binary black hole?
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Tue  13 Mar 2018   Day  72 ---
06 34 30  CYG-A        19 12 09  75.3 141.8 -0.8     -29.3    23      846   06 34 30
06 44 30  ---          19 22 11  76.1 148.7 -0.6     -24.3   600      923   06 34 31

06 45 00  CYG-A        19 22 41  76.2 149.1 -0.6     -24.1    23      923   06 45 00
06 55 00  ---          19 32 43  76.8 156.7 -0.5     -18.3   600     1000   06 45 01

06 55 30  CYG-A        19 33 13  76.9 157.0 -0.4     -18.0    23     1000   06 55 30
07 05 30  ---          19 43 15  77.4 165.3 -0.3     -11.6   600     1077   06 55 31

07 06 00  CYG-A        19 43 45  77.4 165.7 -0.3     -11.3    22     1077   07 06 00
07 16 00  ---          19 53 46  77.6 174.4 -0.1      -4.4   600     1154   07 06 01

07 16 30  CYG-A        19 54 16  77.6 174.9 -0.1      -4.1    22     1154   07 16 30
07 26 30  ---          20 04 18  77.7 183.7  0.1       3.0   600     1231   07 16 31

 ---------- 5-min gap for pointing ----------

07 32 30  2013+370     20 10 19  74.1 175.8 -0.1      -3.2   321     1231   07 32 30
07 37 30  ---          20 15 20  74.1 179.4 -0.0      -0.4   300     1269   07 32 31

07 38 30  CYG-A        20 16 20  77.4 194.2  0.3      11.2    16     1269   07 38 30
07 48 30  ---          20 26 22  76.9 202.5  0.4      17.7   600     1346   07 38 31

07 49 00  CYG-A        20 26 52  76.9 202.9  0.4      18.0    23     1346   07 49 00
07 59 00  ---          20 36 53  76.2 210.5  0.6      23.7   600     1423   07 49 01

07 59 30  CYG-A        20 37 23  76.2 210.9  0.6      24.0    23     1423   07 59 30
08 09 30  ---          20 47 25  75.3 217.8  0.8      29.1   600     1500   07 59 31

08 10 00  CYG-A        20 47 55  75.3 218.1  0.8      29.3    23     1500   08 10 00
08 20 00  ---          20 57 57  74.3 224.3  1.0      33.6   600     1577   08 10 01

08 20 30  CYG-A        20 58 27  74.2 224.6  1.0      33.8    23     1577   08 20 30
08 30 30  ---          21 08 28  73.1 230.0  1.1      37.4   600     1654   08 20 31

08 31 00  CYG-A        21 08 59  73.1 230.3  1.1      37.6    23     1654   08 31 00
08 41 00  ---          21 19 00  71.9 235.2  1.3      40.6   600     1731   08 31 01

08 41 30  CYG-A        21 19 30  71.8 235.4  1.3      40.8    23     1731   08 41 30
08 51 30  ---          21 29 32  70.5 239.8  1.5      43.3   600     1808   08 41 31

 ---------- 5-min gap for pointing ----------

09 01 10  BLLAC        21 39 14  78.5 156.9 -0.4     -18.6   388     1808   09 01 10
09 06 10  ---          21 44 14  78.8 161.4 -0.3     -15.0   300     1846   09 01 11

09 11 15  CYG-A        21 49 20  67.9 247.2  1.8      47.0   119     1846   09 11 15
09 21 15  ---          21 59 21  66.5 250.5  2.0      48.4   600     1923   09 11 16
```

```
Schedule for TORUN     (Code Tr )                                Page   4
              Does Cygnus A harbor a binary black hole?
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Tue  13 Mar 2018   Day  72 ---

09 21 45  CYG-A        21 59 52  66.4 250.7  2.0      48.5    24     1923   09 21 45
09 31 45  ---          22 09 53  65.0 253.7  2.2      49.6   600     2000   09 21 46

09 32 15  CYG-A        22 10 23  64.9 253.9  2.2      49.6    24     2000   09 32 15
09 42 15  ---          22 20 25  63.4 256.7  2.3      50.5   600     2077   09 32 16

09 42 45  CYG-A        22 20 55  63.4 256.8  2.3      50.5    24     2077   09 42 45
09 52 45  ---          22 30 57  61.9 259.4  2.5      51.2   600     2154   09 42 46

09 53 15  CYG-A        22 31 27  61.8 259.5  2.5      51.2    24     2154   09 53 15
10 03 15  ---          22 41 28  60.3 262.0  2.7      51.7   600     2231   09 53 16

10 03 45  CYG-A        22 41 58  60.2 262.1  2.7      51.8    24     2231   10 03 45
10 13 45  ---          22 52 00  58.8 264.4  2.9      52.1   600     2308   10 03 46

10 15 45  2013+370     22 54 00  58.5 255.8  2.6      47.0    87     2308   10 15 45
10 20 45  ---          22 59 01  57.8 257.1  2.7      47.3   300     2346   10 15 46

10 21 48  CYG-A        23 00 05  57.5 266.2  3.0      52.3    31     2346   10 21 48
10 29 48  ---          23 08 06  56.3 267.9  3.1      52.4   480     2408   10 21 49



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.K1024

   Setup group:   17         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.49
  BBC fr=     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.49
  Bandwd=      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

  CYGNUS-A          19 57 44.440804   * 19 59 28.356482     20 00 04.757678       0.80
  J1959+4044        40 35 46.36249    * 40 44 02.09630      40 46 50.96105        0.53
* CYG-A             /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1959+40          GSFC 2015a astro solution, unpublished     27 observations.
  1957+405
  1957+404

* 2013+370          20 13 37.014511   * 20 15 28.729797     20 16 07.902462       0.13
  J2015+3710        37 01 44.45895    * 37 10 59.51482      37 14 10.43395        0.18
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    131 observations.

  VR422201          22 00 39.362505   * 22 02 43.291372     22 03 26.529269       0.00
  J2202+4216        42 02 08.59077    * 42 16 39.97990      42 21 46.43178        0.00
* BLLAC             /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  2200+420          GSFC 2015a astro solution, unpublished  51226 observations.
  J2202+42
```

rk18pctr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  14 Mar 2018   Day  73 ---

 ---------- L-band VLBI scans ----------

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    732.00   732.00   732.00   732.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  0716+714     12 40 31  52.5 -31.2  5.3      75.8     0        0   00 00 00
00 19 30  ---          13 00 04  51.0 -30.4  5.6      71.7  1170       37   00 00 01

00 20 00  0716+714     13 00 34  51.0 -30.4  5.6      71.6    24       37   00 20 00
00 39 30  ---          13 20 08  49.5 -29.6  5.9      67.7  1170       75   00 20 01

00 40 00  0716+714     13 20 38  49.5 -29.6  5.9      67.6    24       75   00 40 00
01 00 00  ---          13 40 41  48.0 -28.5  6.3      63.6  1200      113   00 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra18cm2.set

   Setup group:    7         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   2400.00   2400.00   2400.00   2400.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   5  Setup file default.  Used with PCAL = 1MHz
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    732.00   732.00   732.00   732.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.432792       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 56.67816        0.00
                    fake circumpolar target for a TS to look at

* 0716+714          07 16 13.029739   * 07 21 53.448474     07 23 56.561434       0.00
  J0721+7120        71 26 15.17406    * 71 20 36.36340      71 18 36.71356        0.00
                    ./rk18pc_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-AO4-07, RA-AO3-0


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0716+714           100.9

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk18pdtr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  14 Mar 2018   Day  73 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  0954+658     16 41 11  43.1 -34.0  6.7      54.0     0        0   04 00 00
04 14 30  ---          16 55 43  41.9 -32.8  6.9      51.5   870       28   04 00 01

04 15 00  0954+658     16 56 13  41.9 -32.7  6.9      51.5    24       28   04 15 00
04 29 30  ---          17 10 45  40.7 -31.4  7.2      49.0   870       56   04 15 01

04 30 00  0954+658     17 11 16  40.7 -31.4  7.2      48.9    24       56   04 30 00
04 44 30  ---          17 25 48  39.5 -30.1  7.4      46.5   870       84   04 30 01

04 45 00  0954+658     17 26 18  39.5 -30.0  7.4      46.4    24       84   04 45 00
05 00 00  ---          17 41 20  38.4 -28.6  7.7      43.8   900      112   04 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   3  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.443889       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 56.72990        0.00
                    fake circumpolar target for a TS to look at

* 0954+658          09 54 57.847936   * 09 58 47.245116     10 00 11.005348       0.00
  J0958+6533        65 48 15.53882    * 65 33 54.81801      65 28 43.79138        0.00
                    ./rk18pd_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 13350 observations, fringe-finder for M
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 0954+658           114.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

eb064btr

Does Cygnus A harbor a binary black hole?

PI: *Uwe Bach*

```
Address:  Max-Planck-Institut fuer Radioastronomie

Schedule for TORUN     (Code Tr )                                  Page   2
               Does Cygnus A harbor a binary black hole?
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Wed  14 Mar 2018   Day  73 ---
 Next scan frequencies:  22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.4
 Next BBC frequencies:     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.4
 Next scan bandwidths:      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.0

08 00 00  CYG-A        20 41 50  75.8 214.0  0.7      26.3     0        0   08 00 00
08 10 00  ---          20 51 52  74.9 220.6  0.9      31.1   600       77   08 00 01

08 10 30  CYG-A        20 52 22  74.8 220.9  0.9      31.3    23       77   08 10 30
08 20 30  ---          21 02 23  73.8 226.8  1.0      35.3   600      154   08 10 31

08 22 00  2013+370     21 03 54  72.1 212.4  0.8      23.8    45      154   08 22 00
08 27 00  ---          21 08 54  71.7 215.3  0.9      25.9   300      192   08 22 01

08 28 30  CYG-A        21 10 25  72.9 231.0  1.2      38.1    44      192   08 28 30
08 38 30  ---          21 20 26  71.7 235.8  1.3      41.0   600      269   08 28 31

08 39 00  CYG-A        21 20 56  71.6 236.1  1.3      41.1    23      269   08 39 00
08 49 00  ---          21 30 58  70.3 240.4  1.5      43.6   600      346   08 39 01

08 49 30  CYG-A        21 31 28  70.3 240.6  1.5      43.7    24      346   08 49 30
08 59 30  ---          21 41 30  68.9 244.5  1.7      45.7   600      423   08 49 31

09 00 00  CYG-A        21 42 00  68.9 244.6  1.7      45.8    24      423   09 00 00
09 10 00  ---          21 52 02  67.5 248.2  1.9      47.4   600      500   09 00 01

09 10 30  CYG-A        21 52 32  67.4 248.3  1.9      47.5    24      500   09 10 30
09 20 30  ---          22 02 33  66.0 251.5  2.0      48.8   600      577   09 10 31

09 21 00  CYG-A        22 03 03  65.9 251.7  2.0      48.8    24      577   09 21 00
09 31 00  ---          22 13 05  64.5 254.6  2.2      49.9   600      654   09 21 01

 ---------- 5-min gap for pointing ----------

09 37 00  2013+370     22 19 06  63.5 245.7  2.0      43.4   323      654   09 37 00
09 42 00  ---          22 24 07  62.8 247.3  2.1      44.1   300      692   09 37 01

09 43 45  CYG-A        22 25 52  62.6 258.1  2.4      50.9    69      692   09 43 45
09 53 45  ---          22 35 54  61.2 260.6  2.6      51.5   600      769   09 43 46

09 54 15  CYG-A        22 36 24  61.1 260.7  2.6      51.5    24      769   09 54 15
10 04 15  ---          22 46 25  59.6 263.1  2.8      51.9   600      846   09 54 16
```

Schedule for TORUN (Code Tr) Page 3

Does Cygnus A harbor a binary black hole?

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 14 Mar 2018 Day 73 ---										
10 04 45	CYG-A	22 46 56	59.5	263.2	2.8		52.0	24	846	10 04 45
10 14 45	---	22 56 57	58.0	265.5	2.9		52.2	600	923	10 04 46
10 15 15	CYG-A	22 57 27	57.9	265.6	3.0		52.2	24	923	10 15 15
10 25 15	---	23 07 29	56.4	267.7	3.1		52.4	600	1000	10 15 16
10 25 45	CYG-A	23 07 59	56.4	267.8	3.1		52.4	24	1000	10 25 45
10 35 45	---	23 18 01	54.9	269.9	3.3		52.5	600	1077	10 25 46
10 36 15	CYG-A	23 18 31	54.8	270.0	3.3		52.5	24	1077	10 36 15
10 46 15	---	23 28 32	53.3	272.0	3.5		52.4	600	1154	10 36 16
10 46 45	CYG-A	23 29 02	53.2	272.1	3.5		52.4	24	1154	10 46 45
10 56 45	---	23 39 04	51.7	274.0	3.6		52.3	600	1231	10 46 46
---------- 5-min gap for pointing ----------										
11 03 30	BLLAC	23 45 50	69.9	248.1	1.7		48.9	320	1231	11 03 30
11 08 30	---	23 50 51	69.2	249.8	1.8		49.7	300	1269	11 03 31
11 11 42	CYG-A	23 54 04	49.5	276.7	3.9		52.0	105	1269	11 11 42
11 21 42	---	00 04 05	48.0	278.5	4.1		51.7	600	1346	11 11 43
11 22 12	CYG-A	00 04 35	47.9	278.6	4.1		51.6	24	1346	11 22 12
11 32 12	---	00 14 37	46.4	280.3	4.2		51.3	600	1423	11 22 13
11 32 42	CYG-A	00 15 07	46.3	280.4	4.3		51.3	24	1423	11 32 42
11 42 42	---	00 25 09	44.9	282.1	4.4		50.8	600	1500	11 32 43
11 43 12	CYG-A	00 25 39	44.8	282.2	4.4		50.8	24	1500	11 43 12
11 53 12	---	00 35 41	43.3	283.9	4.6		50.3	600	1577	11 43 13
11 53 42	CYG-A	00 36 11	43.2	283.9	4.6		50.3	24	1577	11 53 42
12 03 42	---	00 46 12	41.8	285.6	4.8		49.8	600	1654	11 53 43
12 04 12	CYG-A	00 46 42	41.7	285.7	4.8		49.8	24	1654	12 04 12
12 14 12	---	00 56 44	40.3	287.3	4.9		49.2	600	1731	12 04 13
12 14 42	CYG-A	00 57 14	40.2	287.4	5.0		49.2	24	1731	12 14 42
12 24 42	---	01 07 16	38.8	289.0	5.1		48.6	600	1808	12 14 43
---------- 5-min gap for pointing ----------										
12 30 42	2013+370	01 13 17	37.8	284.0	5.0		47.0	333	1808	12 30 42
12 35 42	---	01 18 18	37.1	284.8	5.0		46.8	300	1846	12 30 43
12 37 27	CYG-A	01 20 03	37.0	291.0	5.3		47.7	78	1846	12 37 27
12 47 27	---	01 30 04	35.6	292.6	5.5		47.0	600	1923	12 37 28

```
Schedule for TORUN     (Code Tr )                                  Page   4
              Does Cygnus A harbor a binary black hole?
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Wed  14 Mar 2018   Day  73 ---

12 47 57  CYG-A        01 30 35  35.5 292.7  5.5      47.0    24     1923   12 47 57
12 57 57  ---          01 40 36  34.1 294.3  5.7      46.3   600     2000   12 47 58

12 58 27  CYG-A        01 41 06  34.0 294.4  5.7      46.2    24     2000   12 58 27
13 08 27  ---          01 51 08  32.7 296.0  5.9      45.5   600     2077   12 58 28

13 10 27  BLLAC        01 53 08  51.1 277.9  3.8      53.6    37     2077   13 10 27
13 15 27  ---          01 58 09  50.3 278.8  3.9      53.4   300     2115   13 10 28

13 17 09  CYG-A        01 59 51  31.5 297.3  6.0      44.8    18     2115   13 17 09
13 27 09  ---          02 09 53  30.2 298.9  6.2      44.0   600     2192   13 17 10

13 27 39  CYG-A        02 10 23  30.1 299.0  6.2      43.9    24     2192   13 27 39
13 38 09  ---          02 20 55  28.8 300.7  6.3      43.0   630     2273   13 27 40

13 38 39  CYG-A        02 21 25  28.7 300.7  6.4      43.0    24     2273   13 38 39
13 49 09  ---          02 31 57  27.3 302.4  6.5      42.0   630     2354   13 38 40

13 49 39  CYG-A        02 32 27  27.3 302.5  6.5      42.0    24     2354   13 49 39
14 00 09  ---          02 42 59  26.0 304.2  6.7      41.0   630     2435   13 49 40



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.K1024

   Setup group:   13         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   7  Setup file default.  Used with PCAL = off
  LO sum=   22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.49
  BBC fr=     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.49
  Bandwd=      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.00
   Matching frequency sets:   7

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

  CYGNUS-A          19 57 44.440804   * 19 59 28.356482     20 00 04.789940       0.80
  J1959+4044        40 35 46.36249    * 40 44 02.09630      40 46 50.76732        0.53
* CYG-A             /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  J1959+40          GSFC 2015a astro solution, unpublished     27 observations.
  1957+405
  1957+404

* 2013+370          20 13 37.014511   * 20 15 28.729797     20 16 07.932179       0.13
  J2015+3710        37 01 44.45895    * 37 10 59.51482      37 14 10.24201        0.18
                    /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    131 observations.

  VR422201          22 00 39.362505   * 22 02 43.291372     22 03 26.546492       0.00
  J2202+4216        42 02 08.59077    * 42 16 39.97990      42 21 46.17784        0.00
* BLLAC             /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
  2200+420          GSFC 2015a astro solution, unpublished  51226 observations.
  J2202+42
```

ec057ctr

S5 1803+78 JET MONITORING

PI: *Cutini*

```
Address:  ASDC

Schedule for TORUN     (Code Tr )                                   Page   2
               S5 1803+78 jet monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------
 --- Wed  14 Mar 2018   Day  73 ---
 Next scan frequencies:  22235.49  22235.49  22235.49  22235.49
 Next BBC frequencies:     735.49    735.49    735.49    735.49
 Next scan bandwidths:       8.00      8.00      8.00      8.00

17 00 00  1803+784     05 43 19  41.6  -1.1 11.7       3.3     0        0   17 00 00
17 15 00  ---          05 58 21  41.6  -0.1 12.0       0.3   900       14   17 00 01

17 16 00  0716+714     05 59 21  69.5  19.3 -1.4    -141.7   -59       14   17 16 00
17 20 00  ---          06 03 22  69.7  18.6 -1.3    -143.3   181       18   17 16 01

17 22 00  J1955+5131   06 05 22  17.2 -17.6 10.2      17.0   -91       18   17 22 00
17 29 00  =1954+513    06 12 24  16.9 -16.5 10.3      15.9   329       25   17 22 01

17 31 00  1803+784     06 14 24  41.6   1.0-11.8      -2.9    14       25   17 31 00
17 46 00  ---          06 29 26  41.6   2.0-11.5      -6.0   900       39   17 31 01

17 46 20  1803+784     06 29 46  41.6   2.0-11.5      -6.0    15       39   17 46 20
18 01 20  ---          06 44 49  41.7   3.0-11.2      -9.1   900       54   17 46 21

18 01 40  1803+784     06 45 09  41.7   3.0-11.2      -9.1    15       54   18 01 40
18 16 40  ---          07 00 11  41.9   4.0-11.0     -12.1   900       68   18 01 41

18 17 40  0716+714     07 01 11  71.6   5.8 -0.4    -169.1   -65       68   18 17 40
18 21 40  ---          07 05 12  71.7   4.8 -0.3    -171.0   175       72   18 17 41

18 23 40  J1955+5131   07 07 12  15.2  -7.8 11.2       7.6  -106       72   18 23 40
18 30 40  =1954+513    07 14 14  15.0  -6.7 11.3       6.5   314       79   18 23 41

18 32 40  1803+784     07 16 14  42.1   5.1-10.7     -15.4     5       79   18 32 40
18 47 40  ---          07 31 16  42.3   6.0-10.5     -18.4   900       93   18 32 41

18 48 00  1803+784     07 31 36  42.3   6.1-10.5     -18.5    15       93   18 48 00
19 03 00  ---          07 46 39  42.6   7.0-10.2     -21.5   900      108   18 48 01

19 03 20  1803+784     07 46 59  42.6   7.0-10.2     -21.6    15      108   19 03 20
19 18 20  ---          08 02 01  42.9   8.0-10.0     -24.6   900      122   19 03 21

19 19 20  0716+714     08 03 02  71.3  -9.8  0.7     161.5   -60      122   19 19 20
19 23 20  ---          08 07 02  71.2 -10.7  0.7     159.6   180      126   19 19 21

19 25 20  J1955+5131   08 09 03  14.7   2.1-11.8      -2.0  -106      126   19 25 20
19 32 20  =1954+513    08 16 04  14.8   3.2-11.7      -3.1   314      133   19 25 21
```

Schedule for TORUN (Code Tr) Page 3

S5 1803+78 jet monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed	14 Mar 2018	Day 73 ---								
19 34 20	1803+784	08 18 04	43.2	9.0	-9.7		-27.9	-1	133	19 34 20
19 49 20	---	08 33 07	43.6	9.9	-9.4		-30.9	899	147	19 34 21
19 49 40	1803+784	08 33 27	43.6	9.9	-9.4		-31.0	15	147	19 49 40
20 04 40	---	08 48 29	44.0	10.8	-9.2		-34.1	900	162	19 49 41
20 05 00	1803+784	08 48 49	44.0	10.8	-9.2		-34.2	15	162	20 05 00
20 20 00	---	09 03 52	44.4	11.6	-8.9		-37.3	900	176	20 05 01
20 21 00	0716+714	09 04 52	68.7	-22.1	1.7		135.3	-45	176	20 21 00
20 25 00	---	09 08 52	68.4	-22.7	1.7		133.7	195	180	20 21 01
20 27 00	J1955+5131	09 10 53	15.8	11.9	-10.8		-11.5	-91	180	20 27 00
20 34 00	=1954+513	09 17 54	16.1	13.0	-10.6		-12.6	329	187	20 27 01
20 36 00	1803+784	09 19 54	44.9	12.5	-8.7		-40.6	-2	187	20 36 00
20 51 00	---	09 34 57	45.4	13.3	-8.4		-43.7	898	201	20 36 01
20 51 20	1803+784	09 35 17	45.5	13.3	-8.4		-43.8	15	201	20 51 20
21 06 20	---	09 50 19	46.0	14.1	-8.2		-46.9	900	215	20 51 21
21 06 40	1803+784	09 50 39	46.0	14.1	-8.2		-47.0	15	215	21 06 40
21 21 40	---	10 05 42	46.6	14.8	-7.9		-50.1	900	230	21 06 41
21 22 40	0716+714	10 06 42	64.6	-29.2	2.7		114.1	-43	230	21 22 40
21 26 40	---	10 10 43	64.3	-29.5	2.8		112.9	197	234	21 22 41
21 28 40	J1955+5131	10 12 43	18.5	21.6	-9.7		-20.8	-65	234	21 28 40
21 35 40	=1954+513	10 19 44	18.9	22.7	-9.6		-21.8	355	240	21 28 41
21 37 40	1803+784	10 21 44	47.2	15.5	-7.6		-53.5	0	240	21 37 40
21 52 40	---	10 36 47	47.8	16.2	-7.4		-56.8	900	255	21 37 41
21 53 00	1803+784	10 37 07	47.8	16.2	-7.4		-56.8	15	255	21 53 00
22 08 00	---	10 52 09	48.5	16.8	-7.1		-60.1	900	269	21 53 01
22 08 20	1803+784	10 52 29	48.5	16.8	-7.1		-60.1	15	269	22 08 20
22 23 20	---	11 07 32	49.1	17.3	-6.9		-63.4	900	284	22 08 21
22 24 20	0716+714	11 08 32	59.8	-32.0	3.7		96.9	-54	284	22 24 20
22 28 20	---	11 12 33	59.5	-32.1	3.8		95.9	186	287	22 24 21
22 30 20	J1955+5131	11 14 33	22.6	30.8	-8.7		-29.7	-32	287	22 30 20
22 37 20	=1954+513	11 21 34	23.2	31.9	-8.6		-30.7	388	294	22 30 21
22 39 20	1803+784	11 23 34	49.9	17.8	-6.6		-67.0	6	294	22 39 20
22 54 20	---	11 38 37	50.6	18.3	-6.4		-70.3	900	309	22 39 21

```
Schedule for TORUN     (Code Tr )                                Page   4
               S5 1803+78 jet monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Wed  14 Mar 2018   Day  73 ---

22 54 40  1803+784     11 38 57  50.6  18.3 -6.3     -70.4    15      309   22 54 40
23 00 00  ---          11 44 18  50.8  18.4 -6.3     -71.6   320      314   22 54 41




SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.K128

   Setup group:   10         Station: TORUN            Total bit rate:   128
   Format: MARK5B            Bits per sample: 2        Sample rate: 16.000
   Number of channels:  4    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U
  IF SB =         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5
  BBC SB=         L         L         U         U
  IF    =        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   22235.49  22235.49  22235.49  22235.49
  BBC fr=     735.49    735.49    735.49    735.49
  Bandwd=       8.00      8.00      8.00      8.00
   Matching frequency sets:   8

  Track assignments are:
   track1=   6,  8,  2,  4
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* 0716+714          07 16 13.029731   * 07 21 53.448466     07 23 56.524349       0.01
  J0721+7120        71 26 15.17408    * 71 20 36.36342      71 18 36.83922        0.00
  J0721+71          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished  63527 observations.

* 1803+784          18 03 39.193541   * 18 00 45.683918     17 59 42.499082       0.01
  J1800+7828        78 27 54.29750    * 78 28 04.01844      78 27 50.08063        0.00
  J1800+78          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished 223811 observations.

  1954+513          19 54 22.470020   * 19 55 42.738250     19 56 10.540850       0.02
* J1955+5131        51 23 46.42518    * 51 31 48.54619      51 34 30.95767        0.01
  J1955+51          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished   4136 observations.
```

rk18petr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512                EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378                Phone during observation: +7-903-6614865
```


```
Observing mode: C/K-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu  15 Mar 2018   Day  74 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

02 00 00  1044+719     14 44 47  59.0 -31.5  3.9      94.9     0        0   02 00 00
02 14 30  ---          14 59 20  57.8 -31.6  4.2      91.3   870       28   02 00 01

02 15 00  1044+719     14 59 50  57.8 -31.6  4.2      91.2    24       28   02 15 00
02 29 30  ---          15 14 22  56.7 -31.6  4.4      87.8   870       56   02 15 01

02 30 00  1044+719     15 14 52  56.6 -31.6  4.4      87.6    24       56   02 30 00
02 44 30  ---          15 29 25  55.5 -31.5  4.7      84.3   870       84   02 30 01

02 45 00  1044+719     15 29 55  55.4 -31.5  4.7      84.2    24       84   02 45 00
03 00 00  ---          15 44 57  54.3 -31.2  4.9      80.8   900      112   02 45 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    3         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.503536       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 57.02767        0.00
                    fake circumpolar target for a TS to look at

* 1044+719          10 44 49.735111   * 10 48 27.619927     10 49 47.739647       0.00
  J1048+7143        71 59 26.88535    * 71 43 35.93838      71 37 52.13536        0.00
                    ./rk18pe_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 141793 observations, RA-AO4-07,
```

EFFECT OF SOLAR CORONA

```
The solar corona can cause unstable phases for sources too close to the Sun.
SCHED provides warnings at individual scans for distances less than 10 degrees.
The distance from the Sun to each source in this schedule is:
  Source         Sun distance (deg)
 1044+719           110.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the  longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:
     1.6 GHz         45. deg
     2.3 GHz         36. deg
     5.0 GHz         23. deg
     8.4 GHz         17. deg
    15.0 GHz         12. deg
    22.0 GHz          9. deg
```

em132atr

EM132A

PI: *Marcote*

```
Address:  JIVE

Observing mode: evn

Schedule for TORUN     (Code Tr )                                  Page   2
               EM132A
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------
 --- Thu  15 Mar 2018   Day  74 ---
 Next scan frequencies:  22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.4
 Next BBC frequencies:     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.4
 Next scan bandwidths:      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.0

05 30 00  J0102+5824   18 15 22  38.0  40.4 -6.8     -48.2     0        0   05 30 00
05 35 00  =0059+581    18 20 23  38.5  41.0 -6.7     -48.9   300       38   05 30 01

05 36 20  J0244+6228   18 21 43  33.1  26.4 -8.4     -35.4    36       38   05 36 20
05 37 20  =0241+622    18 22 43  33.2  26.5 -8.4     -35.5    60       46   05 36 21

05 37 20  LSI61303     18 22 43  32.5  27.9 -8.3     -35.8   -16       46   No stop
05 38 30  ---          18 23 53  32.6  28.0 -8.3     -36.0    54       55   05 37 21

05 38 30  J0244+6228   18 23 53  33.3  26.6 -8.4     -35.7   -15       55   No stop
05 39 30  =0241+622    18 24 54  33.3  26.7 -8.4     -35.9    45       63   05 38 31

05 39 30  LSI61303     18 24 54  32.6  28.1 -8.3     -36.1   -16       63   No stop
05 40 40  ---          18 26 04  32.7  28.2 -8.3     -36.3    54       72   05 39 31

05 41 10  J0244+6228   18 26 34  33.4  26.9 -8.3     -36.1    15       72   05 41 10
05 42 10  =0241+622    18 27 34  33.5  27.0 -8.3     -36.3    60       79   05 41 11

05 42 10  LSI61303     18 27 34  32.8  28.4 -8.2     -36.5   -16       79   No stop
05 43 20  ---          18 28 44  32.9  28.6 -8.2     -36.7    54       88   05 42 11

05 43 20  J0244+6228   18 28 44  33.6  27.2 -8.3     -36.5   -15       88   No stop
05 44 20  =0241+622    18 29 44  33.7  27.3 -8.3     -36.6    45       96   05 43 21

05 44 20  LSI61303     18 29 44  33.0  28.7 -8.2     -36.9   -16       96   No stop
05 45 30  ---          18 30 54  33.1  28.8 -8.2     -37.1    54      105   05 44 21

05 46 00  J0244+6228   18 31 25  33.8  27.5 -8.2     -36.9    15      105   05 46 00
05 47 00  =0241+622    18 32 25  33.8  27.6 -8.2     -37.1    60      113   05 46 01

05 47 00  LSI61303     18 32 25  33.2  29.0 -8.2     -37.3   -16      113   No stop
05 48 10  ---          18 33 35  33.3  29.1 -8.1     -37.5    54      122   05 47 01

05 48 10  J0244+6228   18 33 35  33.9  27.7 -8.2     -37.3   -16      122   No stop
05 49 10  =0241+622    18 34 35  34.0  27.8 -8.2     -37.4    44      129   05 48 11

05 49 10  LSI61303     18 34 35  33.3  29.2 -8.1     -37.6   -16      129   No stop
05 50 20  ---          18 35 45  33.4  29.4 -8.1     -37.8    54      138   05 49 11
```

Schedule for TORUN (Code Tr) Page 3

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
05 50 50	J0244+6228	18 36 15	34.1	28.0	-8.2		-37.7	14	138	05 50 50
05 51 50	=0241+622	18 37 16	34.2	28.1	-8.2		-37.9	60	146	05 50 51
05 51 50	LSI61303	18 37 16	33.5	29.5	-8.1		-38.1	-16	146	No stop
05 53 00	---	18 38 26	33.6	29.7	-8.1		-38.2	54	155	05 51 51
05 53 00	J0244+6228	18 38 26	34.3	28.2	-8.1		-38.0	-16	155	No stop
05 54 00	=0241+622	18 39 26	34.3	28.3	-8.1		-38.2	44	163	05 53 01
05 54 00	LSI61303	18 39 26	33.7	29.8	-8.0		-38.4	-16	163	No stop
05 55 10	---	18 40 36	33.8	29.9	-8.0		-38.6	54	172	05 54 01
05 55 40	J0244+6228	18 41 06	34.4	28.5	-8.1		-38.5	14	172	05 55 40
05 56 40	=0241+622	18 42 06	34.5	28.6	-8.1		-38.6	60	179	05 55 41
05 56 40	LSI61303	18 42 06	33.9	30.1	-8.0		-38.8	-16	179	No stop
05 57 50	---	18 43 17	34.0	30.2	-8.0		-39.0	54	188	05 56 41
05 57 50	J0244+6228	18 43 17	34.6	28.8	-8.1		-38.8	-16	188	No stop
05 58 50	=0241+622	18 44 17	34.7	28.9	-8.0		-39.0	44	196	05 57 51
05 58 50	LSI61303	18 44 17	34.0	30.3	-8.0		-39.2	-16	196	No stop
06 00 00	---	18 45 27	34.1	30.4	-7.9		-39.3	54	205	05 58 51
06 00 30	J0244+6228	18 45 57	34.8	29.1	-8.0		-39.2	14	205	06 00 30
06 01 30	=0241+622	18 46 57	34.9	29.2	-8.0		-39.4	60	213	06 00 31
06 01 30	LSI61303	18 46 57	34.3	30.6	-7.9		-39.6	-16	213	No stop
06 02 40	---	18 48 07	34.3	30.7	-7.9		-39.8	54	222	06 01 31
06 02 40	J0244+6228	18 48 07	35.0	29.3	-8.0		-39.6	-16	222	No stop
06 03 40	=0241+622	18 49 07	35.0	29.4	-8.0		-39.8	44	229	06 02 41
06 03 40	LSI61303	18 49 07	34.4	30.9	-7.9		-39.9	-16	229	No stop
06 04 50	---	18 50 18	34.5	31.0	-7.9		-40.1	54	238	06 03 41
06 05 20	J0244+6228	18 50 48	35.2	29.6	-7.9		-40.0	14	238	06 05 20
06 06 20	=0241+622	18 51 48	35.2	29.7	-7.9		-40.2	60	246	06 05 21
06 06 20	LSI61303	18 51 48	34.6	31.2	-7.8		-40.3	-16	246	No stop
06 07 30	---	18 52 58	34.7	31.3	-7.8		-40.5	54	255	06 06 21
06 07 30	J0244+6228	18 52 58	35.3	29.8	-7.9		-40.4	-16	255	No stop
06 08 30	=0241+622	18 53 58	35.4	29.9	-7.9		-40.5	44	263	06 07 31
06 08 30	LSI61303	18 53 58	34.8	31.4	-7.8		-40.7	-16	263	No stop
06 09 40	---	18 55 08	34.9	31.5	-7.8		-40.8	54	272	06 08 31

Schedule for TORUN (Code Tr) Page 4
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
06 10 10	J0244+6228	18 55 39	35.5	30.1	-7.8		-40.8	14	272	06 10 10
06 11 10	=0241+622	18 56 39	35.6	30.2	-7.8		-41.0	60	279	06 10 11
06 11 10	LSI61303	18 56 39	35.0	31.7	-7.8		-41.1	-16	279	No stop
06 12 20	---	18 57 49	35.1	31.8	-7.7		-41.3	54	288	06 11 11
06 12 20	J0244+6228	18 57 49	35.7	30.3	-7.8		-41.1	-16	288	No stop
06 13 20	=0241+622	18 58 49	35.8	30.4	-7.8		-41.3	44	296	06 12 21
06 13 20	LSI61303	18 58 49	35.2	31.9	-7.7		-41.4	-16	296	No stop
06 14 30	---	18 59 59	35.3	32.1	-7.7		-41.6	54	305	06 13 21
06 15 00	J0244+6228	19 00 29	35.9	30.6	-7.8		-41.6	14	305	06 15 00
06 16 00	=0241+622	19 01 30	36.0	30.7	-7.7		-41.7	60	313	06 15 01
06 16 00	LSI61303	19 01 30	35.4	32.2	-7.7		-41.8	-16	313	No stop
06 17 10	---	19 02 40	35.5	32.4	-7.7		-42.0	54	322	06 16 01
06 17 10	J0244+6228	19 02 40	36.1	30.9	-7.7		-41.9	-16	322	No stop
06 18 10	=0241+622	19 03 40	36.1	31.0	-7.7		-42.1	44	329	06 17 11
06 18 10	LSI61303	19 03 40	35.6	32.5	-7.6		-42.2	-16	329	No stop
06 19 20	---	19 04 50	35.7	32.6	-7.6		-42.4	54	338	06 18 11
06 19 50	J0244+6228	19 05 20	36.3	31.1	-7.7		-42.3	14	338	06 19 50
06 20 50	=0241+622	19 06 20	36.3	31.2	-7.7		-42.5	60	346	06 19 51
06 20 50	LSI61303	19 06 20	35.8	32.8	-7.6		-42.6	-16	346	No stop
06 22 00	---	19 07 30	35.9	32.9	-7.6		-42.8	54	355	06 20 51
06 22 00	J0244+6228	19 07 30	36.4	31.4	-7.6		-42.7	-16	355	No stop
06 23 00	=0241+622	19 08 31	36.5	31.5	-7.6		-42.8	44	363	06 22 01
06 23 00	LSI61303	19 08 31	36.0	33.0	-7.6		-42.9	-16	363	No stop
06 24 10	---	19 09 41	36.1	33.1	-7.5		-43.1	54	372	06 23 01
06 24 40	J0244+6228	19 10 11	36.6	31.6	-7.6		-43.1	14	372	06 24 40
06 25 40	=0241+622	19 11 11	36.7	31.8	-7.6		-43.3	60	379	06 24 41
06 25 40	LSI61303	19 11 11	36.2	33.3	-7.5		-43.3	-16	379	No stop
06 26 50	---	19 12 21	36.3	33.4	-7.5		-43.5	54	388	06 25 41
06 26 50	J0244+6228	19 12 21	36.8	31.9	-7.6		-43.5	-16	388	No stop
06 27 50	=0241+622	19 13 21	36.9	32.0	-7.6		-43.6	44	396	06 26 51

Schedule for TORUN (Code Tr) Page 5
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
06 27 50	LSI61303	19 13 21	36.4	33.5	-7.5		-43.7	-16	396	No stop
06 29 00	---	19 14 32	36.5	33.6	-7.5		-43.9	54	405	06 27 51
06 29 30	J0244+6228	19 15 02	37.0	32.2	-7.5		-43.9	14	405	06 29 30
06 30 30	=0241+622	19 16 02	37.1	32.3	-7.5		-44.0	60	413	06 29 31
06 30 30	LSI61303	19 16 02	36.6	33.8	-7.4		-44.1	-16	413	No stop
06 31 40	---	19 17 12	36.7	33.9	-7.4		-44.3	54	422	06 30 31
06 31 40	J0244+6228	19 17 12	37.2	32.4	-7.5		-44.2	-16	422	No stop
06 32 40	=0241+622	19 18 12	37.3	32.5	-7.5		-44.4	44	429	06 31 41
06 32 40	LSI61303	19 18 12	36.8	34.0	-7.4		-44.4	-16	429	No stop
06 33 50	---	19 19 22	36.9	34.2	-7.4		-44.6	54	438	06 32 41
06 34 20	J0244+6228	19 19 53	37.4	32.7	-7.4		-44.7	14	438	06 34 20
06 35 20	=0241+622	19 20 53	37.5	32.8	-7.4		-44.8	60	446	06 34 21
06 35 20	LSI61303	19 20 53	37.0	34.3	-7.4		-44.9	-16	446	No stop
06 36 30	---	19 22 03	37.1	34.5	-7.3		-45.0	54	455	06 35 21
06 36 30	J0244+6228	19 22 03	37.6	32.9	-7.4		-45.0	-16	455	No stop
06 37 30	=0241+622	19 23 03	37.7	33.0	-7.4		-45.2	44	463	06 36 31
06 37 30	LSI61303	19 23 03	37.2	34.6	-7.3		-45.2	-16	463	No stop
06 38 40	---	19 24 13	37.3	34.7	-7.3		-45.4	54	472	06 37 31
06 39 10	J0244+6228	19 24 43	37.8	33.2	-7.4		-45.4	14	472	06 39 10
06 40 10	=0241+622	19 25 43	37.9	33.3	-7.3		-45.6	60	479	06 39 11
06 40 10	LSI61303	19 25 43	37.4	34.8	-7.3		-45.6	-16	479	No stop
06 41 20	---	19 26 54	37.5	35.0	-7.3		-45.8	54	488	06 40 11
06 41 20	J0244+6228	19 26 54	38.0	33.4	-7.3		-45.8	-16	488	No stop
06 42 20	=0241+622	19 27 54	38.1	33.5	-7.3		-45.9	44	496	06 41 21
06 42 20	LSI61303	19 27 54	37.6	35.1	-7.2		-45.9	-16	496	No stop
06 43 30	---	19 29 04	37.7	35.2	-7.2		-46.1	54	505	06 42 21
06 44 00	J0244+6228	19 29 34	38.2	33.7	-7.3		-46.2	14	505	06 44 00
06 45 00	=0241+622	19 30 34	38.3	33.8	-7.3		-46.4	60	513	06 44 01
06 45 00	LSI61303	19 30 34	37.8	35.4	-7.2		-46.4	-16	513	No stop
06 46 10	---	19 31 44	37.9	35.5	-7.2		-46.5	54	522	06 45 01

```
Schedule for TORUN     (Code Tr )                                  Page   6
               EM132A
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu  15 Mar 2018   Day  74 ---

06 46 10  J0244+6228   19 31 44  38.4  33.9 -7.2     -46.5   -16      522   No stop
06 47 10  =0241+622    19 32 45  38.5  34.0 -7.2     -46.7    44      529   06 46 11

06 47 10  LSI61303     19 32 45  38.0  35.6 -7.2     -46.7   -16      529   No stop
06 48 20  ---          19 33 55  38.1  35.7 -7.1     -46.9    54      538   06 47 11

06 48 50  J0244+6228   19 34 25  38.6  34.1 -7.2     -47.0    14      538   06 48 50
06 49 50  =0241+622    19 35 25  38.7  34.2 -7.2     -47.1    60      546   06 48 51

06 49 50  LSI61303     19 35 25  38.2  35.9 -7.1     -47.1   -16      546   No stop
06 51 00  ---          19 36 35  38.3  36.0 -7.1     -47.3    54      555   06 49 51

06 51 00  J0244+6228   19 36 35  38.8  34.4 -7.2     -47.3   -16      555   No stop
06 52 00  =0241+622    19 37 35  38.9  34.5 -7.1     -47.5    44      563   06 51 01

06 52 00  LSI61303     19 37 35  38.4  36.1 -7.1     -47.4   -16      563   No stop
06 53 10  ---          19 38 46  38.5  36.2 -7.1     -47.6    54      572   06 52 01

06 53 40  J0244+6228   19 39 16  39.0  34.6 -7.1     -47.7    14      572   06 53 40
06 54 40  =0241+622    19 40 16  39.1  34.7 -7.1     -47.9    60      579   06 53 41

06 54 40  LSI61303     19 40 16  38.7  36.4 -7.0     -47.9   -16      579   No stop
06 55 50  ---          19 41 26  38.8  36.5 -7.0     -48.0    54      588   06 54 41

06 55 50  J0244+6228   19 41 26  39.2  34.8 -7.1     -48.1   -16      588   No stop
06 56 50  =0241+622    19 42 26  39.3  34.9 -7.1     -48.2    44      596   06 55 51

06 56 50  LSI61303     19 42 26  38.9  36.6 -7.0     -48.2   -17      596   No stop
06 58 00  ---          19 43 36  39.0  36.7 -7.0     -48.4    53      605   06 56 51

06 58 30  J0244+6228   19 44 06  39.4  35.1 -7.0     -48.5    14      605   06 58 30
06 59 30  =0241+622    19 45 07  39.5  35.2 -7.0     -48.7    60      613   06 58 31

06 59 30  LSI61303     19 45 07  39.1  36.9 -6.9     -48.6   -17      613   No stop
07 00 40  ---          19 46 17  39.2  37.0 -6.9     -48.8    53      622   06 59 31

07 00 40  J0244+6228   19 46 17  39.6  35.3 -7.0     -48.9   -16      622   No stop
07 01 40  =0241+622    19 47 17  39.7  35.4 -7.0     -49.0    44      629   07 00 41

07 01 40  LSI61303     19 47 17  39.3  37.1 -6.9     -48.9   -17      629   No stop
07 02 50  ---          19 48 27  39.4  37.2 -6.9     -49.1    53      638   07 01 41

07 03 20  J0244+6228   19 48 57  39.9  35.6 -7.0     -49.3    14      638   07 03 20
07 04 20  =0241+622    19 49 57  39.9  35.7 -6.9     -49.4    60      646   07 03 21
```

Schedule for TORUN (Code Tr) Page 7
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
07 04 20	LSI61303	19 49 57	39.5	37.4	-6.9		-49.4	-17	646	No stop
07 05 30	---	19 51 08	39.7	37.5	-6.8		-49.5	53	655	07 04 21
07 05 30	J0244+6228	19 51 08	40.1	35.8	-6.9		-49.6	-16	655	No stop
07 06 30	=0241+622	19 52 08	40.1	35.9	-6.9		-49.8	44	663	07 05 31
07 06 30	LSI61303	19 52 08	39.7	37.6	-6.8		-49.7	-17	663	No stop
07 07 40	---	19 53 18	39.8	37.7	-6.8		-49.9	53	672	07 06 31
07 08 10	J0244+6228	19 53 48	40.3	36.1	-6.9		-50.0	13	672	07 08 10
07 09 10	=0241+622	19 54 48	40.4	36.2	-6.9		-50.2	60	679	07 08 11
07 09 10	LSI61303	19 54 48	40.0	37.8	-6.8		-50.1	-17	679	No stop
07 10 20	---	19 55 58	40.1	38.0	-6.8		-50.3	53	688	07 09 11
07 10 20	J0244+6228	19 55 58	40.5	36.3	-6.8		-50.4	-17	688	No stop
07 11 20	=0241+622	19 56 59	40.6	36.4	-6.8		-50.6	43	696	07 10 21
07 11 20	LSI61303	19 56 59	40.2	38.1	-6.7		-50.4	-17	696	No stop
07 12 30	---	19 58 09	40.3	38.2	-6.7		-50.6	53	705	07 11 21
07 13 00	J0244+6228	19 58 39	40.7	36.5	-6.8		-50.8	13	705	07 13 00
07 14 00	=0241+622	19 59 39	40.8	36.6	-6.8		-51.0	60	713	07 13 01
07 14 00	LSI61303	19 59 39	40.4	38.3	-6.7		-50.9	-17	713	No stop
07 15 10	---	20 00 49	40.5	38.4	-6.7		-51.0	53	722	07 14 01
07 15 10	J0244+6228	20 00 49	40.9	36.7	-6.8		-51.2	-17	722	No stop
07 16 10	=0241+622	20 01 49	41.0	36.8	-6.7		-51.3	43	729	07 15 11
07 16 10	LSI61303	20 01 49	40.6	38.5	-6.7		-51.2	-17	729	No stop
07 17 20	---	20 03 00	40.7	38.7	-6.6		-51.4	53	738	07 16 11
07 17 50	J0244+6228	20 03 30	41.2	37.0	-6.7		-51.6	13	738	07 17 50
07 18 50	=0241+622	20 04 30	41.2	37.1	-6.7		-51.8	60	746	07 17 51
07 18 50	LSI61303	20 04 30	40.9	38.8	-6.6		-51.6	-17	746	No stop
07 20 00	---	20 05 40	41.0	38.9	-6.6		-51.8	53	755	07 18 51
07 20 00	J0244+6228	20 05 40	41.4	37.2	-6.7		-51.9	-17	755	No stop
07 21 00	=0241+622	20 06 40	41.4	37.3	-6.7		-52.1	43	763	07 20 01
07 21 00	LSI61303	20 06 40	41.1	39.0	-6.6		-51.9	-17	763	No stop
07 22 10	---	20 07 50	41.2	39.1	-6.6		-52.1	53	772	07 21 01

Schedule for TORUN (Code Tr) Page 8
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
07 22 40	J0244+6228	20 08 20	41.6	37.4	-6.6		-52.4	13	772	07 22 40
07 23 40	=0241+622	20 09 21	41.7	37.5	-6.6		-52.5	60	779	07 22 41
07 23 40	LSI61303	20 09 21	41.3	39.3	-6.5		-52.4	-17	779	No stop
07 24 50	---	20 10 31	41.5	39.4	-6.5		-52.5	53	788	07 23 41
07 24 50	J0244+6228	20 10 31	41.8	37.7	-6.6		-52.7	-17	788	No stop
07 25 50	=0241+622	20 11 31	41.9	37.7	-6.6		-52.9	43	796	07 24 51
07 25 50	LSI61303	20 11 31	41.6	39.5	-6.5		-52.7	-17	796	No stop
07 27 00	---	20 12 41	41.7	39.6	-6.5		-52.9	53	805	07 25 51
07 27 30	J0244+6228	20 13 11	42.0	37.9	-6.6		-53.1	13	805	07 27 30
07 28 30	=0241+622	20 14 11	42.1	38.0	-6.5		-53.3	60	813	07 27 31
07 28 30	LSI61303	20 14 11	41.8	39.8	-6.5		-53.1	-17	813	No stop
07 29 40	---	20 15 22	41.9	39.9	-6.4		-53.3	53	822	07 28 31
07 29 40	J0244+6228	20 15 22	42.2	38.1	-6.5		-53.5	-17	822	No stop
07 30 40	=0241+622	20 16 22	42.3	38.2	-6.5		-53.6	43	829	07 29 41
07 30 40	LSI61303	20 16 22	42.0	40.0	-6.4		-53.4	-17	829	No stop
07 31 50	---	20 17 32	42.1	40.1	-6.4		-53.6	53	838	07 30 41
07 32 20	J0244+6228	20 18 02	42.5	38.3	-6.5		-53.9	13	838	07 32 20
07 33 20	=0241+622	20 19 02	42.6	38.4	-6.5		-54.1	60	846	07 32 21
07 33 20	LSI61303	20 19 02	42.3	40.2	-6.4		-53.9	-17	846	No stop
07 34 30	---	20 20 12	42.4	40.3	-6.4		-54.0	53	855	07 33 21
07 34 30	J0244+6228	20 20 12	42.7	38.5	-6.4		-54.3	-17	855	No stop
07 35 30	=0241+622	20 21 13	42.8	38.6	-6.4		-54.4	43	863	07 34 31
07 35 30	LSI61303	20 21 13	42.5	40.4	-6.3		-54.2	-17	863	No stop
07 36 40	---	20 22 23	42.6	40.5	-6.3		-54.4	53	872	07 35 31
07 37 10	J0244+6228	20 22 53	42.9	38.8	-6.4		-54.7	13	872	07 37 10
07 38 10	=0241+622	20 23 53	43.0	38.9	-6.4		-54.8	60	879	07 37 11
07 38 10	LSI61303	20 23 53	42.8	40.7	-6.3		-54.6	-17	879	No stop
07 39 20	---	20 25 03	42.9	40.8	-6.3		-54.8	53	888	07 38 11
07 39 20	J0244+6228	20 25 03	43.1	39.0	-6.4		-55.0	-17	888	No stop
07 40 20	=0241+622	20 26 03	43.2	39.1	-6.3		-55.2	43	896	07 39 21

Schedule for TORUN (Code Tr) Page 9
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
07 40 20	LSI61303	20 26 03	43.0	40.9	-6.3		-54.9	-17	896	No stop
07 41 30	---	20 27 14	43.1	41.0	-6.2		-55.1	53	905	07 40 21
07 42 00	J0244+6228	20 27 44	43.4	39.2	-6.3		-55.5	13	905	07 42 00
07 43 00	=0241+622	20 28 44	43.5	39.3	-6.3		-55.6	60	913	07 42 01
07 43 00	LSI61303	20 28 44	43.2	41.1	-6.2		-55.4	-17	913	No stop
07 44 10	---	20 29 54	43.3	41.2	-6.2		-55.5	53	922	07 43 01
07 44 10	J0244+6228	20 29 54	43.6	39.4	-6.3		-55.8	-17	922	No stop
07 45 10	=0241+622	20 30 54	43.7	39.5	-6.3		-56.0	43	929	07 44 11
07 45 10	LSI61303	20 30 54	43.4	41.3	-6.2		-55.7	-17	929	No stop
07 46 20	---	20 32 04	43.6	41.4	-6.2		-55.9	53	938	07 45 11
07 46 50	J0244+6228	20 32 34	43.9	39.7	-6.2		-56.2	13	938	07 46 50
07 47 50	=0241+622	20 33 35	44.0	39.8	-6.2		-56.4	60	946	07 46 51
07 47 50	LSI61303	20 33 35	43.7	41.6	-6.1		-56.1	-17	946	No stop
07 49 00	---	20 34 45	43.8	41.7	-6.1		-56.3	53	955	07 47 51
07 49 00	J0244+6228	20 34 45	44.1	39.9	-6.2		-56.6	-17	955	No stop
07 50 00	=0241+622	20 35 45	44.2	39.9	-6.2		-56.7	43	963	07 49 01
07 50 00	LSI61303	20 35 45	43.9	41.8	-6.1		-56.5	-17	963	No stop
07 51 10	---	20 36 55	44.0	41.9	-6.1		-56.6	53	972	07 50 01
07 51 40	J0244+6228	20 37 25	44.3	40.1	-6.1		-57.0	13	972	07 51 40
07 52 40	=0241+622	20 38 25	44.4	40.2	-6.1		-57.2	60	979	07 51 41
07 52 40	LSI61303	20 38 25	44.2	42.0	-6.1		-56.9	-17	979	No stop
07 53 50	---	20 39 36	44.3	42.1	-6.0		-57.0	53	988	07 52 41
07 53 50	J0244+6228	20 39 36	44.5	40.3	-6.1		-57.4	-17	988	No stop
07 54 50	=0241+622	20 40 36	44.6	40.4	-6.1		-57.5	43	996	07 53 51
07 54 50	LSI61303	20 40 36	44.4	42.2	-6.0		-57.2	-17	996	No stop
07 56 00	---	20 41 46	44.5	42.3	-6.0		-57.4	53	1005	07 54 51
07 56 30	J0244+6228	20 42 16	44.8	40.5	-6.1		-57.8	13	1005	07 56 30
07 57 30	=0241+622	20 43 16	44.9	40.6	-6.1		-58.0	60	1013	07 56 31
07 57 30	LSI61303	20 43 16	44.7	42.5	-6.0		-57.6	-17	1013	No stop
07 58 40	---	20 44 26	44.8	42.6	-6.0		-57.8	53	1022	07 57 31

Schedule for TORUN (Code Tr) Page 10
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
07 58 40	J0244+6228	20 44 26	45.0	40.7	-6.0		-58.1	-17	1022	No stop
07 59 40	=0241+622	20 45 27	45.1	40.8	-6.0		-58.3	43	1029	07 58 41
07 59 40	LSI61303	20 45 27	44.9	42.7	-5.9		-58.0	-17	1029	No stop
08 00 50	---	20 46 37	45.0	42.8	-5.9		-58.1	53	1038	07 59 41
08 01 20	J0244+6228	20 47 07	45.3	40.9	-6.0		-58.6	13	1038	08 01 20
08 02 20	=0241+622	20 48 07	45.4	41.0	-6.0		-58.7	60	1046	08 01 21
08 02 20	J0102+5824	20 48 07	55.1	55.0	-4.3		-70.3	-51	1046	No stop
08 07 20	=0059+581	20 53 08	55.7	55.4	-4.2		-71.1	249	1085	08 02 21
08 08 40	J0244+6228	20 54 28	46.0	41.6	-5.9		-59.8	30	1085	08 08 40
08 09 40	=0241+622	20 55 28	46.1	41.6	-5.8		-59.9	60	1092	08 08 41
08 09 40	LSI61303	20 55 28	45.9	43.6	-5.8		-59.5	-17	1092	No stop
08 10 50	---	20 56 38	46.1	43.7	-5.8		-59.7	53	1101	08 09 41
08 10 50	J0244+6228	20 56 38	46.2	41.7	-5.8		-60.1	-17	1101	No stop
08 11 50	=0241+622	20 57 39	46.3	41.8	-5.8		-60.3	43	1109	08 10 51
08 11 50	LSI61303	20 57 39	46.2	43.7	-5.7		-59.9	-17	1109	No stop
08 13 00	---	20 58 49	46.3	43.8	-5.7		-60.0	53	1118	08 11 51
08 13 30	J0244+6228	20 59 19	46.5	42.0	-5.8		-60.5	13	1118	08 13 30
08 14 30	=0241+622	21 00 19	46.6	42.0	-5.8		-60.7	60	1126	08 13 31
08 14 30	LSI61303	21 00 19	46.4	44.0	-5.7		-60.3	-18	1126	No stop
08 15 40	---	21 01 29	46.6	44.1	-5.7		-60.5	52	1135	08 14 31
08 15 40	J0244+6228	21 01 29	46.7	42.1	-5.7		-60.9	-17	1135	No stop
08 16 40	=0241+622	21 02 29	46.8	42.2	-5.7		-61.1	43	1142	08 15 41
08 16 40	LSI61303	21 02 29	46.7	44.2	-5.7		-60.6	-18	1142	No stop
08 17 50	---	21 03 40	46.8	44.3	-5.6		-60.8	52	1151	08 16 41
08 18 20	J0244+6228	21 04 10	47.0	42.4	-5.7		-61.3	13	1151	08 18 20
08 19 20	=0241+622	21 05 10	47.1	42.4	-5.7		-61.5	60	1159	08 18 21
08 19 20	LSI61303	21 05 10	46.9	44.4	-5.6		-61.0	-18	1159	No stop
08 20 30	---	21 06 20	47.1	44.5	-5.6		-61.2	52	1168	08 19 21
08 20 30	J0244+6228	21 06 20	47.2	42.5	-5.7		-61.7	-17	1168	No stop
08 21 30	=0241+622	21 07 20	47.3	42.6	-5.7		-61.8	43	1176	08 20 31

Schedule for TORUN (Code Tr) Page 11
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
08 21 30	LSI61303	21 07 20	47.2	44.6	-5.6		-61.4	-18	1176	No stop
08 22 40	---	21 08 30	47.3	44.7	-5.6		-61.6	52	1185	08 21 31
08 23 10	J0244+6228	21 09 00	47.5	42.7	-5.6		-62.1	12	1185	08 23 10
08 24 10	=0241+622	21 10 01	47.6	42.8	-5.6		-62.3	60	1192	08 23 11
08 24 10	LSI61303	21 10 01	47.5	44.8	-5.5		-61.8	-18	1192	No stop
08 25 20	---	21 11 11	47.6	44.9	-5.5		-62.0	52	1201	08 24 11
08 25 20	J0244+6228	21 11 11	47.7	42.9	-5.6		-62.5	-18	1201	No stop
08 26 20	=0241+622	21 12 11	47.8	43.0	-5.6		-62.6	42	1209	08 25 21
08 26 20	LSI61303	21 12 11	47.7	45.0	-5.5		-62.1	-18	1209	No stop
08 27 30	---	21 13 21	47.8	45.1	-5.5		-62.3	52	1218	08 26 21
08 28 00	J0244+6228	21 13 51	48.0	43.1	-5.5		-62.9	12	1218	08 28 00
08 29 00	=0241+622	21 14 51	48.1	43.2	-5.5		-63.1	60	1226	08 28 01
08 29 00	LSI61303	21 14 51	48.0	45.2	-5.5		-62.6	-18	1226	No stop
08 30 10	---	21 16 02	48.1	45.3	-5.4		-62.8	52	1235	08 29 01
08 30 10	J0244+6228	21 16 02	48.2	43.3	-5.5		-63.3	-18	1235	No stop
08 31 10	=0241+622	21 17 02	48.3	43.4	-5.5		-63.4	42	1242	08 30 11
08 31 10	LSI61303	21 17 02	48.2	45.4	-5.4		-62.9	-18	1242	No stop
08 32 20	---	21 18 12	48.3	45.5	-5.4		-63.1	52	1251	08 31 11
08 32 50	J0244+6228	21 18 42	48.5	43.5	-5.5		-63.7	12	1251	08 32 50
08 33 50	=0241+622	21 19 42	48.6	43.6	-5.4		-63.9	60	1259	08 32 51
08 33 50	LSI61303	21 19 42	48.5	45.6	-5.4		-63.3	-18	1259	No stop
08 35 00	---	21 20 52	48.6	45.7	-5.4		-63.5	52	1268	08 33 51
08 35 00	J0244+6228	21 20 52	48.7	43.7	-5.4		-64.1	-18	1268	No stop
08 36 00	=0241+622	21 21 52	48.8	43.7	-5.4		-64.2	42	1276	08 35 01
08 36 00	LSI61303	21 21 52	48.7	45.8	-5.3		-63.7	-18	1276	No stop
08 37 10	---	21 23 03	48.8	45.9	-5.3		-63.9	52	1285	08 36 01
08 37 40	J0244+6228	21 23 33	49.0	43.9	-5.4		-64.5	12	1285	08 37 40
08 38 40	=0241+622	21 24 33	49.1	43.9	-5.4		-64.7	60	1292	08 37 41
08 38 40	LSI61303	21 24 33	49.0	46.0	-5.3		-64.1	-18	1292	No stop
08 39 50	---	21 25 43	49.1	46.1	-5.3		-64.3	52	1301	08 38 41

Schedule for TORUN (Code Tr) Page 12

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
08 39 50	J0244+6228	21 25 43	49.2	44.0	-5.3		-64.9	-18	1301	No stop
08 40 50	=0241+622	21 26 43	49.3	44.1	-5.3		-65.0	42	1309	08 39 51
08 40 50	LSI61303	21 26 43	49.2	46.2	-5.3		-64.5	-18	1309	No stop
08 42 00	---	21 27 53	49.4	46.3	-5.2		-64.6	52	1318	08 40 51
08 42 30	J0244+6228	21 28 24	49.5	44.2	-5.3		-65.3	12	1318	08 42 30
08 43 30	=0241+622	21 29 24	49.6	44.3	-5.3		-65.5	60	1326	08 42 31
08 43 30	LSI61303	21 29 24	49.5	46.4	-5.2		-64.9	-18	1326	No stop
08 44 40	---	21 30 34	49.7	46.5	-5.2		-65.1	52	1335	08 43 31
08 44 40	J0244+6228	21 30 34	49.7	44.4	-5.3		-65.7	-18	1335	No stop
08 45 40	=0241+622	21 31 34	49.8	44.5	-5.2		-65.8	42	1342	08 44 41
08 45 40	LSI61303	21 31 34	49.8	46.5	-5.2		-65.2	-18	1342	No stop
08 46 50	---	21 32 44	49.9	46.6	-5.2		-65.4	52	1351	08 45 41
08 47 20	J0244+6228	21 33 14	50.0	44.6	-5.2		-66.1	12	1351	08 47 20
08 48 20	=0241+622	21 34 15	50.1	44.7	-5.2		-66.3	60	1359	08 47 21
08 48 20	LSI61303	21 34 15	50.1	46.8	-5.1		-65.7	-18	1359	No stop
08 49 30	---	21 35 25	50.2	46.8	-5.1		-65.8	52	1368	08 48 21
08 49 30	J0244+6228	21 35 25	50.2	44.7	-5.2		-66.5	-18	1368	No stop
08 50 30	=0241+622	21 36 25	50.3	44.8	-5.2		-66.6	42	1376	08 49 31
08 50 30	LSI61303	21 36 25	50.3	46.9	-5.1		-66.0	-18	1376	No stop
08 51 40	---	21 37 35	50.4	47.0	-5.1		-66.2	52	1385	08 50 31
08 52 10	J0244+6228	21 38 05	50.5	44.9	-5.1		-66.9	12	1385	08 52 10
08 53 10	=0241+622	21 39 05	50.6	45.0	-5.1		-67.1	60	1392	08 52 11
08 53 10	LSI61303	21 39 05	50.6	47.1	-5.0		-66.4	-18	1392	No stop
08 54 20	---	21 40 16	50.7	47.2	-5.0		-66.6	52	1401	08 53 11
08 54 20	J0244+6228	21 40 16	50.7	45.1	-5.1		-67.3	-18	1401	No stop
08 55 20	=0241+622	21 41 16	50.8	45.2	-5.1		-67.4	42	1409	08 54 21
08 55 20	LSI61303	21 41 16	50.8	47.3	-5.0		-66.8	-18	1409	No stop
08 56 30	---	21 42 26	51.0	47.4	-5.0		-67.0	52	1418	08 55 21
08 57 00	J0244+6228	21 42 56	51.0	45.3	-5.1		-67.7	12	1418	08 57 00
08 58 00	=0241+622	21 43 56	51.1	45.3	-5.0		-67.9	60	1426	08 57 01

Schedule for TORUN (Code Tr) Page 13

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
08 58 00	LSI61303	21 43 56	51.1	47.5	-5.0		-67.2	-18	1426	No stop
08 59 10	---	21 45 06	51.3	47.6	-4.9		-67.4	52	1435	08 58 01
08 59 10	J0244+6228	21 45 06	51.2	45.4	-5.0		-68.1	-18	1435	No stop
09 00 10	=0241+622	21 46 06	51.3	45.5	-5.0		-68.3	42	1442	08 59 11
09 00 10	LSI61303	21 46 06	51.4	47.6	-4.9		-67.6	-18	1442	No stop
09 01 20	---	21 47 17	51.5	47.7	-4.9		-67.8	52	1451	09 00 11
09 01 50	J0244+6228	21 47 47	51.5	45.6	-5.0		-68.5	12	1451	09 01 50
09 02 50	=0241+622	21 48 47	51.6	45.7	-5.0		-68.7	60	1459	09 01 51
09 02 50	LSI61303	21 48 47	51.7	47.8	-4.9		-68.0	-18	1459	No stop
09 04 00	---	21 49 57	51.8	47.9	-4.9		-68.2	52	1468	09 02 51
09 04 00	J0244+6228	21 49 57	51.8	45.8	-4.9		-68.9	-18	1468	No stop
09 05 00	=0241+622	21 50 57	51.9	45.8	-4.9		-69.1	42	1476	09 04 01
09 05 00	LSI61303	21 50 57	51.9	48.0	-4.8		-68.4	-18	1476	No stop
09 06 10	---	21 52 07	52.0	48.1	-4.8		-68.5	52	1485	09 05 01
09 06 40	J0244+6228	21 52 38	52.0	45.9	-4.9		-69.4	12	1485	09 06 40
09 07 40	=0241+622	21 53 38	52.2	46.0	-4.9		-69.5	60	1492	09 06 41
09 07 40	LSI61303	21 53 38	52.2	48.2	-4.8		-68.8	-18	1492	No stop
09 08 50	---	21 54 48	52.3	48.3	-4.8		-69.0	52	1501	09 07 41
09 08 50	J0244+6228	21 54 48	52.3	46.1	-4.9		-69.7	-18	1501	No stop
09 09 50	=0241+622	21 55 48	52.4	46.1	-4.8		-69.9	42	1509	09 08 51
09 09 50	LSI61303	21 55 48	52.4	48.3	-4.8		-69.1	-18	1509	No stop
09 11 00	---	21 56 58	52.6	48.4	-4.7		-69.3	52	1518	09 09 51
09 11 30	J0244+6228	21 57 28	52.6	46.2	-4.8		-70.2	12	1518	09 11 30
09 12 30	=0241+622	21 58 28	52.7	46.3	-4.8		-70.4	60	1526	09 11 31
09 12 30	LSI61303	21 58 28	52.7	48.5	-4.7		-69.6	-18	1526	No stop
09 13 40	---	21 59 39	52.9	48.6	-4.7		-69.8	52	1535	09 12 31
09 13 40	J0244+6228	21 59 39	52.8	46.4	-4.8		-70.6	-18	1535	No stop
09 14 40	=0241+622	22 00 39	52.9	46.5	-4.8		-70.7	42	1542	09 13 41
09 14 40	LSI61303	22 00 39	53.0	48.7	-4.7		-69.9	-18	1542	No stop
09 15 50	---	22 01 49	53.1	48.8	-4.7		-70.1	52	1551	09 14 41

Schedule for TORUN (Code Tr) Page 14
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
09 16 20	J0244+6228	22 02 19	53.1	46.6	-4.7		-71.0	12	1551	09 16 20
09 17 20	=0241+622	22 03 19	53.2	46.6	-4.7		-71.2	60	1559	09 16 21
09 17 20	LSI61303	22 03 19	53.3	48.9	-4.6		-70.4	-18	1559	No stop
09 18 30	---	22 04 29	53.4	48.9	-4.6		-70.6	52	1568	09 17 21
09 18 30	J0244+6228	22 04 29	53.3	46.7	-4.7		-71.4	-18	1568	No stop
09 19 30	=0241+622	22 05 30	53.4	46.8	-4.7		-71.6	42	1576	09 18 31
09 19 30	LSI61303	22 05 30	53.5	49.0	-4.6		-70.7	-18	1576	No stop
09 20 40	---	22 06 40	53.7	49.1	-4.6		-70.9	52	1585	09 19 31
09 21 10	J0244+6228	22 07 10	53.6	46.9	-4.7		-71.9	12	1585	09 21 10
09 22 10	=0241+622	22 08 10	53.7	46.9	-4.6		-72.0	60	1592	09 21 11
09 22 10	LSI61303	22 08 10	53.8	49.2	-4.6		-71.2	-19	1592	No stop
09 23 20	---	22 09 20	54.0	49.3	-4.5		-71.4	51	1601	09 22 11
09 23 20	J0244+6228	22 09 20	53.9	47.0	-4.6		-72.2	-18	1601	No stop
09 24 20	=0241+622	22 10 20	54.0	47.0	-4.6		-72.4	42	1609	09 23 21
09 24 20	LSI61303	22 10 20	54.1	49.3	-4.5		-71.5	-19	1609	No stop
09 25 30	---	22 11 31	54.2	49.4	-4.5		-71.7	51	1618	09 24 21
09 26 00	J0244+6228	22 12 01	54.2	47.1	-4.6		-72.7	12	1618	09 26 00
09 27 00	=0241+622	22 13 01	54.3	47.2	-4.6		-72.9	60	1626	09 26 01
09 27 00	LSI61303	22 13 01	54.4	49.5	-4.5		-72.0	-19	1626	No stop
09 28 10	---	22 14 11	54.5	49.6	-4.5		-72.2	51	1635	09 27 01
09 28 10	J0244+6228	22 14 11	54.4	47.3	-4.5		-73.1	-19	1635	No stop
09 29 10	=0241+622	22 15 11	54.5	47.3	-4.5		-73.3	41	1642	09 28 11
09 29 10	LSI61303	22 15 11	54.6	49.6	-4.4		-72.4	-19	1642	No stop
09 30 20	---	22 16 21	54.8	49.7	-4.4		-72.6	51	1651	09 29 11
09 30 50	J0244+6228	22 16 52	54.7	47.4	-4.5		-73.5	11	1651	09 30 50
09 31 50	=0241+622	22 17 52	54.8	47.5	-4.5		-73.7	60	1659	09 30 51
09 31 50	LSI61303	22 17 52	55.0	49.8	-4.4		-72.8	-19	1659	No stop
09 33 00	---	22 19 02	55.1	49.9	-4.4		-73.0	51	1668	09 31 51
09 33 00	J0244+6228	22 19 02	54.9	47.5	-4.5		-73.9	-19	1668	No stop
09 34 00	=0241+622	22 20 02	55.0	47.6	-4.4		-74.1	41	1676	09 33 01

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Schedule for TORUN     (Code Tr )                                  Page  15
               EM132A
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu  15 Mar 2018   Day  74 ---

09 34 00  LSI61303     22 20 02  55.2  49.9 -4.4     -73.2   -19     1676   No stop
09 35 10  ---          22 21 12  55.3  50.0 -4.3     -73.4    51     1685   09 34 01

09 35 40  J0244+6228   22 21 42  55.2  47.7 -4.4     -74.4    11     1685   09 35 40
09 36 40  =0241+622    22 22 42  55.3  47.7 -4.4     -74.6    60     1692   09 35 41

09 36 40  LSI61303     22 22 42  55.5  50.1 -4.3     -73.6   -19     1692   No stop
09 37 50  ---          22 23 53  55.6  50.2 -4.3     -73.8    51     1701   09 36 41

09 37 50  J0244+6228   22 23 53  55.5  47.8 -4.4     -74.8   -19     1701   No stop
09 38 50  =0241+622    22 24 53  55.6  47.9 -4.4     -75.0    41     1709   09 37 51

09 38 50  LSI61303     22 24 53  55.8  50.2 -4.3     -74.0   -19     1709   No stop
09 40 00  ---          22 26 03  55.9  50.3 -4.3     -74.2    51     1718   09 38 51

09 40 30  J0244+6228   22 26 33  55.8  47.9 -4.3     -75.3    11     1718   09 40 30
09 41 30  =0241+622    22 27 33  55.9  48.0 -4.3     -75.4    60     1726   09 40 31

09 41 30  LSI61303     22 27 33  56.1  50.4 -4.2     -74.5   -19     1726   No stop
09 42 40  ---          22 28 43  56.2  50.4 -4.2     -74.7    51     1735   09 41 31

09 42 40  J0244+6228   22 28 43  56.0  48.1 -4.3     -75.7   -19     1735   No stop
09 43 40  =0241+622    22 29 44  56.1  48.1 -4.3     -75.8    41     1742   09 42 41

09 43 40  LSI61303     22 29 44  56.3  50.5 -4.2     -74.8   -19     1742   No stop
09 44 50  ---          22 30 54  56.5  50.6 -4.2     -75.0    51     1751   09 43 41

09 45 20  J0244+6228   22 31 24  56.3  48.2 -4.2     -76.1    11     1751   09 45 20
09 46 20  =0241+622    22 32 24  56.4  48.2 -4.2     -76.3    60     1759   09 45 21

09 46 20  LSI61303     22 32 24  56.6  50.7 -4.2     -75.3   -19     1759   No stop
09 47 30  ---          22 33 34  56.8  50.7 -4.1     -75.5    51     1768   09 46 21

09 47 30  J0244+6228   22 33 34  56.6  48.3 -4.2     -76.5   -19     1768   No stop
09 48 30  =0241+622    22 34 34  56.7  48.4 -4.2     -76.7    41     1776   09 47 31

09 48 30  LSI61303     22 34 34  56.9  50.8 -4.1     -75.7   -19     1776   No stop
09 49 40  ---          22 35 45  57.0  50.8 -4.1     -75.9    51     1785   09 48 31

09 50 10  J0244+6228   22 36 15  56.9  48.4 -4.2     -77.0    11     1785   09 50 10
09 51 10  =0241+622    22 37 15  57.0  48.5 -4.2     -77.2    60     1792   09 50 11

09 51 10  LSI61303     22 37 15  57.2  50.9 -4.1     -76.1   -19     1792   No stop
09 52 20  ---          22 38 25  57.3  51.0 -4.1     -76.3    51     1801   09 51 11
```

Schedule for TORUN (Code Tr) Page 16

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
09 52 20	J0244+6228	22 38 25	57.1	48.5	-4.1		-77.4	-19	1801	No stop
09 53 20	=0241+622	22 39 25	57.2	48.6	-4.1		-77.6	41	1809	09 52 21
09 53 20	LSI61303	22 39 25	57.4	51.0	-4.0		-76.5	-19	1809	No stop
09 54 30	---	22 40 35	57.6	51.1	-4.0		-76.7	51	1818	09 53 21
09 55 00	J0244+6228	22 41 05	57.4	48.7	-4.1		-77.9	11	1818	09 55 00
09 56 00	=0241+622	22 42 06	57.5	48.7	-4.1		-78.1	60	1826	09 55 01
09 56 00	LSI61303	22 42 06	57.8	51.2	-4.0		-77.0	-19	1826	No stop
09 57 10	---	22 43 16	57.9	51.2	-4.0		-77.2	51	1835	09 56 01
09 57 10	J0244+6228	22 43 16	57.6	48.8	-4.1		-78.3	-19	1835	No stop
09 58 10	=0241+622	22 44 16	57.8	48.8	-4.0		-78.5	41	1842	09 57 11
09 58 10	LSI61303	22 44 16	58.0	51.3	-4.0		-77.4	-19	1842	No stop
09 59 20	---	22 45 26	58.2	51.3	-3.9		-77.6	51	1851	09 58 11
09 59 50	J0244+6228	22 45 56	57.9	48.9	-4.0		-78.8	11	1851	09 59 50
10 00 50	=0241+622	22 46 56	58.1	48.9	-4.0		-79.0	60	1859	09 59 51
10 00 50	LSI61303	22 46 56	58.3	51.4	-3.9		-77.8	-19	1859	No stop
10 02 00	---	22 48 07	58.5	51.5	-3.9		-78.1	51	1868	10 00 51
10 02 00	J0244+6228	22 48 07	58.2	49.0	-4.0		-79.2	-19	1868	No stop
10 03 00	=0241+622	22 49 07	58.3	49.0	-4.0		-79.4	41	1876	10 02 01
10 03 00	LSI61303	22 49 07	58.6	51.5	-3.9		-78.2	-19	1876	No stop
10 04 10	---	22 50 17	58.7	51.6	-3.9		-78.4	51	1885	10 03 01
10 04 40	J0244+6228	22 50 47	58.5	49.1	-3.9		-79.7	11	1885	10 04 40
10 05 40	=0241+622	22 51 47	58.6	49.1	-3.9		-79.9	60	1892	10 04 41
10 05 40	LSI61303	22 51 47	58.9	51.6	-3.8		-78.7	-19	1892	No stop
10 06 50	---	22 52 57	59.0	51.7	-3.8		-78.9	51	1901	10 05 41
10 06 50	J0244+6228	22 52 57	58.7	49.1	-3.9		-80.1	-19	1901	No stop
10 07 50	=0241+622	22 53 58	58.9	49.2	-3.9		-80.3	41	1909	10 06 51
10 07 50	LSI61303	22 53 58	59.2	51.7	-3.8		-79.1	-19	1909	No stop
10 09 00	---	22 55 08	59.3	51.8	-3.8		-79.3	51	1918	10 07 51
10 09 30	J0244+6228	22 55 38	59.0	49.2	-3.8		-80.6	11	1918	10 09 30
10 10 30	=0241+622	22 56 38	59.2	49.3	-3.8		-80.8	60	1926	10 09 31

Schedule for TORUN (Code Tr) Page 17

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
10 10 30	LSI61303	22 56 38	59.5	51.9	-3.8		-79.6	-19	1926	No stop
10 11 40	---	22 57 48	59.6	51.9	-3.7		-79.8	51	1935	10 10 31
10 11 40	J0244+6228	22 57 48	59.3	49.3	-3.8		-81.0	-19	1935	No stop
10 12 40	=0241+622	22 58 48	59.4	49.4	-3.8		-81.2	41	1942	10 11 41
10 12 40	LSI61303	22 58 48	59.7	51.9	-3.7		-80.0	-19	1942	No stop
10 13 50	---	22 59 59	59.9	52.0	-3.7		-80.2	51	1951	10 12 41
10 14 20	J0244+6228	23 00 29	59.6	49.4	-3.8		-81.6	11	1951	10 14 20
10 15 20	=0241+622	23 01 29	59.7	49.5	-3.7		-81.7	60	1959	10 14 21
10 15 20	LSI61303	23 01 29	60.0	52.0	-3.7		-80.5	-19	1959	No stop
10 16 30	---	23 02 39	60.2	52.1	-3.7		-80.7	51	1968	10 15 21
10 16 30	J0244+6228	23 02 39	59.8	49.5	-3.7		-82.0	-19	1968	No stop
10 17 30	=0241+622	23 03 39	60.0	49.5	-3.7		-82.2	41	1976	10 16 31
10 17 30	LSI61303	23 03 39	60.3	52.1	-3.6		-80.9	-19	1976	No stop
10 18 40	---	23 04 49	60.4	52.2	-3.6		-81.1	51	1985	10 17 31
10 19 10	J0244+6228	23 05 19	60.2	49.6	-3.7		-82.5	11	1985	10 19 10
10 20 10	=0241+622	23 06 20	60.3	49.6	-3.7		-82.7	60	1992	10 19 11
10 20 10	LSI61303	23 06 20	60.6	52.2	-3.6		-81.4	-20	1992	No stop
10 21 20	---	23 07 30	60.8	52.3	-3.6		-81.6	50	2001	10 20 11
10 21 20	J0244+6228	23 07 30	60.4	49.6	-3.6		-82.9	-20	2001	No stop
10 22 20	=0241+622	23 08 30	60.5	49.7	-3.6		-83.1	40	2009	10 21 21
10 22 20	LSI61303	23 08 30	60.9	52.3	-3.6		-81.8	-20	2009	No stop
10 23 30	---	23 09 40	61.0	52.4	-3.5		-82.0	50	2018	10 22 21
10 24 00	J0244+6228	23 10 10	60.7	49.7	-3.6		-83.4	10	2018	10 24 00
10 25 00	=0241+622	23 11 10	60.8	49.7	-3.6		-83.6	60	2026	10 24 01
10 25 00	LSI61303	23 11 10	61.2	52.4	-3.5		-82.3	-20	2026	No stop
10 26 10	---	23 12 21	61.3	52.4	-3.5		-82.5	50	2035	10 25 01
10 26 10	J0244+6228	23 12 21	61.0	49.8	-3.6		-83.9	-20	2035	No stop
10 27 10	=0241+622	23 13 21	61.1	49.8	-3.6		-84.1	40	2042	10 26 11
10 27 10	LSI61303	23 13 21	61.4	52.5	-3.5		-82.7	-20	2042	No stop
10 28 20	---	23 14 31	61.6	52.5	-3.5		-82.9	50	2051	10 27 11

Schedule for TORUN (Code Tr) Page 18

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
10 28 50	J0244+6228	23 15 01	61.3	49.8	-3.5		-84.4	10	2051	10 28 50
10 29 50	=0241+622	23 16 01	61.4	49.9	-3.5		-84.6	60	2059	10 28 51
10 29 50	LSI61303	23 16 01	61.8	52.6	-3.4		-83.2	-20	2059	No stop
10 31 00	---	23 17 11	61.9	52.6	-3.4		-83.5	50	2068	10 29 51
10 31 00	J0244+6228	23 17 11	61.5	49.9	-3.5		-84.9	-20	2068	No stop
10 32 00	=0241+622	23 18 12	61.6	49.9	-3.5		-85.1	40	2076	10 31 01
10 32 00	LSI61303	23 18 12	62.0	52.6	-3.4		-83.6	-20	2076	No stop
10 33 10	---	23 19 22	62.2	52.7	-3.4		-83.9	50	2085	10 32 01
10 33 40	J0244+6228	23 19 52	61.8	49.9	-3.4		-85.4	10	2085	10 33 40
10 34 40	=0241+622	23 20 52	61.9	50.0	-3.4		-85.6	60	2092	10 33 41
10 34 40	J0102+5824	23 20 52	74.7	59.1	-1.7		-99.4	-62	2092	No stop
10 38 40	=0059+581	23 24 53	75.2	58.8	-1.6		-100.6	178	2123	10 34 41
10 40 00	J0244+6228	23 26 13	62.5	50.0	-3.3		-86.7	19	2123	10 40 00
10 41 00	=0241+622	23 27 13	62.7	50.1	-3.3		-86.9	60	2131	10 40 01
10 41 00	LSI61303	23 27 13	63.1	52.8	-3.2		-85.4	-20	2131	No stop
10 42 10	---	23 28 23	63.2	52.9	-3.2		-85.7	50	2140	10 41 01
10 42 10	J0244+6228	23 28 23	62.8	50.1	-3.3		-87.2	-20	2140	No stop
10 43 10	=0241+622	23 29 23	62.9	50.1	-3.3		-87.4	40	2147	10 42 11
10 43 10	LSI61303	23 29 23	63.4	52.9	-3.2		-85.9	-20	2147	No stop
10 44 20	---	23 30 34	63.5	52.9	-3.2		-86.1	50	2156	10 43 11
10 45 00	J0244+6228	23 31 14	63.1	50.1	-3.3		-87.8	20	2156	10 45 00
10 46 00	=0241+622	23 32 14	63.2	50.1	-3.2		-88.0	60	2164	10 45 01
10 46 00	LSI61303	23 32 14	63.7	52.9	-3.2		-86.4	-20	2164	No stop
10 47 10	---	23 33 24	63.8	53.0	-3.1		-86.7	50	2173	10 46 01
10 47 10	J0244+6228	23 33 24	63.4	50.1	-3.2		-88.2	-20	2173	No stop
10 48 10	=0241+622	23 34 24	63.5	50.1	-3.2		-88.5	40	2181	10 47 11
10 48 10	LSI61303	23 34 24	64.0	53.0	-3.1		-86.9	-20	2181	No stop
10 49 20	---	23 35 34	64.1	53.0	-3.1		-87.1	50	2190	10 48 11
10 50 00	J0244+6228	23 36 15	63.7	50.1	-3.2		-88.8	20	2190	10 50 00
10 51 00	=0241+622	23 37 15	63.8	50.1	-3.2		-89.1	60	2197	10 50 01

Schedule for TORUN (Code Tr) Page 19

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
10 51 00	LSI61303	23 37 15	64.3	53.0	-3.1		-87.5	-20	2197	No stop
10 52 10	---	23 38 25	64.4	53.0	-3.1		-87.7	50	2206	10 51 01
10 52 10	J0244+6228	23 38 25	64.0	50.2	-3.1		-89.3	-20	2206	No stop
10 53 10	=0241+622	23 39 25	64.1	50.2	-3.1		-89.5	40	2214	10 52 11
10 53 10	LSI61303	23 39 25	64.6	53.0	-3.0		-87.9	-20	2214	No stop
10 54 20	---	23 40 35	64.7	53.0	-3.0		-88.2	50	2223	10 53 11
10 55 00	J0244+6228	23 41 15	64.3	50.2	-3.1		-89.9	20	2223	10 55 00
10 56 00	=0241+622	23 42 15	64.4	50.2	-3.1		-90.2	60	2231	10 55 01
10 56 00	LSI61303	23 42 15	64.9	53.1	-3.0		-88.5	-20	2231	No stop
10 57 10	---	23 43 26	65.0	53.1	-3.0		-88.8	50	2240	10 56 01
10 57 10	J0244+6228	23 43 26	64.5	50.2	-3.0		-90.4	-20	2240	No stop
10 58 10	=0241+622	23 44 26	64.6	50.2	-3.0		-90.7	40	2247	10 57 11
10 58 10	LSI61303	23 44 26	65.2	53.1	-3.0		-89.0	-20	2247	No stop
10 59 20	---	23 45 36	65.3	53.1	-2.9		-89.2	50	2256	10 58 11
11 00 00	J0244+6228	23 46 16	64.9	50.1	-3.0		-91.1	20	2256	11 00 00
11 01 00	=0241+622	23 47 16	65.0	50.1	-3.0		-91.3	60	2264	11 00 01
11 01 00	LSI61303	23 47 16	65.5	53.1	-2.9		-89.6	-20	2264	No stop
11 02 10	---	23 48 27	65.6	53.1	-2.9		-89.9	50	2273	11 01 01
11 02 10	J0244+6228	23 48 27	65.1	50.1	-3.0		-91.6	-20	2273	No stop
11 03 10	=0241+622	23 49 27	65.2	50.1	-2.9		-91.8	40	2281	11 02 11
11 03 10	LSI61303	23 49 27	65.8	53.1	-2.9		-90.1	-20	2281	No stop
11 04 20	---	23 50 37	65.9	53.1	-2.9		-90.3	50	2290	11 03 11
11 05 00	J0244+6228	23 51 17	65.4	50.1	-2.9		-92.2	20	2290	11 05 00
11 06 00	=0241+622	23 52 17	65.6	50.1	-2.9		-92.5	60	2297	11 05 01
11 06 00	LSI61303	23 52 17	66.1	53.1	-2.8		-90.7	-20	2297	No stop
11 07 10	---	23 53 27	66.3	53.1	-2.8		-91.0	50	2306	11 06 01
11 07 10	J0244+6228	23 53 27	65.7	50.1	-2.9		-92.7	-20	2306	No stop
11 08 10	=0241+622	23 54 27	65.8	50.1	-2.9		-93.0	40	2314	11 07 11
11 08 10	LSI61303	23 54 27	66.4	53.1	-2.8		-91.2	-21	2314	No stop
11 09 20	---	23 55 38	66.5	53.1	-2.8		-91.5	49	2323	11 08 11

Schedule for TORUN (Code Tr) Page 20
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
11 10 00	J0244+6228	23 56 18	66.0	50.0	-2.8		-93.4	19	2323	11 10 00
11 11 00	=0241+622	23 57 18	66.1	50.0	-2.8		-93.6	60	2331	11 10 01
11 11 00	LSI61303	23 57 18	66.7	53.0	-2.7		-91.8	-21	2331	No stop
11 12 10	---	23 58 28	66.9	53.0	-2.7		-92.1	49	2340	11 11 01
11 12 10	J0244+6228	23 58 28	66.3	50.0	-2.8		-93.9	-21	2340	No stop
11 13 10	=0241+622	23 59 28	66.4	50.0	-2.8		-94.2	39	2347	11 12 11
11 13 10	LSI61303	23 59 28	67.0	53.0	-2.7		-92.3	-21	2347	No stop
11 14 20	---	00 00 39	67.1	53.0	-2.7		-92.6	49	2356	11 13 11
11 15 00	J0244+6228	00 01 19	66.6	49.9	-2.8		-94.6	19	2356	11 15 00
11 16 00	=0241+622	00 02 19	66.7	49.9	-2.7		-94.8	60	2364	11 15 01
11 16 00	LSI61303	00 02 19	67.3	53.0	-2.7		-93.0	-21	2364	No stop
11 17 10	---	00 03 29	67.5	53.0	-2.6		-93.3	49	2373	11 16 01
11 17 10	J0244+6228	00 03 29	66.8	49.9	-2.7		-95.1	-21	2373	No stop
11 18 10	=0241+622	00 04 29	67.0	49.9	-2.7		-95.4	39	2381	11 17 11
11 18 10	LSI61303	00 04 29	67.6	52.9	-2.6		-93.5	-21	2381	No stop
11 19 20	---	00 05 39	67.7	52.9	-2.6		-93.8	49	2390	11 18 11
11 20 00	J0244+6228	00 06 19	67.2	49.8	-2.7		-95.8	19	2390	11 20 00
11 21 00	=0241+622	00 07 20	67.3	49.8	-2.7		-96.1	60	2397	11 20 01
11 21 00	LSI61303	00 07 20	67.9	52.9	-2.6		-94.2	-21	2397	No stop
11 22 10	---	00 08 30	68.1	52.9	-2.6		-94.5	49	2406	11 21 01
11 22 10	J0244+6228	00 08 30	67.4	49.7	-2.6		-96.4	-21	2406	No stop
11 23 10	=0241+622	00 09 30	67.5	49.7	-2.6		-96.6	39	2414	11 22 11
11 23 10	LSI61303	00 09 30	68.2	52.8	-2.5		-94.7	-21	2414	No stop
11 24 20	---	00 10 40	68.3	52.8	-2.5		-95.0	49	2423	11 23 11
11 25 00	J0244+6228	00 11 20	67.7	49.6	-2.6		-97.1	19	2423	11 25 00
11 26 00	=0241+622	00 12 20	67.9	49.6	-2.6		-97.4	60	2431	11 25 01
11 26 00	LSI61303	00 12 20	68.5	52.7	-2.5		-95.4	-21	2431	No stop
11 27 10	---	00 13 31	68.7	52.7	-2.5		-95.7	49	2440	11 26 01
11 27 10	J0244+6228	00 13 31	68.0	49.5	-2.5		-97.7	-21	2440	No stop
11 28 10	=0241+622	00 14 31	68.1	49.5	-2.5		-97.9	39	2447	11 27 11

Schedule for TORUN (Code Tr) Page 21
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
11 28 10	LSI61303	00 14 31	68.8	52.7	-2.5		-96.0	-21	2447	No stop
11 29 20	---	00 15 41	68.9	52.6	-2.4		-96.3	49	2456	11 28 11
11 30 00	J0244+6228	00 16 21	68.3	49.4	-2.5		-98.4	19	2456	11 30 00
11 31 00	=0241+622	00 17 21	68.4	49.4	-2.5		-98.7	60	2464	11 30 01
11 31 00	LSI61303	00 17 21	69.1	52.6	-2.4		-96.7	-21	2464	No stop
11 32 10	---	00 18 31	69.3	52.5	-2.4		-97.0	49	2473	11 31 01
11 32 10	J0244+6228	00 18 31	68.6	49.3	-2.5		-99.0	-21	2473	No stop
11 33 10	=0241+622	00 19 32	68.7	49.3	-2.4		-99.3	39	2481	11 32 11
11 33 10	LSI61303	00 19 32	69.4	52.5	-2.4		-97.2	-21	2481	No stop
11 34 20	---	00 20 42	69.5	52.4	-2.4		-97.5	49	2490	11 33 11
11 35 00	J0244+6228	00 21 22	68.9	49.2	-2.4		-99.8	19	2490	11 35 00
11 36 00	=0241+622	00 22 22	69.0	49.1	-2.4		-100.0	60	2497	11 35 01
11 36 00	LSI61303	00 22 22	69.7	52.4	-2.3		-98.0	-21	2497	No stop
11 37 10	---	00 23 32	69.8	52.3	-2.3		-98.3	49	2506	11 36 01
11 37 10	J0244+6228	00 23 32	69.1	49.1	-2.4		-100.3	-21	2506	No stop
11 38 10	=0241+622	00 24 32	69.2	49.0	-2.4		-100.6	39	2514	11 37 11
11 38 10	LSI61303	00 24 32	70.0	52.2	-2.3		-98.6	-21	2514	No stop
11 39 20	---	00 25 43	70.1	52.2	-2.3		-98.9	49	2523	11 38 11
11 40 00	J0244+6228	00 26 23	69.5	48.9	-2.3		-101.1	19	2523	11 40 00
11 41 00	=0241+622	00 27 23	69.6	48.8	-2.3		-101.4	60	2531	11 40 01
11 41 00	LSI61303	00 27 23	70.3	52.1	-2.2		-99.3	-21	2531	No stop
11 42 10	---	00 28 33	70.4	52.0	-2.2		-99.7	49	2540	11 41 01
11 42 10	J0244+6228	00 28 33	69.7	48.7	-2.3		-101.8	-21	2540	No stop
11 43 10	=0241+622	00 29 33	69.8	48.7	-2.3		-102.0	39	2547	11 42 11
11 43 10	LSI61303	00 29 33	70.6	52.0	-2.2		-99.9	-21	2547	No stop
11 44 20	---	00 30 43	70.7	51.9	-2.2		-100.3	49	2556	11 43 11
11 45 00	J0244+6228	00 31 24	70.0	48.5	-2.2		-102.6	19	2556	11 45 00
11 46 00	=0241+622	00 32 24	70.1	48.5	-2.2		-102.9	60	2564	11 45 01
11 46 00	LSI61303	00 32 24	70.9	51.8	-2.2		-100.7	-21	2564	No stop
11 47 10	---	00 33 34	71.0	51.7	-2.1		-101.1	49	2573	11 46 01

Schedule for TORUN (Code Tr) Page 22
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
11 47 10	J0244+6228	00 33 34	70.3	48.4	-2.2		-103.2	-21	2573	No stop
11 48 10	=0241+622	00 34 34	70.4	48.3	-2.2		-103.5	39	2581	11 47 11
11 48 10	LSI61303	00 34 34	71.2	51.6	-2.1		-101.4	-21	2581	No stop
11 49 20	---	00 35 44	71.3	51.5	-2.1		-101.7	49	2590	11 48 11
11 50 00	J0244+6228	00 36 24	70.6	48.1	-2.2		-104.1	19	2590	11 50 00
11 51 00	=0241+622	00 37 25	70.7	48.1	-2.1		-104.4	60	2597	11 50 01
11 51 00	LSI61303	00 37 25	71.5	51.4	-2.1		-102.2	-21	2597	No stop
11 52 10	---	00 38 35	71.6	51.3	-2.1		-102.5	49	2606	11 51 01
11 52 10	J0244+6228	00 38 35	70.8	48.0	-2.1		-104.7	-21	2606	No stop
11 53 10	=0241+622	00 39 35	70.9	47.9	-2.1		-105.0	39	2614	11 52 11
11 53 10	LSI61303	00 39 35	71.7	51.2	-2.0		-102.8	-21	2614	No stop
11 54 20	---	00 40 45	71.9	51.1	-2.0		-103.2	49	2623	11 53 11
11 55 00	J0244+6228	00 41 25	71.1	47.7	-2.1		-105.6	19	2623	11 55 00
11 56 00	=0241+622	00 42 25	71.2	47.6	-2.1		-105.9	60	2631	11 55 01
11 56 00	LSI61303	00 42 25	72.1	51.0	-2.0		-103.7	-21	2631	No stop
11 57 10	---	00 43 36	72.2	50.9	-2.0		-104.1	49	2640	11 56 01
11 57 10	J0244+6228	00 43 36	71.4	47.5	-2.0		-106.3	-22	2640	No stop
11 58 10	=0241+622	00 44 36	71.5	47.4	-2.0		-106.6	38	2647	11 57 11
11 58 10	LSI61303	00 44 36	72.3	50.8	-2.0		-104.4	-21	2647	No stop
11 59 20	---	00 45 46	72.5	50.6	-1.9		-104.7	49	2656	11 58 11
12 00 00	J0244+6228	00 46 26	71.7	47.2	-2.0		-107.2	18	2656	12 00 00
12 01 00	=0241+622	00 47 26	71.8	47.1	-2.0		-107.5	60	2664	12 00 01
12 01 00	LSI61303	00 47 26	72.7	50.5	-1.9		-105.3	-21	2664	No stop
12 02 10	---	00 48 36	72.8	50.3	-1.9		-105.6	49	2673	12 01 01
12 02 10	J0244+6228	00 48 36	71.9	46.9	-2.0		-107.9	-22	2673	No stop
12 03 10	=0241+622	00 49 37	72.0	46.8	-1.9		-108.2	38	2681	12 02 11
12 03 10	LSI61303	00 49 37	72.9	50.2	-1.9		-106.0	-21	2681	No stop
12 04 20	---	00 50 47	73.0	50.1	-1.9		-106.4	49	2690	12 03 11
12 05 00	J0244+6228	00 51 27	72.2	46.6	-1.9		-108.9	18	2690	12 05 00
12 06 00	=0241+622	00 52 27	72.4	46.5	-1.9		-109.2	60	2697	12 05 01

Schedule for TORUN (Code Tr) Page 23
EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
12 06 00	LSI61303	00 52 27	73.2	49.9	-1.8		-106.9	-21	2697	No stop
12 07 10	---	00 53 37	73.4	49.8	-1.8		-107.3	49	2706	12 06 01
12 07 10	J0244+6228	00 53 37	72.5	46.3	-1.9		-109.6	-22	2706	No stop
12 08 10	=0241+622	00 54 37	72.6	46.2	-1.9		-109.9	38	2714	12 07 11
12 08 10	LSI61303	00 54 37	73.5	49.6	-1.8		-107.6	-21	2714	No stop
12 09 20	---	00 55 48	73.6	49.5	-1.8		-108.0	49	2723	12 08 11
12 10 00	J0244+6228	00 56 28	72.8	46.0	-1.8		-110.6	18	2723	12 10 00
12 11 00	=0241+622	00 57 28	72.9	45.8	-1.8		-110.9	60	2731	12 10 01
12 11 00	LSI61303	00 57 28	73.8	49.3	-1.7		-108.6	-22	2731	No stop
12 12 10	---	00 58 38	73.9	49.1	-1.7		-109.0	48	2740	12 11 01
12 12 10	J0244+6228	00 58 38	73.0	45.6	-1.8		-111.4	-22	2740	No stop
12 13 10	=0241+622	00 59 38	73.1	45.5	-1.8		-111.7	38	2747	12 12 11
12 13 10	LSI61303	00 59 38	74.1	49.0	-1.7		-109.4	-22	2747	No stop
12 14 20	---	01 00 48	74.2	48.8	-1.7		-109.8	48	2756	12 13 11
12 15 00	J0244+6228	01 01 28	73.3	45.2	-1.7		-112.4	18	2756	12 15 00
12 16 00	=0241+622	01 02 29	73.4	45.1	-1.7		-112.8	60	2764	12 15 01
12 16 00	LSI61303	01 02 29	74.4	48.5	-1.7		-110.4	-22	2764	No stop
12 17 10	---	01 03 39	74.5	48.3	-1.6		-110.9	48	2773	12 16 01
12 17 10	J0244+6228	01 03 39	73.6	44.9	-1.7		-113.2	-22	2773	No stop
12 18 10	=0241+622	01 04 39	73.7	44.7	-1.7		-113.6	38	2781	12 17 11
12 18 10	LSI61303	01 04 39	74.6	48.2	-1.6		-111.2	-22	2781	No stop
12 19 20	---	01 05 49	74.7	48.0	-1.6		-111.7	48	2790	12 18 11
12 20 00	J0244+6228	01 06 29	73.9	44.4	-1.7		-114.3	18	2790	12 20 00
12 21 00	=0241+622	01 07 29	74.0	44.2	-1.6		-114.7	60	2797	12 20 01
12 21 00	LSI61303	01 07 29	74.9	47.7	-1.6		-112.3	-22	2797	No stop
12 22 10	---	01 08 40	75.1	47.5	-1.6		-112.8	48	2806	12 21 01
12 22 10	J0244+6228	01 08 40	74.1	44.0	-1.6		-115.1	-22	2806	No stop
12 23 10	=0241+622	01 09 40	74.2	43.9	-1.6		-115.5	38	2814	12 22 11
12 23 10	LSI61303	01 09 40	75.2	47.3	-1.5		-113.2	-21	2814	No stop
12 24 20	---	01 10 50	75.3	47.1	-1.5		-113.7	49	2823	12 23 11

Schedule for TORUN (Code Tr) Page 24

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
12 25 00	J0244+6228	01 11 30	74.4	43.5	-1.6		-116.3	18	2823	12 25 00
12 26 00	=0241+622	01 12 30	74.5	43.3	-1.6		-116.7	60	2831	12 25 01
12 26 00	LSI61303	01 12 30	75.5	46.8	-1.5		-114.3	-21	2831	No stop
12 27 10	---	01 13 40	75.6	46.5	-1.5		-114.8	49	2840	12 26 01
12 27 10	J0244+6228	01 13 40	74.6	43.1	-1.5		-117.2	-22	2840	No stop
12 28 10	=0241+622	01 14 41	74.7	42.9	-1.5		-117.6	38	2847	12 27 11
12 28 10	LSI61303	01 14 41	75.7	46.3	-1.5		-115.2	-21	2847	No stop
12 29 20	---	01 15 51	75.9	46.1	-1.4		-115.7	49	2856	12 28 11
12 30 00	J0244+6228	01 16 31	74.9	42.5	-1.5		-118.3	18	2856	12 30 00
12 31 00	=0241+622	01 17 31	75.0	42.3	-1.5		-118.8	60	2864	12 30 01
12 31 00	LSI61303	01 17 31	76.0	45.7	-1.4		-116.5	-21	2864	No stop
12 32 10	---	01 18 41	76.2	45.5	-1.4		-117.0	49	2873	12 31 01
12 32 10	J0244+6228	01 18 41	75.1	42.0	-1.5		-119.3	-22	2873	No stop
12 33 10	=0241+622	01 19 41	75.2	41.8	-1.4		-119.7	38	2881	12 32 11
12 33 10	LSI61303	01 19 41	76.3	45.2	-1.4		-117.4	-21	2881	No stop
12 34 20	---	01 20 52	76.4	44.9	-1.4		-117.9	49	2890	12 33 11
12 35 00	J0244+6228	01 21 32	75.4	41.4	-1.4		-120.5	18	2890	12 35 00
12 36 00	=0241+622	01 22 32	75.5	41.2	-1.4		-121.0	60	2897	12 35 01
12 36 00	LSI61303	01 22 32	76.6	44.5	-1.3		-118.7	-21	2897	No stop
12 37 10	---	01 23 42	76.7	44.2	-1.3		-119.2	49	2906	12 36 01
12 37 10	J0244+6228	01 23 42	75.6	40.9	-1.4		-121.5	-22	2906	No stop
12 38 10	=0241+622	01 24 42	75.7	40.6	-1.4		-122.0	38	2914	12 37 11
12 38 10	LSI61303	01 24 42	76.8	44.0	-1.3		-119.7	-21	2914	No stop
12 39 20	---	01 25 52	76.9	43.7	-1.3		-120.3	49	2923	12 38 11
12 40 00	J0244+6228	01 26 33	75.9	40.2	-1.3		-122.8	19	2923	12 40 00
12 41 00	=0241+622	01 27 33	76.0	39.9	-1.3		-123.3	60	2931	12 40 01
12 41 00	LSI61303	01 27 33	77.1	43.2	-1.2		-121.1	-21	2931	No stop
12 42 10	---	01 28 43	77.2	42.9	-1.2		-121.7	49	2940	12 41 01
12 42 10	J0244+6228	01 28 43	76.1	39.6	-1.3		-123.9	-21	2940	No stop
12 43 10	=0241+622	01 29 43	76.2	39.3	-1.3		-124.3	39	2947	12 42 11

Schedule for TORUN (Code Tr) Page 25

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
12 43 10	LSI61303	01 29 43	77.3	42.6	-1.2		-122.2	-21	2947	No stop
12 44 20	---	01 30 53	77.4	42.3	-1.2		-122.7	49	2956	12 43 11
12 45 00	J0244+6228	01 31 33	76.4	38.8	-1.2		-125.2	19	2956	12 45 00
12 46 00	=0241+622	01 32 34	76.5	38.6	-1.2		-125.7	60	2964	12 45 01
12 46 00	LSI61303	01 32 34	77.6	41.8	-1.2		-123.6	-21	2964	No stop
12 47 10	---	01 33 44	77.7	41.4	-1.1		-124.2	49	2973	12 46 01
12 47 10	J0244+6228	01 33 44	76.6	38.2	-1.2		-126.3	-21	2973	No stop
12 48 10	=0241+622	01 34 44	76.7	37.9	-1.2		-126.8	39	2981	12 47 11
12 48 10	LSI61303	01 34 44	77.8	41.1	-1.1		-124.8	-21	2981	No stop
12 49 20	---	01 35 54	77.9	40.7	-1.1		-125.4	49	2990	12 48 11
12 50 00	J0244+6228	01 36 34	76.8	37.4	-1.2		-127.8	19	2990	12 50 00
12 51 00	=0241+622	01 37 34	76.9	37.0	-1.1		-128.3	60	2997	12 50 01
12 51 00	LSI61303	01 37 34	78.1	40.1	-1.1		-126.3	-20	2997	No stop
12 52 10	---	01 38 45	78.2	39.7	-1.1		-127.0	50	3006	12 51 01
12 52 10	J0244+6228	01 38 45	77.0	36.7	-1.1		-128.9	-21	3006	No stop
12 53 10	=0241+622	01 39 45	77.1	36.3	-1.1		-129.5	39	3014	12 52 11
12 53 10	LSI61303	01 39 45	78.3	39.4	-1.0		-127.5	-20	3014	No stop
12 54 20	---	01 40 55	78.4	38.9	-1.0		-128.2	50	3023	12 53 11
12 55 00	J0244+6228	01 41 35	77.3	35.7	-1.1		-130.5	19	3023	12 55 00
12 56 00	=0241+622	01 42 35	77.4	35.4	-1.1		-131.1	60	3031	12 55 01
12 56 00	LSI61303	01 42 35	78.6	38.3	-1.0		-129.2	-20	3031	No stop
12 57 10	---	01 43 45	78.7	37.8	-1.0		-129.9	50	3040	12 56 01
12 57 10	J0244+6228	01 43 45	77.5	35.0	-1.0		-131.7	-20	3040	No stop
12 58 10	=0241+622	01 44 46	77.6	34.6	-1.0		-132.3	40	3047	12 57 11
12 58 10	LSI61303	01 44 46	78.8	37.4	-1.0		-130.5	-20	3047	No stop
12 59 20	---	01 45 56	78.9	37.0	-0.9		-131.2	50	3056	12 58 11
13 00 00	J0244+6228	01 46 36	77.7	33.9	-1.0		-133.3	20	3056	13 00 00
13 01 00	=0241+622	01 47 36	77.8	33.6	-1.0		-133.9	60	3064	13 00 01
13 01 00	LSI61303	01 47 36	79.0	36.3	-0.9		-132.3	-19	3064	No stop
13 02 10	---	01 48 46	79.1	35.8	-0.9		-133.0	51	3073	13 01 01

Schedule for TORUN (Code Tr) Page 26

EM132A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 15 Mar 2018 Day 74 ---										
13 02 10	J0244+6228	01 48 46	77.9	33.1	-1.0		-134.6	-20	3073	No stop
13 03 10	=0241+622	01 49 46	78.0	32.7	-0.9		-135.2	40	3081	13 02 11
13 03 10	LSI61303	01 49 46	79.2	35.3	-0.9		-133.7	-19	3081	No stop
13 04 20	---	01 50 57	79.3	34.8	-0.8		-134.4	51	3090	13 03 11
13 05 00	J0244+6228	01 51 37	78.1	32.0	-0.9		-136.4	20	3090	13 05 00
13 06 00	=0241+622	01 52 37	78.2	31.6	-0.9		-137.0	60	3097	13 05 01
13 06 00	LSI61303	01 52 37	79.5	34.0	-0.8		-135.6	-19	3097	No stop
13 07 10	---	01 53 47	79.6	33.5	-0.8		-136.4	51	3106	13 06 01
13 07 10	J0244+6228	01 53 47	78.3	31.1	-0.9		-137.7	-19	3106	No stop
13 08 10	=0241+622	01 54 47	78.4	30.7	-0.9		-138.4	41	3114	13 07 11
13 08 10	LSI61303	01 54 47	79.6	33.0	-0.8		-137.1	-18	3114	No stop
13 09 20	---	01 55 57	79.7	32.4	-0.8		-137.9	52	3123	13 08 11
13 10 00	J0244+6228	01 56 38	78.5	29.9	-0.8		-139.6	21	3123	13 10 00
13 11 00	=0241+622	01 57 38	78.6	29.4	-0.8		-140.2	60	3131	13 10 01
13 11 00	LSI61303	01 57 38	79.9	31.6	-0.7		-139.1	-18	3131	No stop
13 12 10	---	01 58 48	80.0	31.0	-0.7		-139.9	52	3140	13 11 01
13 12 10	J0244+6228	01 58 48	78.7	28.9	-0.8		-141.0	-18	3140	No stop
13 13 10	=0241+622	01 59 48	78.7	28.4	-0.8		-141.7	42	3147	13 12 11
13 13 10	LSI61303	01 59 48	80.0	30.4	-0.7		-140.7	-18	3147	No stop
13 14 20	---	02 00 58	80.1	29.8	-0.7		-141.6	52	3156	13 13 11
13 15 00	J0244+6228	02 01 38	78.9	27.6	-0.7		-142.9	22	3156	13 15 00
13 16 00	=0241+622	02 02 38	78.9	27.1	-0.7		-143.6	60	3164	13 15 01
13 16 00	LSI61303	02 02 38	80.2	28.9	-0.7		-142.9	-18	3164	No stop
13 17 10	---	02 03 49	80.3	28.2	-0.6		-143.8	52	3173	13 16 01
13 17 10	J0244+6228	02 03 49	79.0	26.5	-0.7		-144.4	-18	3173	No stop
13 18 10	=0241+622	02 04 49	79.1	26.0	-0.7		-145.1	42	3181	13 17 11
13 18 10	LSI61303	02 04 49	80.4	27.6	-0.6		-144.6	-18	3181	No stop
13 19 20	---	02 05 59	80.5	26.9	-0.6		-145.5	52	3190	13 18 11
13 20 00	J0244+6228	02 06 39	79.2	25.1	-0.7		-146.5	22	3190	13 20 00
13 21 00	=0241+622	02 07 39	79.3	24.6	-0.6		-147.2	60	3197	13 20 01

```
Schedule for TORUN     (Code Tr )                                Page  27
               EM132A
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Thu  15 Mar 2018   Day  74 ---

13 21 00  LSI61303     02 07 39  80.6  25.9 -0.6    -146.9   -18     3197   No stop
13 22 10  ---          02 08 50  80.7  25.2 -0.6    -147.8    52     3206   13 21 01

13 22 10  J0244+6228   02 08 50  79.3  24.0 -0.6    -148.1   -18     3206   No stop
13 23 10  =0241+622    02 09 50  79.4  23.4 -0.6    -148.8    42     3214   13 22 11

13 23 10  LSI61303     02 09 50  80.7  24.6 -0.5    -148.7   -18     3214   No stop
13 24 20  ---          02 11 00  80.8  23.8 -0.5    -149.7    52     3223   13 23 11

13 25 00  J0244+6228   02 11 40  79.5  22.4 -0.6    -150.2    22     3223   13 25 00
13 26 00  =0241+622    02 12 40  79.6  21.9 -0.6    -151.0    60     3231   13 25 01

13 26 00  J0102+5824   02 12 40  79.0 -53.9  1.1     111.9  -168     3231   No stop
13 30 00  =0059+581    02 16 41  78.5 -54.8  1.2     110.1    72     3262   13 26 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: sess118.K2048

   Setup group:   13         Station: TORUN            Total bit rate:  1024
   Format: MARK5B            Bits per sample: 2        Sample rate: 64.000
   Number of channels:  8    DBE type: DBBC_DDC        Speedup factor:   1.00

   Disk used to record data.
```

```
  1st LO=  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00  21500.00
  Net SB=         L         L         U         U         L         L         U         U
  IF SB =         U         U         U         U         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
  BBC   =         1         5         1         5         3         7         3         7
  BBC SB=         L         L         U         U         L         L         U         U
  IF    =        A1        B1        A1        B1        A1        B1        A1        B1

 The following frequency sets based on these setups were used.

  Frequency Set:   8  Setup file default.  Used with PCAL = off
  LO sum=   22203.49  22203.49  22203.49  22203.49  22267.49  22267.49  22267.49  22267.49
  BBC fr=     703.49    703.49    703.49    703.49    767.49    767.49    767.49    767.49
  Bandwd=      32.00     32.00     32.00     32.00     32.00     32.00     32.00     32.00
   Matching frequency sets:   8

  Track assignments are:
   track1=  10, 14,  2,  6, 12, 16,  4,  8
   barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* LSI61303          02 36 40.623873   * 02 40 31.663680     02 41 53.934346       0.00
                    61 00 54.24676    * 61 13 45.59234      61 18 24.65477        0.00

  0059+581          00 59 43.470971   * 01 02 45.762380     01 03 50.004215       0.00
* J0102+5824        58 08 04.84743    * 58 24 11.13658      58 29 57.82526        0.00
  J0102+58          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished 346913 observations.

  0241+622          02 41 00.673364   * 02 44 57.696684     02 46 22.140983       0.36
* J0244+6228        62 15 27.54330    * 62 28 06.51582      62 32 41.43719        0.13
  J0244+62          /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc
                    GSFC 2015a astro solution, unpublished    228 observations.
```

rk18pftr

RadioAstron AGN Monitoring

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C/L-band, dual-pol

Schedule for TORUN     (Code Tr )                                    Page   2
               RadioAstron AGN Monitoring
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Thu  15 Mar 2018   Day  74 ---

 ---------- C-band VLBI scans ----------

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    736.00   736.00   736.00   736.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

20 00 00  1044+719     08 47 45  67.2  24.4 -2.0    -128.1     0        0   20 00 00
20 19 30  ---          09 07 18  68.4  21.7 -1.7    -135.2  1170       37   20 00 01

20 20 00  1044+719     09 07 48  68.4  21.6 -1.7    -135.4    24       37   20 20 00
20 39 30  ---          09 27 21  69.4  18.4 -1.4    -143.1  1170       75   20 20 01

20 40 00  1044+719     09 27 51  69.4  18.3 -1.4    -143.3    24       75   20 40 00
21 00 00  ---          09 47 55  70.3  14.4 -1.0    -151.7  1200      113   20 40 01



SETUP FILE INFORMATION:
   NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.


 ======== Setup file: ra6cm2.set

   Setup group:    2         Station: TORUN            Total bit rate:   256
   Format: MKIV1:4           Bits per sample: 2        Sample rate: 32.000
   Number of channels:  4    DBE type:                 Speedup factor:   1.00

   Disk used to record data.
```

```
 1st LO=   4100.00   4100.00   4100.00   4100.00
 Net SB=         L         L         U         U
 IF SB =         U         U         U         U
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         L         L         U         U
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                       (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 01 04.547327       0.00
                    85 16 41.77889    * 85 00 00.00000      84 53 57.28151        0.00
                    fake circumpolar target for a TS to look at

* 1044+719          10 44 49.735111   * 10 48 27.619927     10 49 47.735909       0.00
  J1048+7143        71 59 26.88535    * 71 43 35.93838      71 37 52.37947        0.00
                    ./rk18pf_sources.radioastron
                    AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 141793 observations, RA-AO4-07,


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1044+719           109.8

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

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