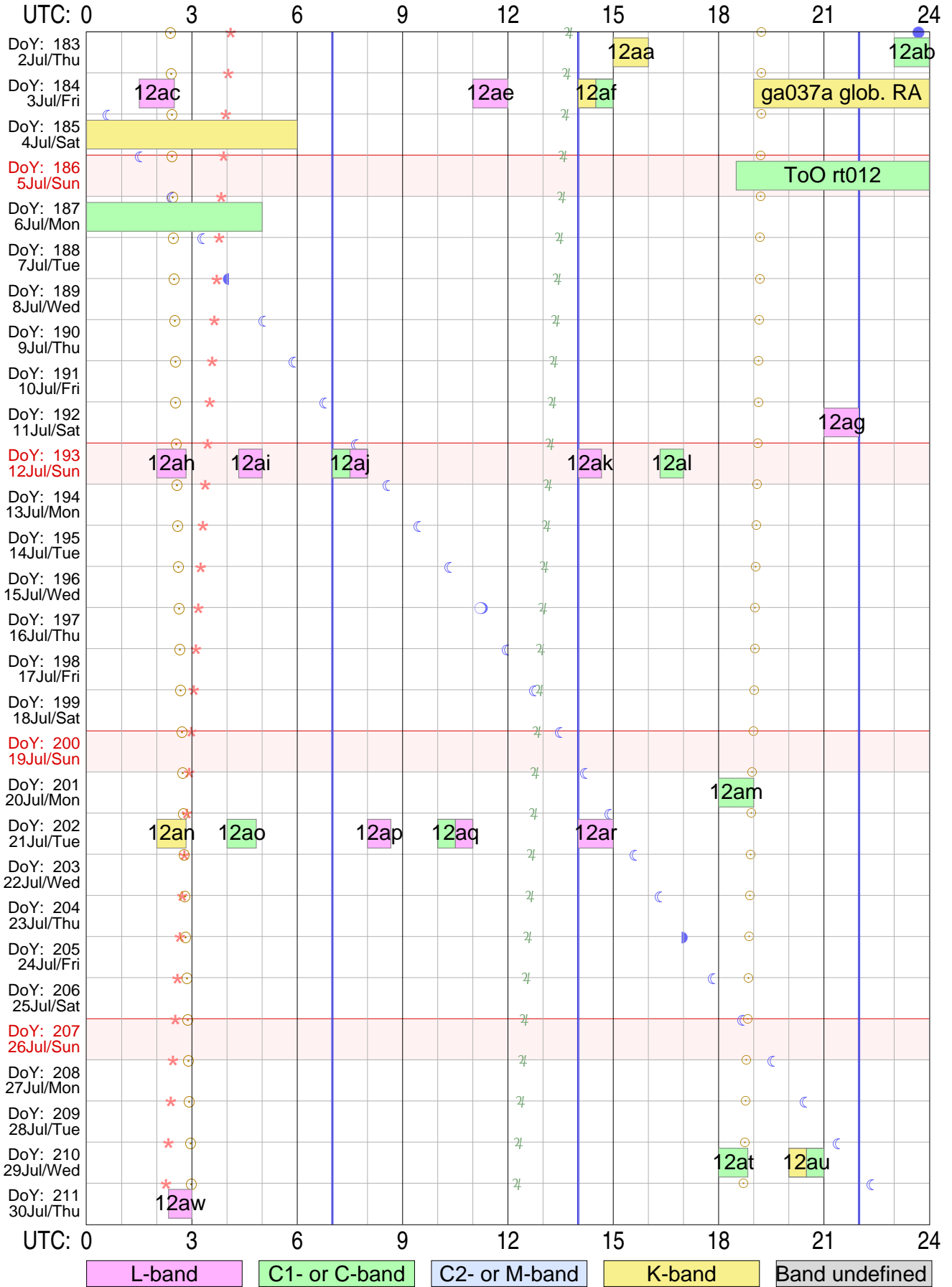


Tr VLBI plan for Jul 2015



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: 39.2 hours in 22 experiments scheduled

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

Strona zostawiona celowo pusta

RadioAstron & EVN Experiments

Jul 2015

Uytownik 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	Date	UTstart	UTstop	Exper.	xxComment
2015	D M DoW	hh mm	hh mm	name	
183	2 07 Czw	15 00	16 00	rk12aa	"K "
183	2 07 Czw	23 00	24 00	rk12ab	"C "
184	3 07 Pia	1 30	2 30	rk12ac	"L "
184	3 07 Pia	11 00	12 00	rk12ae	"L "
184	3 07 Pia	14 00	15 00	rk12af	"K>C "
184	3 07 Pia	19 00	24 00	"ga037a glob. RA"	"K "
185	4 07 Sob	00 00	06 00	" " "K "	
186	5 07 Nie	18 30	24 00	"To0 rt012"	"C "
187	6 07 Pon	0 0	05 00	" " "C "	
192	11 07 Sob	21 00	22 00	rk12ag	"L "
193	12 07 Nie	2 00	2 50	rk12ah	"L "
193	12 07 Nie	4 20	5 00	rk12ai	"L "
193	12 07 Nie	7 00	8 00	rk12aj	"C>L "
193	12 07 Nie	14 00	14 40	rk12ak	"L "
193	12 07 Nie	16 20	17 00	rk12al	"C "
201	20 07 Pon	18 00	19 00	rk12am	"C "
202	21 07 Wto	2 00	2 50	rk12an	"K "
202	21 07 Wto	4 00	4 50	rk12ao	"C "
202	21 07 Wto	8 00	8 40	rk12ap	"L "
202	21 07 Wto	10 00	11 00	rk12aq	"C>L "
202	21 07 Wto	14 00	15 00	rk12ar	"L "
210	29 07 Sro	18 00	18 50	rk12at	"C "
210	29 07 Sro	20 00	21 00	rk12au	"K>C "
211	30 07 Czw	2 20	3 00	rk12aw	"L "

Total observing time: 28.7 hours in 21 experiments

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

<http://paulo.astro.uni.torun.pl/~pw/VLBI/schedules/jul15.pdf>

rk12aatr

RADIOASTRON AGN SURVEY

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Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 2 Jul 2015 Day 183 ---

----- 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							
15 00 00	1417+385	10 55 35	52.3	92.0	-3.4		-49.9	0	0	15 00 00	
15 14 30	---	11 10 08	54.4	95.1	-3.2		-49.7	870	28	15 00 01	
15 15 00	1417+385	11 10 38	54.5	95.2	-3.2		-49.6	24	28	15 15 00	
15 29 30	---	11 25 10	56.7	98.4	-2.9		-49.2	870	56	15 15 01	
15 30 00	1417+385	11 25 40	56.8	98.6	-2.9		-49.2	24	56	15 30 00	
15 44 30	---	11 40 13	58.9	102.1	-2.7		-48.4	870	84	15 30 01	
15 45 00	1417+385	11 40 43	59.0	102.2	-2.7		-48.4	24	84	15 45 00	
16 00 00	---	11 55 45	61.2	106.2	-2.4		-47.3	900	112	15 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 ./rk12aa_freq.dat:
tr1cm

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= 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:  2  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:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 37.529891	0.00
	85 16 41.77889 * 85 00 00.000000	84 55 08.44012	0.00
	fake circumpolar target for a TS to look at		
* 1417+385	14 17 43.055732 * 14 19 46.613761	14 20 25.293001	0.00
J1419+3821	38 35 32.28529 * 38 21 48.47497	38 17 51.45320	0.00
	./rk12aa_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 21334 observations, RA-A03-04		

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)
1417+385	92.8

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 $60 \text{ deg } F^{-0.6}$ 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

rk12abtr

RADIOASTRON AGN SURVEY

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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 Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes 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 2 Jul 2015 Day 183 ---

----- 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	1417+385	18 56 54	41.6	-78.6	4.6	48.6	0	0	23 00 00
23 14 30	---	19 11 27	39.4	-76.1	4.9	48.0	870	28	23 00 01
23 15 00	1417+385	19 11 57	39.4	-76.0	4.9	47.9	24	28	23 15 00
23 29 30	---	19 26 29	37.3	-73.5	5.1	47.2	870	56	23 15 01
23 30 00	1417+385	19 26 59	37.2	-73.4	5.1	47.2	24	56	23 30 00
23 44 30	---	19 41 32	35.1	-71.0	5.4	46.3	870	84	23 30 01
23 45 00	1417+385	19 42 02	35.0	-70.9	5.4	46.3	24	84	23 45 00
23 59 59	---	19 57 04	32.9	-68.5	5.6	45.4	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: 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:  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) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 37.465998	0.00
	85 16 41.77889 * 85 00 00.000000	84 55 08.39170	0.00
	fake circumpolar target for a TS to look at		
* 1417+385	14 17 43.055732 * 14 19 46.613761	14 20 25.289320	0.00
J1419+3821	38 35 32.28529 * 38 21 48.47497	38 17 51.48142	0.00
	./rk12ab_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 21334 observations, RA-A03-04		

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)
1417+385    92.6

```

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 $60 \text{ deg } F^{-0.6}$ 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

```

rk12actr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 3 Jul 2015 Day 184 ---

----- 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	1547+507	21 27 19	40.9	-56.7	5.6		52.3	0	0	01 30 00
01 44 30	---	21 41 51	39.1	-54.9	5.9		50.7	870	28	01 30 01
01 45 00	1547+507	21 42 21	39.1	-54.8	5.9		50.6	24	28	01 45 00
01 59 30	---	21 56 54	37.3	-52.9	6.1		49.0	870	56	01 45 01
02 00 00	1547+507	21 57 24	37.2	-52.8	6.1		48.9	24	56	02 00 00
02 14 30	---	22 11 56	35.5	-50.9	6.4		47.3	870	84	02 00 01
02 15 00	1547+507	22 12 26	35.5	-50.9	6.4		47.2	24	84	02 15 00
02 30 00	---	22 27 29	33.7	-48.9	6.6		45.4	900	112	02 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: 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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 37.446276	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 08.37672	0.00
	fake circumpolar target for a TS to look at			
* 1547+507	15 47 52.271615	* 15 49 17.468556	15 49 45.086155	0.00
J1549+5038	50 47 09.25434	* 50 38 05.78805	50 35 37.59990	0.00
	./rk12ac_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 1541 observations, RA-A02-12			

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)
1547+507	96.7

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 $60 \text{ deg } F^{-0.6}$ 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

rk12aetr

RADIOASTRON AGN SURVEY

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes 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 3 Jul 2015 Day 184 ---

----- 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							
11 00 00	2005+403	06 58 53	4.8 -13.2	10.8		10.4	0	0	11 00 00		
11 14 30	---	07 13 25	4.4 -10.4	11.1		8.2	870	28	11 00 01		
11 15 00	2005+403	07 13 55	4.4 -10.3	11.1		8.1	24	28	11 15 00		
11 29 30	---	07 28 27	4.0 -7.6	11.3		6.0	870	56	11 15 01		
11 30 00	2005+403	07 28 57	4.0 -7.5	11.3		5.9	24	56	11 30 00		
11 44 30	---	07 43 30	3.8 -4.7	11.6		3.7	870	84	11 30 01		
11 45 00	2005+403	07 44 00	3.8 -4.6	11.6		3.7	24	84	11 45 00		
12 00 00	---	07 59 02	3.7 -1.8	11.8		1.4	900	112	11 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:  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) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 37.374095	0.00
	85 16 41.77889 * 85 00 00.000000	84 55 08.32205	0.00
	fake circumpolar target for a TS to look at		
* 2005+403	20 05 59.558893 * 20 07 44.944844	20 08 19.626719	0.00
J2007+4029	40 21 01.80221 * 40 29 48.60406	40 32 38.39226	0.00
	./rk12ae_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 169 observations, RA-A03-04		

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)
2005+403	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 $60 \text{ deg } F^{-0.6}$ 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

rk12aftr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 3 Jul 2015 Day 184 ---

----- 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

14 00 00	1417+385	09 59 22	43.8	81.3	-4.4		-49.1	0	0	14 00 00
14 14 30	---	10 13 55	46.0	83.9	-4.1		-49.5	870	28	14 00 01
14 15 00	1417+385	10 14 25	46.1	84.0	-4.1		-49.5	24	28	14 15 00
14 24 30	---	10 23 56	47.5	85.7	-3.9		-49.7	570	46	14 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

14 30 00	1417+385	10 29 27	48.3	86.8	-3.8		-49.8	323	46	14 30 00
14 44 30	---	10 43 59	50.5	89.6	-3.6		-49.9	870	74	14 30 01
14 45 00	1417+385	10 44 30	50.6	89.7	-3.6		-49.9	24	74	14 45 00
15 00 00	---	10 59 32	52.9	92.8	-3.3		-49.8	900	103	14 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 ./rk12af_freq.dat:
tr1cm

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= 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

```

==== 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:  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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 1417+385	14 17 43.055732	* 14 19 46.613761	14 20 25.282075	0.00
J1419+3821	38 35 32.28529	* 38 21 48.47497	38 17 51.53401	0.00

./rk12af_sources.radioastron
AGN, rfc_2013d Petrov, 2013, unpublished 21334 observations, RA-A03-04

RADIOASTRON MASER OBSERVATIONS

PI: *Alexei Alakoz*

Phone: +7-495-3332512 EMAIL: kirx@scan.sai.msu.ru Phone during obs: +7-903-6614865

Observing mode: K-band, dual-pol

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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   3 Jul 2015   Day 184 ---
----- Space-ground K-band VLBI scans: delay calibrator scan -----

Next scan frequencies: 22228.00 22228.00 22228.00 22228.00
Next BBC frequencies:   728.00   728.00   728.00   728.00
Next scan bandwidths:  16.00   16.00   16.00   16.00

19 00 00 1749+096      15 00 11 34.5 125.3 -2.9   -29.8   0     0   19 00 00
19 10 00 ---          15 10 13 35.7 127.9 -2.7   -28.7  60    19   19 00 01

----- Ground-only K-band VLBI scans -----
19 11 30 1903+097     15 11 43 26.4 110.0 -3.9   -34.9  39    19   19 11 30
19 11 50 ---          15 12 03 26.5 110.1 -3.9   -34.9  20    20   19 11 31

19 12 20 W49N         15 12 33 25.3 109.7 -4.0   -34.9  12    20   19 12 20
19 13 20 ---          15 13 34 25.4 109.9 -4.0   -34.9  60    22   19 12 21

19 13 50 1903+097     15 14 04 26.8 110.5 -3.9   -34.8  12    22   19 13 50
19 14 10 ---          15 14 24 26.8 110.6 -3.9   -34.8  20    22   19 13 51

19 14 40 W49N         15 14 54 25.6 110.2 -3.9   -34.8  12    22   19 14 40
19 15 40 ---          15 15 54 25.7 110.4 -3.9   -34.8  60    24   19 14 41

19 16 10 1903+097     15 16 24 27.1 111.1 -3.8   -34.7  12    24   19 16 10
19 16 30 ---          15 16 44 27.1 111.1 -3.8   -34.6  20    25   19 16 11

19 17 00 W49N         15 17 14 25.9 110.7 -3.9   -34.7  12    25   19 17 00
19 18 00 ---          15 18 14 26.1 110.9 -3.9   -34.6  60    27   19 17 01

19 18 30 1903+097     15 18 44 27.4 111.6 -3.8   -34.5  12    27   19 18 30
19 18 50 ---          15 19 05 27.5 111.7 -3.8   -34.5  20    28   19 18 31

19 19 20 W49N         15 19 35 26.3 111.2 -3.9   -34.5  12    28   19 19 20
19 20 20 ---          15 20 35 26.4 111.5 -3.8   -34.5  60    29   19 19 21

19 20 50 1903+097     15 21 05 27.7 112.1 -3.8   -34.4  12    29   19 20 50
19 21 10 ---          15 21 25 27.8 112.2 -3.8   -34.4  20    30   19 20 51

19 21 40 W49N         15 21 55 26.6 111.8 -3.8   -34.4  12    30   19 21 40
19 22 40 ---          15 22 55 26.7 112.0 -3.8   -34.3  60    32   19 21 41

19 23 10 1903+097     15 23 25 28.1 112.7 -3.7   -34.2  12    32   19 23 10
19 23 30 ---          15 23 45 28.1 112.7 -3.7   -34.2  20    33   19 23 11

```

Schedule for TORUN (Code Tr)

Page 3

RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---

----- Space-ground K-band VLBI scans -----

```
19 25 00  W49N          15 25 16  27.0 112.5 -3.8    -34.2   72    33  19 25 00
19 40 00  ---             15 40 18  29.1 116.0 -3.5    -33.1   900   62  19 25 01

19 40 30  W49N          15 40 48  29.2 116.1 -3.5    -33.1   24    62  19 40 30
19 55 00  ---             15 55 20  31.1 119.6 -3.3    -31.9   870   89  19 40 31

19 55 30  W49N          15 55 51  31.2 119.8 -3.3    -31.9   24    89  19 55 30
20 05 00  ---             16 05 22  32.4 122.1 -3.1    -31.0   570  108  19 55 31
```

----- Ground-only K-band VLBI scans -----

```
20 06 00  W49N          16 06 22  32.5 122.4 -3.1    -30.9   54   108  20 06 00
20 07 00  ---             16 07 22  32.6 122.6 -3.1    -30.8   60   110  20 06 01

20 07 30  1903+097       16 07 53  33.9 123.5 -3.0    -30.6   12   110  20 07 30
20 07 50  ---             16 08 13  34.0 123.5 -3.0    -30.5   20   110  20 07 31

20 08 20  W49N          16 08 43  32.8 123.0 -3.0    -30.7   12   110  20 08 20
20 09 20  ---             16 09 43  32.9 123.2 -3.0    -30.6   60   112  20 08 21

20 09 50  1903+097       16 10 13  34.2 124.1 -2.9    -30.3   12   112  20 09 50
20 10 10  ---             16 10 33  34.3 124.1 -2.9    -30.3   20   113  20 09 51

20 10 40  W49N          16 11 03  33.1 123.6 -3.0    -30.5   12   113  20 10 40
20 11 40  ---             16 12 03  33.2 123.8 -3.0    -30.4   60   115  20 10 41

20 12 10  1903+097       16 12 33  34.5 124.7 -2.9    -30.1   12   115  20 12 10
20 12 30  ---             16 12 53  34.6 124.7 -2.9    -30.1   20   115  20 12 11

20 13 00  W49N          16 13 23  33.4 124.2 -3.0    -30.2   12   115  20 13 00
20 14 00  ---             16 14 24  33.5 124.4 -2.9    -30.1   60   117  20 13 01

20 14 30  1903+097       16 14 54  34.8 125.3 -2.9    -29.8   12   117  20 14 30
20 14 50  ---             16 15 14  34.9 125.3 -2.9    -29.8   20   118  20 14 31

20 15 20  W49N          16 15 44  33.7 124.8 -2.9    -30.0   12   118  20 15 20
20 16 20  ---             16 16 44  33.8 125.0 -2.9    -29.9   60   120  20 15 21

20 16 50  1903+097       16 17 14  35.1 125.9 -2.8    -29.6   12   120  20 16 50
20 17 10  ---             16 17 34  35.1 126.0 -2.8    -29.6   20   121  20 16 51

20 17 40  W49N          16 18 04  34.0 125.4 -2.9    -29.7   12   121  20 17 40
20 18 40  ---             16 19 04  34.1 125.6 -2.9    -29.6   60   122  20 17 41
```

Schedule for TORUN (Code Tr)

Page 4

RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---										
20 19 10	1903+097	16 19 34	35.4	126.5	-2.8		-29.3	12	122	20 19 10
20 19 30	---	16 19 54	35.4	126.6	-2.8		-29.3	20	123	20 19 11
20 20 00	W49N	16 20 25	34.3	126.0	-2.8		-29.5	12	123	20 20 00
20 21 00	---	16 21 25	34.4	126.2	-2.8		-29.4	60	125	20 20 01
20 21 30	1903+097	16 21 55	35.7	127.1	-2.7		-29.1	12	125	20 21 30
20 21 50	---	16 22 15	35.7	127.2	-2.7		-29.0	20	126	20 21 31
20 22 20	W49N	16 22 45	34.5	126.6	-2.8		-29.2	12	126	20 22 20
20 23 20	---	16 23 45	34.7	126.8	-2.8		-29.1	60	128	20 22 21
20 23 50	1903+097	16 24 15	35.9	127.7	-2.7		-28.8	12	128	20 23 50
20 24 10	---	16 24 35	36.0	127.8	-2.7		-28.8	20	128	20 23 51
20 24 40	W49N	16 25 05	34.8	127.2	-2.8		-29.0	12	128	20 24 40
20 25 40	---	16 26 05	34.9	127.5	-2.7		-28.9	60	130	20 24 41
20 26 10	1903+097	16 26 36	36.2	128.4	-2.7		-28.6	12	130	20 26 10
20 26 30	---	16 26 56	36.3	128.4	-2.7		-28.5	20	131	20 26 11
20 27 00	W49N	16 27 26	35.1	127.8	-2.7		-28.7	12	131	20 27 00
20 28 00	---	16 28 26	35.2	128.1	-2.7		-28.6	60	133	20 27 01
20 28 30	1903+097	16 28 56	36.5	129.0	-2.6		-28.3	12	133	20 28 30
20 28 50	---	16 29 16	36.5	129.1	-2.6		-28.2	20	133	20 28 31
20 29 20	W49N	16 29 46	35.4	128.4	-2.7		-28.5	12	133	20 29 20
20 30 20	---	16 30 46	35.5	128.7	-2.7		-28.3	60	135	20 29 21
20 30 50	1903+097	16 31 16	36.8	129.6	-2.6		-28.0	12	135	20 30 50
20 31 10	---	16 31 36	36.8	129.7	-2.6		-28.0	20	136	20 30 51
20 31 40	W49N	16 32 06	35.7	129.1	-2.6		-28.2	12	136	20 31 40
20 32 40	---	16 33 07	35.8	129.3	-2.6		-28.1	60	138	20 31 41
20 33 10	1903+097	16 33 37	37.0	130.3	-2.5		-27.7	12	138	20 33 10
20 33 30	---	16 33 57	37.1	130.3	-2.5		-27.7	20	138	20 33 11
20 34 00	W49N	16 34 27	35.9	129.7	-2.6		-27.9	12	138	20 34 00
20 35 00	---	16 35 27	36.0	130.0	-2.6		-27.8	60	140	20 34 01
20 35 30	1903+097	16 35 57	37.3	130.9	-2.5		-27.4	12	140	20 35 30
20 35 50	---	16 36 17	37.3	131.0	-2.5		-27.4	20	141	20 35 31

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---										
20 36 20	W49N	16 36 47	36.2	130.3	-2.6		-27.6	12	141	20 36 20
20 37 20	---	16 37 47	36.3	130.6	-2.6		-27.5	60	143	20 36 21
20 37 50	1903+097	16 38 17	37.6	131.5	-2.5		-27.1	12	143	20 37 50
20 38 10	---	16 38 38	37.6	131.6	-2.5		-27.1	20	144	20 37 51
20 38 40	W49N	16 39 08	36.5	131.0	-2.5		-27.3	13	144	20 38 40
20 39 40	---	16 40 08	36.6	131.2	-2.5		-27.2	60	146	20 38 41
20 40 10	1903+097	16 40 38	37.8	132.2	-2.4		-26.8	12	146	20 40 10
20 40 30	---	16 40 58	37.9	132.3	-2.4		-26.8	20	146	20 40 11
20 41 00	W49N	16 41 28	36.7	131.6	-2.5		-27.1	13	146	20 41 00
20 42 00	---	16 42 28	36.8	131.9	-2.5		-26.9	60	148	20 41 01
20 42 30	1903+097	16 42 58	38.1	132.8	-2.4		-26.5	12	148	20 42 30
20 42 50	---	16 43 18	38.1	132.9	-2.4		-26.5	20	149	20 42 31
20 43 20	W49N	16 43 48	37.0	132.2	-2.5		-26.8	13	149	20 43 20
20 44 20	---	16 44 49	37.1	132.5	-2.4		-26.6	60	151	20 43 21
20 44 50	1903+097	16 45 19	38.3	133.5	-2.4		-26.2	12	151	20 44 50
20 45 10	---	16 45 39	38.4	133.6	-2.3		-26.2	20	151	20 44 51
20 45 40	W49N	16 46 09	37.2	132.9	-2.4		-26.5	13	151	20 45 40
20 46 40	---	16 47 09	37.4	133.2	-2.4		-26.3	60	153	20 45 41
20 47 10	1903+097	16 47 39	38.6	134.2	-2.3		-25.9	12	153	20 47 10
20 47 30	---	16 47 59	38.6	134.3	-2.3		-25.9	20	154	20 47 11
20 48 00	W49N	16 48 29	37.5	133.5	-2.4		-26.2	13	154	20 48 00
20 49 00	---	16 49 29	37.6	133.8	-2.4		-26.0	60	156	20 48 01
20 49 30	1903+097	16 49 59	38.8	134.8	-2.3		-25.6	12	156	20 49 30
20 49 50	---	16 50 19	38.9	134.9	-2.3		-25.6	20	156	20 49 31
20 50 20	W49N	16 50 50	37.8	134.2	-2.3		-25.9	13	156	20 50 20
20 51 20	---	16 51 50	37.9	134.5	-2.3		-25.7	60	158	20 50 21
20 51 50	1903+097	16 52 20	39.1	135.5	-2.2		-25.3	12	158	20 51 50
20 52 10	---	16 52 40	39.1	135.6	-2.2		-25.3	20	159	20 51 51

Schedule for TORUN (Code Tr)

Page 6

RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---

----- Ground-only K-band VLBI scans -----

```
20 53 00  W49N          16 53 30  38.0 134.9 -2.3   -25.5   33   159  20 53 00
20 54 00  ---            16 54 30  38.2 135.2 -2.3   -25.4   60   161  20 53 01

20 54 30  1903+097       16 55 00  39.4 136.3 -2.2   -24.9   12   161  20 54 30
20 54 50  ---            16 55 20  39.4 136.4 -2.2   -24.9   20   162  20 54 31

20 55 20  W49N          16 55 50  38.3 135.6 -2.3   -25.2   13   162  20 55 20
20 56 20  ---            16 56 51  38.4 135.9 -2.2   -25.0   60   163  20 55 21

20 56 50  1903+097       16 57 21  39.6 136.9 -2.2   -24.6   12   163  20 56 50
20 57 10  ---            16 57 41  39.6 137.0 -2.1   -24.5   20   164  20 56 51

20 57 40  W49N          16 58 11  38.5 136.3 -2.2   -24.9   13   164  20 57 40
20 58 40  ---            16 59 11  38.6 136.6 -2.2   -24.7   60   166  20 57 41

20 59 10  1903+097       16 59 41  39.9 137.6 -2.1   -24.3   12   166  20 59 10
20 59 30  ---            17 00 01  39.9 137.7 -2.1   -24.2   20   167  20 59 11

21 00 00  W49N          17 00 31  38.8 136.9 -2.2   -24.5   13   167  21 00 00
21 01 00  ---            17 01 31  38.9 137.2 -2.2   -24.4   60   169  21 00 01

21 01 30  1903+097       17 02 01  40.1 138.3 -2.1   -23.9   12   169  21 01 30
21 01 50  ---            17 02 21  40.1 138.4 -2.1   -23.9   20   169  21 01 31
```

----- Ground-only K-band VLBI scans -----

```
21 03 00  1923+210       17 03 32  48.0 125.5 -2.4   -31.6   27   169  21 03 00
21 08 00  ---            17 08 32  48.6 127.0 -2.3   -31.0  300   179  21 03 01
```

----- Space-ground K-band VLBI scans -----

```
21 10 00  W49N          17 10 33  39.8 139.9 -2.0   -23.1   73   179  21 10 00
21 25 00  ---            17 25 35  41.2 144.4 -1.8   -20.7  900   208  21 10 01

21 25 30  W49N          17 26 05  41.2 144.6 -1.7   -20.7   24   208  21 25 30
21 40 00  ---            17 40 38  42.4 149.1 -1.5   -18.2  870   236  21 25 31

21 40 30  W49N          17 41 08  42.4 149.3 -1.5   -18.1   24   236  21 40 30
21 50 00  ---            17 50 39  43.1 152.3 -1.3   -16.4  570   254  21 40 31
```

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---										
----- Ground-only K-band VLBI scans -----										
21 51 30	W49N	17 52 10	43.2	152.8	-1.3		-16.1	83	254	21 51 30
21 52 30	---	17 53 10	43.3	153.1	-1.3		-16.0	60	256	21 51 31
21 53 00	1903+097	17 53 40	44.4	154.5	-1.2		-15.2	13	256	21 53 00
21 53 20	---	17 54 00	44.4	154.6	-1.2		-15.1	20	256	21 53 01
21 53 50	W49N	17 54 30	43.4	153.6	-1.3		-15.7	13	256	21 53 50
21 54 50	---	17 55 30	43.5	153.9	-1.3		-15.5	60	258	21 53 51
21 55 20	1903+097	17 56 00	44.5	155.3	-1.2		-14.8	13	258	21 55 20
21 55 40	---	17 56 20	44.6	155.4	-1.2		-14.7	20	259	21 55 21
21 56 10	W49N	17 56 50	43.6	154.3	-1.2		-15.3	13	259	21 56 10
21 57 10	---	17 57 51	43.6	154.7	-1.2		-15.1	60	261	21 56 11
21 57 40	1903+097	17 58 21	44.7	156.1	-1.1		-14.3	13	261	21 57 40
21 58 00	---	17 58 41	44.7	156.2	-1.1		-14.2	20	262	21 57 41
21 58 30	W49N	17 59 11	43.7	155.1	-1.2		-14.8	13	262	21 58 30
21 59 30	---	18 00 11	43.8	155.4	-1.2		-14.6	60	263	21 58 31
22 00 00	1903+097	18 00 41	44.8	156.9	-1.1		-13.9	13	263	22 00 00
22 00 20	---	18 01 01	44.8	157.0	-1.1		-13.8	20	264	22 00 01
22 00 50	W49N	18 01 31	43.8	155.9	-1.2		-14.4	13	264	22 00 50
22 01 50	---	18 02 31	43.9	156.2	-1.1		-14.2	60	266	22 00 51
22 02 20	1903+097	18 03 01	44.9	157.7	-1.1		-13.4	13	266	22 02 20
22 02 40	---	18 03 21	45.0	157.8	-1.1		-13.3	20	267	22 02 21
22 03 10	W49N	18 03 52	44.0	156.7	-1.1		-13.9	13	267	22 03 10
22 04 10	---	18 04 52	44.0	157.0	-1.1		-13.8	60	269	22 03 11
22 04 40	1903+097	18 05 22	45.1	158.4	-1.0		-12.9	13	269	22 04 40
22 05 00	---	18 05 42	45.1	158.6	-1.0		-12.9	20	269	22 04 41
22 05 30	W49N	18 06 12	44.1	157.4	-1.1		-13.5	14	269	22 05 30
22 06 30	---	18 07 12	44.2	157.8	-1.1		-13.3	60	271	22 05 31
22 07 00	1903+097	18 07 42	45.2	159.2	-1.0		-12.5	13	271	22 07 00
22 07 20	---	18 08 02	45.2	159.4	-1.0		-12.4	20	272	22 07 01

```
-----
```

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---										
22 07 50	W49N	18 08 32	44.3	158.2	-1.0		-13.0	14	272	22 07 50
22 08 50	---	18 09 32	44.3	158.6	-1.0		-12.8	60	274	22 07 51
22 09 20	1903+097	18 10 03	45.3	160.0	-0.9		-12.0	13	274	22 09 20
22 09 40	---	18 10 23	45.3	160.2	-0.9		-11.9	20	274	22 09 21
22 10 10	W49N	18 10 53	44.4	159.0	-1.0		-12.6	14	274	22 10 10
22 11 10	---	18 11 53	44.4	159.3	-1.0		-12.4	60	276	22 10 11
22 11 40	1903+097	18 12 23	45.4	160.8	-0.9		-11.5	14	276	22 11 40
22 12 00	---	18 12 43	45.5	161.0	-0.9		-11.5	20	277	22 11 41
22 12 30	W49N	18 13 13	44.5	159.8	-1.0		-12.1	14	277	22 12 30
22 13 30	---	18 14 13	44.6	160.1	-0.9		-11.9	60	279	22 12 31
22 14 00	1903+097	18 14 43	45.6	161.7	-0.9		-11.1	14	279	22 14 00
22 14 20	---	18 15 03	45.6	161.8	-0.9		-11.0	20	279	22 14 01
22 14 50	W49N	18 15 33	44.6	160.6	-0.9		-11.7	14	279	22 14 50
22 15 50	---	18 16 34	44.7	160.9	-0.9		-11.5	60	281	22 14 51
22 16 20	1903+097	18 17 04	45.7	162.5	-0.8		-10.6	14	281	22 16 20
22 16 40	---	18 17 24	45.7	162.6	-0.8		-10.5	20	282	22 16 21
22 17 10	W49N	18 17 54	44.7	161.4	-0.9		-11.2	14	282	22 17 10
22 18 10	---	18 18 54	44.8	161.7	-0.9		-11.0	60	284	22 17 11
22 18 40	1903+097	18 19 24	45.8	163.3	-0.8		-10.1	14	284	22 18 40
22 19 00	---	18 19 44	45.8	163.4	-0.8		-10.0	20	285	22 18 41
22 19 30	W49N	18 20 14	44.9	162.2	-0.8		-10.7	14	285	22 19 30
22 20 30	---	18 21 14	44.9	162.5	-0.8		-10.5	60	287	22 19 31
22 21 00	1903+097	18 21 44	45.9	164.1	-0.7		-9.6	14	287	22 21 00
22 21 20	---	18 22 04	45.9	164.2	-0.7		-9.5	20	287	22 21 01
22 21 50	W49N	18 22 35	45.0	163.0	-0.8		-10.2	14	287	22 21 50
22 22 50	---	18 23 35	45.0	163.3	-0.8		-10.0	60	289	22 21 51
22 23 20	1903+097	18 24 05	46.0	164.9	-0.7		-9.1	14	289	22 23 20
22 23 40	---	18 24 25	46.0	165.0	-0.7		-9.1	20	290	22 23 21
22 24 10	W49N	18 24 55	45.1	163.8	-0.8		-9.8	14	290	22 24 10
22 25 10	---	18 25 55	45.1	164.1	-0.8		-9.6	60	292	22 24 11

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---										
22 25 40	1903+097	18 26 25	46.1	165.7	-0.7		-8.6	14	292	22 25 40
22 26 00	---	18 26 45	46.1	165.8	-0.7		-8.6	20	292	22 25 41
22 26 30	W49N	18 27 15	45.2	164.6	-0.7		-9.3	14	292	22 26 30
22 27 30	---	18 28 15	45.2	164.9	-0.7		-9.1	60	294	22 26 31
22 28 00	1903+097	18 28 46	46.1	166.5	-0.6		-8.2	14	294	22 28 00
22 28 20	---	18 29 06	46.1	166.7	-0.6		-8.1	20	295	22 28 01
22 28 50	W49N	18 29 36	45.2	165.4	-0.7		-8.8	14	295	22 28 50
22 29 50	---	18 30 36	45.3	165.8	-0.7		-8.6	60	297	22 28 51
22 30 20	1903+097	18 31 06	46.2	167.4	-0.6		-7.7	14	297	22 30 20
22 30 40	---	18 31 26	46.2	167.5	-0.6		-7.6	20	297	22 30 21
22 31 10	W49N	18 31 56	45.3	166.2	-0.7		-8.3	14	297	22 31 10
22 32 10	---	18 32 56	45.4	166.6	-0.6		-8.1	60	299	22 31 11
22 32 40	1903+097	18 33 26	46.3	168.2	-0.5		-7.2	14	299	22 32 40
22 33 00	---	18 33 46	46.3	168.3	-0.5		-7.1	20	300	22 32 41
22 33 30	W49N	18 34 16	45.4	167.0	-0.6		-7.8	14	300	22 33 30
22 34 30	---	18 35 17	45.4	167.4	-0.6		-7.6	60	302	22 33 31
22 35 00	1903+097	18 35 47	46.4	169.0	-0.5		-6.7	14	302	22 35 00
22 35 20	---	18 36 07	46.4	169.1	-0.5		-6.6	20	303	22 35 01
22 35 50	W49N	18 36 37	45.5	167.9	-0.6		-7.4	14	303	22 35 50
22 36 50	---	18 37 37	45.5	168.2	-0.6		-7.1	60	304	22 35 51
22 37 20	1903+097	18 38 07	46.4	169.9	-0.5		-6.2	14	304	22 37 20
22 37 40	---	18 38 27	46.4	170.0	-0.5		-6.1	20	305	22 37 21
22 38 10	W49N	18 38 57	45.6	168.7	-0.5		-6.9	14	305	22 38 10
22 39 10	---	18 39 57	45.6	169.0	-0.5		-6.7	60	307	22 38 11
22 39 40	1903+097	18 40 27	46.5	170.7	-0.4		-5.7	14	307	22 39 40
22 40 00	---	18 40 48	46.5	170.8	-0.4		-5.6	20	308	22 39 41
22 40 30	W49N	18 41 18	45.6	169.5	-0.5		-6.4	14	308	22 40 30
22 41 30	---	18 42 18	45.7	169.8	-0.5		-6.2	60	310	22 40 31

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---

----- Ground-only K-band VLBI scans -----

```
22 42 00  W49N          18 42 48  45.7 170.0 -0.5    -6.1   24    310  22 42 00
22 43 00  ---            18 43 48  45.7 170.4 -0.5    -5.8   60    312  22 42 01

22 43 30  1903+097       18 44 18  46.6 172.1 -0.4    -4.8   14    312  22 43 30
22 43 50  ---            18 44 38  46.6 172.2 -0.4    -4.8   20    312  22 43 31

22 44 20  W49N          18 45 08  45.7 170.8 -0.4    -5.6   14    312  22 44 20
22 45 20  ---            18 46 08  45.8 171.2 -0.4    -5.3   60    314  22 44 21

22 45 50  1903+097       18 46 39  46.6 172.9 -0.3    -4.3   14    314  22 45 50
22 46 10  ---            18 46 59  46.6 173.0 -0.3    -4.3   20    315  22 45 51

22 46 40  W49N          18 47 29  45.8 171.7 -0.4    -5.1   14    315  22 46 40
22 47 40  ---            18 48 29  45.8 172.0 -0.4    -4.8   60    317  22 46 41

22 48 10  1903+097       18 48 59  46.7 173.7 -0.3    -3.8   14    317  22 48 10
22 48 30  ---            18 49 19  46.7 173.9 -0.3    -3.7   20    317  22 48 11

22 49 00  W49N          18 49 49  45.8 172.5 -0.4    -4.6   14    317  22 49 00
22 50 00  ---            18 50 49  45.8 172.8 -0.3    -4.3   60    319  22 49 01

22 50 30  1903+097       18 51 19  46.7 174.6 -0.3    -3.3   14    319  22 50 30
22 50 50  ---            18 51 39  46.7 174.7 -0.2    -3.2   20    320  22 50 31

22 53 00  1923+210       18 53 50  57.4 165.7 -0.5    -9.2   76    320  22 53 00
22 58 00  ---            18 58 51  57.6 167.8 -0.5    -7.8  300    329  22 53 01
```

----- Space-ground K-band VLBI scans -----

```
23 00 00  W49N          19 00 51  46.0 176.4 -0.2    -2.2   63    329  23 00 00
23 15 00  ---            19 15 53  46.0 181.7  0.1     1.1  900    358  23 00 01

23 15 30  W49N          19 16 23  46.0 181.9  0.1     1.2   24    358  23 15 30
23 30 00  ---            19 30 56  45.9 187.1  0.3     4.3  870    386  23 15 31

23 30 30  W49N          19 31 26  45.8 187.3  0.3     4.4   24    386  23 30 30
23 40 00  ---            19 40 57  45.6 190.6  0.5     6.4  570    404  23 30 31
```

----- Ground-only K-band VLBI scans -----

```
23 41 30  W49N          19 42 28  45.6 191.1  0.5     6.7   83    404  23 41 30
23 42 30  ---            19 43 28  45.5 191.5  0.5     7.0   60    406  23 41 31
```

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 3 Jul 2015 Day 184 ---										
23 43 00	1903+097	19 43 58	46.1	193.4	0.6		8.1	13	406	23 43 00
23 43 20	---	19 44 18	46.1	193.5	0.6		8.2	20	407	23 43 01
23 43 50	W49N	19 44 48	45.5	192.0	0.6		7.2	13	407	23 43 50
23 44 50	---	19 45 48	45.5	192.3	0.6		7.4	60	409	23 43 51
23 45 20	1903+097	19 46 18	46.1	194.2	0.7		8.6	13	409	23 45 20
23 45 40	---	19 46 38	46.0	194.3	0.7		8.7	20	410	23 45 21
23 46 10	W49N	19 47 08	45.4	192.8	0.6		7.7	13	410	23 46 10
23 47 10	---	19 48 09	45.4	193.1	0.6		7.9	60	412	23 46 11
23 47 40	1903+097	19 48 39	46.0	195.0	0.7		9.1	13	412	23 47 40
23 48 00	---	19 48 59	46.0	195.2	0.7		9.2	20	412	23 47 41
23 48 30	W49N	19 49 29	45.4	193.6	0.6		8.2	13	412	23 48 30
23 49 30	---	19 50 29	45.3	193.9	0.7		8.4	60	414	23 48 31
23 50 00	1903+097	19 50 59	45.9	195.9	0.7		9.6	13	414	23 50 00
23 50 20	---	19 51 19	45.9	196.0	0.7		9.7	20	415	23 50 01
23 50 50	W49N	19 51 49	45.3	194.4	0.7		8.7	13	415	23 50 50
23 51 50	---	19 52 49	45.2	194.7	0.7		8.9	60	417	23 50 51
23 52 20	1903+097	19 53 19	45.8	196.7	0.8		10.1	13	417	23 52 20
23 52 40	---	19 53 39	45.8	196.8	0.8		10.1	20	417	23 52 21
23 53 10	W49N	19 54 10	45.2	195.2	0.7		9.2	13	417	23 53 10
23 54 10	---	19 55 10	45.1	195.6	0.7		9.4	60	419	23 53 11
23 54 40	1903+097	19 55 40	45.7	197.5	0.8		10.6	13	419	23 54 40
23 55 00	---	19 56 00	45.7	197.6	0.8		10.6	20	420	23 54 41
23 55 30	W49N	19 56 30	45.1	196.0	0.8		9.7	13	420	23 55 30
23 56 30	---	19 57 30	45.0	196.4	0.8		9.9	60	422	23 55 31
23 57 00	1903+097	19 58 00	45.6	198.3	0.9		11.0	13	422	23 57 00
23 57 20	---	19 58 20	45.6	198.4	0.9		11.1	20	422	23 57 01
23 57 50	W49N	19 58 50	45.0	196.8	0.8		10.1	13	422	23 57 50
23 58 50	---	19 59 51	44.9	197.2	0.8		10.3	60	424	23 57 51
23 59 20	1903+097	20 00 21	45.5	199.1	0.9		11.5	13	424	23 59 20
23 59 40	---	20 00 41	45.4	199.2	0.9		11.6	20	425	23 59 21

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
00 00 10	W49N	20 01 11	44.9	197.6	0.8		10.6	13	425	00 00 10
00 01 10	---	20 02 11	44.8	198.0	0.9		10.8	60	427	00 00 11
00 01 40	1903+097	20 02 41	45.3	199.9	0.9		12.0	13	427	00 01 40
00 02 00	---	20 03 01	45.3	200.0	0.9		12.0	20	428	00 01 41
00 02 30	W49N	20 03 31	44.8	198.4	0.9		11.1	13	428	00 02 30
00 03 30	---	20 04 31	44.7	198.8	0.9		11.3	60	429	00 02 31
00 04 00	1903+097	20 05 01	45.2	200.7	1.0		12.4	13	429	00 04 00
00 04 20	---	20 05 21	45.2	200.8	1.0		12.5	20	430	00 04 01
00 04 50	W49N	20 05 51	44.7	199.2	0.9		11.5	13	430	00 04 50
00 05 50	---	20 06 52	44.6	199.6	0.9		11.7	60	432	00 04 51
00 06 20	1903+097	20 07 22	45.1	201.5	1.0		12.9	13	432	00 06 20
00 06 40	---	20 07 42	45.1	201.6	1.0		13.0	20	433	00 06 21
00 07 10	W49N	20 08 12	44.5	200.0	1.0		12.0	13	433	00 07 10
00 08 10	---	20 09 12	44.5	200.4	1.0		12.2	60	435	00 07 11
00 08 40	1903+097	20 09 42	45.0	202.3	1.1		13.4	13	435	00 08 40
00 09 00	---	20 10 02	44.9	202.4	1.1		13.4	20	435	00 08 41
00 09 30	W49N	20 10 32	44.4	200.8	1.0		12.5	13	435	00 09 30
00 10 30	---	20 11 32	44.4	201.1	1.0		12.7	60	437	00 09 31
00 11 00	1903+097	20 12 03	44.8	203.1	1.1		13.8	13	437	00 11 00
00 11 20	---	20 12 23	44.8	203.2	1.1		13.9	20	438	00 11 01
00 11 50	W49N	20 12 53	44.3	201.6	1.0		12.9	13	438	00 11 50
00 12 50	---	20 13 53	44.2	201.9	1.0		13.1	60	440	00 11 51
00 13 20	1903+097	20 14 23	44.7	203.9	1.1		14.3	13	440	00 13 20
00 13 40	---	20 14 43	44.7	204.0	1.1		14.4	20	440	00 13 21
00 14 10	W49N	20 15 13	44.2	202.4	1.1		13.4	13	440	00 14 10
00 15 10	---	20 16 13	44.1	202.7	1.1		13.6	60	442	00 14 11
00 15 40	1903+097	20 16 43	44.5	204.7	1.2		14.7	13	442	00 15 40
00 16 00	---	20 17 03	44.5	204.8	1.2		14.8	20	443	00 15 41
00 16 30	W49N	20 17 33	44.0	203.2	1.1		13.8	13	443	00 16 30
00 17 30	---	20 18 34	44.0	203.5	1.1		14.0	60	445	00 16 31

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
00 18 00	1903+097	20 19 04	44.4	205.4	1.2		15.2	13	445	00 18 00
00 18 20	---	20 19 24	44.4	205.6	1.2		15.2	20	446	00 18 01
00 18 50	W49N	20 19 54	43.9	203.9	1.1		14.3	13	446	00 18 50
00 19 50	---	20 20 54	43.8	204.3	1.2		14.5	60	447	00 18 51
00 20 20	1903+097	20 21 24	44.2	206.2	1.2		15.6	13	447	00 20 20
00 20 40	---	20 21 44	44.2	206.3	1.3		15.7	20	448	00 20 21
00 21 10	W49N	20 22 14	43.7	204.7	1.2		14.7	13	448	00 21 10
00 22 10	---	20 23 14	43.7	205.0	1.2		14.9	60	450	00 21 11
00 22 40	1903+097	20 23 44	44.1	207.0	1.3		16.1	13	450	00 22 40
00 23 00	---	20 24 04	44.1	207.1	1.3		16.1	20	451	00 22 41
00 23 30	W49N	20 24 35	43.6	205.5	1.2		15.2	13	451	00 23 30
00 24 30	---	20 25 35	43.5	205.8	1.2		15.4	60	453	00 23 31
00 25 00	1903+097	20 26 05	43.9	207.8	1.3		16.5	13	453	00 25 00
00 25 20	---	20 26 25	43.9	207.9	1.3		16.6	20	453	00 25 01
00 25 50	W49N	20 26 55	43.4	206.2	1.3		15.6	13	453	00 25 50
00 26 50	---	20 27 55	43.4	206.6	1.3		15.8	60	455	00 25 51
00 27 20	1903+097	20 28 25	43.8	208.5	1.4		16.9	13	455	00 27 20
00 27 40	---	20 28 45	43.7	208.6	1.4		17.0	20	456	00 27 21
00 28 10	W49N	20 29 15	43.3	207.0	1.3		16.0	13	456	00 28 10
00 29 10	---	20 30 15	43.2	207.3	1.3		16.2	60	458	00 28 11
00 29 40	1903+097	20 30 46	43.6	209.3	1.4		17.3	13	458	00 29 40
00 30 00	---	20 31 06	43.6	209.4	1.4		17.4	20	458	00 29 41
00 30 30	W49N	20 31 36	43.1	207.8	1.3		16.5	13	458	00 30 30
00 31 30	---	20 32 36	43.0	208.1	1.4		16.6	60	460	00 30 31
00 32 00	1903+097	20 33 06	43.4	210.0	1.4		17.8	13	460	00 32 00
00 32 20	---	20 33 26	43.4	210.2	1.5		17.8	20	461	00 32 01
----- Ground-only K-band VLBI scans -----										
00 34 00	W49N	20 35 06	42.9	208.9	1.4		17.1	83	461	00 34 00
00 35 00	---	20 36 06	42.8	209.2	1.4		17.3	60	463	00 34 01

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
00 35 30	1903+097	20 36 37	43.1	211.2	1.5		18.4	13	463	00 35 30
00 35 50	---	20 36 57	43.1	211.3	1.5		18.5	20	463	00 35 31
00 36 20	W49N	20 37 27	42.7	209.7	1.4		17.5	13	463	00 36 20
00 37 20	---	20 38 27	42.6	210.0	1.5		17.7	60	465	00 36 21
00 37 50	1903+097	20 38 57	43.0	211.9	1.5		18.8	13	465	00 37 50
00 38 10	---	20 39 17	42.9	212.0	1.5		18.9	20	466	00 37 51
00 38 40	W49N	20 39 47	42.5	210.4	1.5		17.9	13	466	00 38 40
00 39 40	---	20 40 47	42.4	210.7	1.5		18.1	60	468	00 38 41
00 40 10	1903+097	20 41 17	42.8	212.7	1.6		19.2	13	468	00 40 10
00 40 30	---	20 41 37	42.7	212.8	1.6		19.3	20	469	00 40 11
00 41 00	W49N	20 42 07	42.3	211.1	1.5		18.3	13	469	00 41 00
00 42 00	---	20 43 08	42.3	211.5	1.5		18.5	60	471	00 41 01
00 43 00	1923+210	20 44 08	54.8	212.4	1.3		20.2	-1	471	00 43 00
00 48 00	---	20 49 09	54.4	214.3	1.4		21.3	299	480	00 43 01
----- Space-ground K-band VLBI scans -----										
00 50 00	W49N	20 51 09	41.6	214.0	1.7		19.9	59	480	00 50 00
01 05 00	---	21 06 11	40.3	218.6	1.9		22.3	900	509	00 50 01
----- Ground-only K-band VLBI scans -----										
01 06 30	W49N	21 07 42	40.1	219.0	1.9		22.5	83	509	01 06 30
01 07 30	---	21 08 42	40.0	219.3	2.0		22.7	60	511	01 06 31
01 08 00	1903+097	21 09 12	40.2	221.2	2.0		23.7	13	511	01 08 00
01 08 20	---	21 09 32	40.2	221.3	2.1		23.7	20	512	01 08 01
01 08 50	W49N	21 10 02	39.9	219.7	2.0		22.9	13	512	01 08 50
01 09 50	---	21 11 02	39.8	220.0	2.0		23.0	60	513	01 08 51
01 10 20	1903+097	21 11 32	40.0	221.9	2.1		24.0	13	513	01 10 20
01 10 40	---	21 11 52	40.0	222.0	2.1		24.1	20	514	01 10 21
01 11 10	W49N	21 12 22	39.7	220.4	2.0		23.2	13	514	01 11 10
01 12 10	---	21 13 23	39.6	220.7	2.0		23.4	60	516	01 11 11
01 12 40	1903+097	21 13 53	39.8	222.6	2.1		24.4	13	516	01 12 40
01 13 00	---	21 14 13	39.7	222.7	2.1		24.4	20	517	01 12 41

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

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```

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Sat 4 Jul 2015 Day 185 ---										
01 13 30	W49N	21 14 43	39.5	221.1	2.1		23.6	13	517	01 13 30
01 14 30	---	21 15 43	39.4	221.4	2.1		23.7	60	519	01 13 31
01 15 00	1903+097	21 16 13	39.5	223.3	2.2		24.7	13	519	01 15 00
01 15 20	---	21 16 33	39.5	223.4	2.2		24.7	20	519	01 15 01
01 15 50	W49N	21 17 03	39.2	221.8	2.1		23.9	13	519	01 15 50
01 16 50	---	21 18 03	39.1	222.1	2.1		24.0	60	521	01 15 51
01 17 20	1903+097	21 18 33	39.3	223.9	2.2		25.0	13	521	01 17 20
01 17 40	---	21 18 53	39.3	224.0	2.2		25.1	20	522	01 17 21

----- Space-ground K-band VLBI scans -----										
01 20 00	1749+096	21 21 14	29.8	243.9	3.5		33.2	86	522	01 20 00
01 30 00	---	21 31 15	28.4	246.2	3.6		33.9	600	541	01 20 01

----- Ground-only K-band VLBI scans -----										
01 31 30	1903+097	21 32 46	37.8	228.0	2.4		26.9	38	541	01 31 30
01 31 50	---	21 33 06	37.7	228.1	2.4		27.0	20	542	01 31 31
01 32 20	W49N	21 33 36	37.5	226.5	2.4		26.2	14	542	01 32 20
01 33 20	---	21 34 36	37.4	226.8	2.4		26.3	60	544	01 32 21
01 33 50	1903+097	21 35 06	37.5	228.6	2.5		27.2	13	544	01 33 50
01 34 10	---	21 35 26	37.5	228.7	2.5		27.3	20	544	01 33 51
01 34 40	W49N	21 35 56	37.2	227.1	2.4		26.5	14	544	01 34 40
01 35 40	---	21 36 56	37.1	227.4	2.4		26.6	60	546	01 34 41
01 36 10	1903+097	21 37 26	37.2	229.3	2.5		27.5	13	546	01 36 10
01 36 30	---	21 37 47	37.2	229.3	2.5		27.5	20	547	01 36 11
01 37 00	W49N	21 38 17	37.0	227.8	2.5		26.8	14	547	01 37 00
01 38 00	---	21 39 17	36.9	228.1	2.5		26.9	60	549	01 37 01
01 38 30	1903+097	21 39 47	37.0	229.9	2.6		27.8	13	549	01 38 30
01 38 50	---	21 40 07	36.9	230.0	2.6		27.8	20	549	01 38 31
01 39 20	W49N	21 40 37	36.7	228.4	2.5		27.1	14	549	01 39 20
01 40 20	---	21 41 37	36.6	228.7	2.5		27.2	60	551	01 39 21
01 40 50	1903+097	21 42 07	36.7	230.5	2.6		28.1	13	551	01 40 50
01 41 10	---	21 42 27	36.7	230.6	2.6		28.1	20	552	01 40 51

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Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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	4 Jul 2015	Day 185	---						
01 41 40	W49N	21 42 57	36.5	229.1	2.5		27.4	14	552	01 41 40
01 42 40	---	21 43 58	36.3	229.3	2.5		27.5	60	554	01 41 41
01 43 10	1903+097	21 44 28	36.4	231.2	2.6		28.3	13	554	01 43 10
01 43 30	---	21 44 48	36.4	231.3	2.6		28.4	20	554	01 43 11
01 44 00	W49N	21 45 18	36.2	229.7	2.6		27.6	14	554	01 44 00
01 45 00	---	21 46 18	36.1	230.0	2.6		27.8	60	556	01 44 01
01 45 30	1903+097	21 46 48	36.2	231.8	2.7		28.6	13	556	01 45 30
01 45 50	---	21 47 08	36.1	231.9	2.7		28.7	20	557	01 45 31
01 46 20	W49N	21 47 38	35.9	230.3	2.6		27.9	14	557	01 46 20
01 47 20	---	21 48 38	35.8	230.6	2.6		28.0	60	559	01 46 21
01 47 50	1903+097	21 49 08	35.9	232.4	2.7		28.9	13	559	01 47 50
01 48 10	---	21 49 28	35.8	232.5	2.7		28.9	20	560	01 47 51
01 48 40	W49N	21 49 59	35.6	231.0	2.6		28.2	14	560	01 48 40
01 49 40	---	21 50 59	35.5	231.2	2.7		28.3	60	562	01 48 41
01 50 10	1903+097	21 51 29	35.6	233.0	2.8		29.1	13	562	01 50 10
01 50 30	---	21 51 49	35.6	233.1	2.8		29.2	20	562	01 50 11
01 51 00	W49N	21 52 19	35.4	231.6	2.7		28.5	14	562	01 51 00
01 52 00	---	21 53 19	35.3	231.9	2.7		28.6	60	564	01 51 01
01 52 30	1903+097	21 53 49	35.3	233.7	2.8		29.4	13	564	01 52 30
01 52 50	---	21 54 09	35.3	233.7	2.8		29.4	20	565	01 52 31
01 53 20	W49N	21 54 39	35.1	232.2	2.7		28.7	14	565	01 53 20
01 54 20	---	21 55 39	35.0	232.5	2.7		28.8	60	567	01 53 21
01 54 50	1903+097	21 56 10	35.0	234.3	2.8		29.7	13	567	01 54 50
01 55 10	---	21 56 30	35.0	234.4	2.8		29.7	20	567	01 54 51
01 55 40	W49N	21 57 00	34.8	232.8	2.8		29.0	14	567	01 55 40
01 56 40	---	21 58 00	34.7	233.1	2.8		29.1	60	569	01 55 41
01 57 10	1903+097	21 58 30	34.7	234.9	2.9		29.9	13	569	01 57 10
01 57 30	---	21 58 50	34.7	235.0	2.9		29.9	20	570	01 57 11
01 58 00	W49N	21 59 20	34.5	233.4	2.8		29.2	14	570	01 58 00
01 59 00	---	22 00 20	34.4	233.7	2.8		29.4	60	572	01 58 01

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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	4 Jul 2015	Day 185	---						
01 59 30	1903+097	22 00 50	34.5	235.5	2.9		30.1	13	572	01 59 30
01 59 50	---	22 01 10	34.4	235.6	2.9		30.2	20	572	01 59 31
02 00 20	W49N	22 01 40	34.3	234.1	2.8		29.5	14	572	02 00 20
02 01 20	---	22 02 41	34.1	234.3	2.9		29.6	60	574	02 00 21
02 01 50	1903+097	22 03 11	34.2	236.1	2.9		30.4	13	574	02 01 50
02 02 10	---	22 03 31	34.1	236.2	3.0		30.4	20	575	02 01 51
02 02 40	W49N	22 04 01	34.0	234.7	2.9		29.7	14	575	02 02 40
02 03 40	---	22 05 01	33.8	234.9	2.9		29.8	60	577	02 02 41
02 04 10	1903+097	22 05 31	33.9	236.7	3.0		30.6	13	577	02 04 10
02 04 30	---	22 05 51	33.8	236.8	3.0		30.7	20	578	02 04 11
02 05 00	W49N	22 06 21	33.7	235.3	2.9		30.0	14	578	02 05 00
02 06 00	---	22 07 21	33.6	235.5	2.9		30.1	60	579	02 05 01
02 06 30	1903+097	22 07 51	33.6	237.3	3.0		30.9	13	579	02 06 30
02 06 50	---	22 08 12	33.5	237.4	3.0		30.9	20	580	02 06 31
02 07 20	W49N	22 08 42	33.4	235.9	3.0		30.2	14	580	02 07 20
02 08 20	---	22 09 42	33.3	236.1	3.0		30.3	60	582	02 07 21
02 08 50	1903+097	22 10 12	33.3	237.9	3.1		31.1	13	582	02 08 50
02 09 10	---	22 10 32	33.2	238.0	3.1		31.1	20	583	02 08 51
02 09 40	W49N	22 11 02	33.1	236.5	3.0		30.5	14	583	02 09 40
02 10 40	---	22 12 02	33.0	236.7	3.0		30.6	60	585	02 09 41
02 11 10	1903+097	22 12 32	33.0	238.5	3.1		31.3	13	585	02 11 10
02 11 30	---	22 12 52	32.9	238.5	3.1		31.3	20	585	02 11 11
02 12 00	W49N	22 13 22	32.8	237.1	3.0		30.7	14	585	02 12 00
02 13 00	---	22 14 23	32.7	237.3	3.1		30.8	60	587	02 12 01
02 13 30	1903+097	22 14 53	32.7	239.0	3.1		31.5	13	587	02 13 30
02 13 50	---	22 15 13	32.6	239.1	3.1		31.5	20	588	02 13 31
02 14 20	W49N	22 15 43	32.5	237.6	3.1		30.9	14	588	02 14 20
02 15 20	---	22 16 43	32.4	237.9	3.1		31.0	60	590	02 14 21
02 15 50	1903+097	22 17 13	32.4	239.6	3.2		31.7	13	590	02 15 50
02 16 10	---	22 17 33	32.3	239.7	3.2		31.8	20	590	02 15 51

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
02 16 40	W49N	22 18 03	32.2	238.2	3.1		31.1	14	590	02 16 40
02 17 40	---	22 19 03	32.1	238.5	3.1		31.2	60	592	02 16 41
02 18 10	1903+097	22 19 33	32.1	240.2	3.2		31.9	14	592	02 18 10
02 18 30	---	22 19 53	32.0	240.3	3.2		32.0	20	593	02 18 11
02 19 00	W49N	22 20 24	31.9	238.8	3.2		31.4	14	593	02 19 00
02 20 00	---	22 21 24	31.8	239.1	3.2		31.4	60	595	02 19 01
02 20 30	1903+097	22 21 54	31.8	240.8	3.3		32.1	14	595	02 20 30
02 20 50	---	22 22 14	31.7	240.9	3.3		32.2	20	596	02 20 31
02 21 20	W49N	22 22 44	31.6	239.4	3.2		31.6	14	596	02 21 20
02 22 20	---	22 23 44	31.5	239.6	3.2		31.7	60	597	02 21 21
02 22 50	1903+097	22 24 14	31.5	241.4	3.3		32.3	14	597	02 22 50
02 23 10	---	22 24 34	31.4	241.4	3.3		32.4	20	598	02 22 51
02 23 40	W49N	22 25 04	31.3	240.0	3.2		31.8	14	598	02 23 40
02 24 40	---	22 26 04	31.2	240.2	3.3		31.9	60	600	02 23 41
02 25 10	1903+097	22 26 35	31.2	241.9	3.3		32.5	14	600	02 25 10
02 25 30	---	22 26 55	31.1	242.0	3.3		32.6	20	601	02 25 11
02 26 00	W49N	22 27 25	31.0	240.5	3.3		32.0	14	601	02 26 00
02 27 00	---	22 28 25	30.9	240.8	3.3		32.1	60	603	02 26 01
02 27 30	1903+097	22 28 55	30.8	242.5	3.4		32.7	14	603	02 27 30
02 27 50	---	22 29 15	30.8	242.6	3.4		32.8	20	603	02 27 31
02 28 20	W49N	22 29 45	30.7	241.1	3.3		32.2	14	603	02 28 20
02 29 20	---	22 30 45	30.6	241.4	3.3		32.3	60	605	02 28 21
02 29 50	1903+097	22 31 15	30.5	243.1	3.4		32.9	14	605	02 29 50
02 30 10	---	22 31 35	30.5	243.1	3.4		32.9	20	606	02 29 51
02 30 40	W49N	22 32 05	30.4	241.7	3.4		32.4	14	606	02 30 40
02 31 40	---	22 33 06	30.3	241.9	3.4		32.5	60	608	02 30 41
02 32 10	1903+097	22 33 36	30.2	243.6	3.5		33.1	14	608	02 32 10
02 32 30	---	22 33 56	30.2	243.7	3.5		33.1	20	608	02 32 11
02 33 00	W49N	22 34 26	30.1	242.2	3.4		32.6	14	608	02 33 00
02 34 00	---	22 35 26	29.9	242.5	3.4		32.6	60	610	02 33 01

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
02 34 30	1903+097	22 35 56	29.9	244.2	3.5		33.3	14	610	02 34 30
02 34 50	---	22 36 16	29.9	244.3	3.5		33.3	20	611	02 34 31
02 35 20	W49N	22 36 46	29.8	242.8	3.4		32.7	14	611	02 35 20
02 36 20	---	22 37 46	29.6	243.0	3.4		32.8	60	613	02 35 21
02 36 50	1903+097	22 38 16	29.6	244.7	3.5		33.4	14	613	02 36 50
02 37 10	---	22 38 37	29.5	244.8	3.5		33.5	20	613	02 36 51
----- Ground-only K-band VLBI scans -----										
02 39 00	1903+097	22 40 27	29.3	245.2	3.6		33.6	104	613	02 39 00
02 39 20	---	22 40 47	29.2	245.3	3.6		33.6	20	614	02 39 01
02 39 50	W49N	22 41 17	29.2	243.9	3.5		33.1	14	614	02 39 50
02 40 50	---	22 42 17	29.0	244.1	3.5		33.2	60	616	02 39 51
02 41 20	1903+097	22 42 47	29.0	245.8	3.6		33.8	14	616	02 41 20
02 41 40	---	22 43 07	28.9	245.9	3.6		33.8	20	617	02 41 21
02 42 10	W49N	22 43 37	28.8	244.4	3.5		33.3	14	617	02 42 10
02 43 10	---	22 44 37	28.7	244.7	3.6		33.3	60	619	02 42 11
02 43 40	1903+097	22 45 08	28.7	246.3	3.6		33.9	14	619	02 43 40
02 44 00	---	22 45 28	28.6	246.4	3.7		34.0	20	619	02 43 41
02 44 30	W49N	22 45 58	28.5	245.0	3.6		33.4	14	619	02 44 30
02 45 30	---	22 46 58	28.4	245.2	3.6		33.5	60	621	02 44 31
02 46 00	1903+097	22 47 28	28.3	246.9	3.7		34.1	14	621	02 46 00
02 46 20	---	22 47 48	28.3	247.0	3.7		34.1	20	622	02 46 01
02 48 00	1923+210	22 49 28	40.0	250.5	3.4		37.4	42	622	02 48 00
02 53 00	---	22 54 29	39.3	251.7	3.5		37.7	300	631	02 48 01
----- Space-ground K-band VLBI scans -----										
02 55 00	W49N	22 56 29	27.1	247.4	3.8		34.2	61	631	02 55 00
03 11 20	---	23 12 52	24.8	251.1	4.0		35.1	980	663	02 55 01
03 11 50	W49N	23 13 22	24.7	251.2	4.0		35.2	24	663	03 11 50
03 28 10	---	23 29 45	22.4	254.8	4.3		35.9	980	694	03 11 51
03 28 40	W49N	23 30 15	22.3	254.9	4.3		36.0	24	694	03 28 40
03 45 00	---	23 46 38	19.9	258.4	4.6		36.6	980	726	03 28 41

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

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```

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Sat 4 Jul 2015 Day 185 ---										
----- Ground-only K-band VLBI scans -----										
03 46 30	1923+210	23 48 08	31.5	263.6	4.4		39.8	32	726	03 46 30
03 49 30	---	23 51 08	31.0	264.3	4.4		39.8	180	731	03 46 31
03 50 00	W49N	23 51 38	19.2	259.5	4.7		36.7	-29	731	03 50 00
03 51 00	---	23 52 39	19.0	259.7	4.7		36.8	31	733	03 50 01
03 51 30	1903+097	23 53 09	18.9	261.2	4.8		37.0	14	733	03 51 30
03 51 50	---	23 53 29	18.8	261.3	4.8		37.1	20	734	03 51 31
03 52 20	W49N	23 53 59	18.8	260.0	4.7		36.8	14	734	03 52 20
03 53 20	---	23 54 59	18.7	260.2	4.7		36.8	60	736	03 52 21
03 53 50	1903+097	23 55 29	18.5	261.7	4.8		37.1	14	736	03 53 50
03 54 10	---	23 55 49	18.5	261.8	4.8		37.1	20	737	03 53 51
03 54 40	W49N	23 56 19	18.5	260.4	4.8		36.9	14	737	03 54 40
03 55 40	---	23 57 19	18.3	260.7	4.8		36.9	60	738	03 54 41
03 56 10	1903+097	23 57 49	18.2	262.2	4.9		37.1	14	738	03 56 10
03 56 30	---	23 58 10	18.1	262.3	4.9		37.2	20	739	03 56 11
03 57 00	W49N	23 58 40	18.1	260.9	4.8		36.9	14	739	03 57 00
03 58 00	---	23 59 40	18.0	261.1	4.8		36.9	60	741	03 57 01
03 58 30	1903+097	00 00 10	17.8	262.7	4.9		37.2	14	741	03 58 30
03 58 50	---	00 00 30	17.8	262.7	4.9		37.2	20	742	03 58 31
03 59 20	W49N	00 01 00	17.8	261.4	4.8		37.0	14	742	03 59 20
04 00 20	---	00 02 00	17.6	261.6	4.9		37.0	60	744	03 59 21
04 00 50	1903+097	00 02 30	17.5	263.2	4.9		37.2	14	744	04 00 50
04 01 10	---	00 02 50	17.4	263.2	4.9		37.3	20	744	04 00 51
04 01 40	W49N	00 03 20	17.4	261.9	4.9		37.0	14	744	04 01 40
04 02 40	---	00 04 21	17.3	262.1	4.9		37.0	60	746	04 01 41
04 03 10	1903+097	00 04 51	17.1	263.6	5.0		37.3	14	746	04 03 10
04 03 30	---	00 05 11	17.1	263.7	5.0		37.3	20	747	04 03 11
04 04 00	W49N	00 05 41	17.1	262.4	4.9		37.1	14	747	04 04 00
04 05 00	---	00 06 41	16.9	262.6	4.9		37.1	60	749	04 04 01

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Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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	4 Jul 2015	Day 185	---						
04 05 30	1903+097	00 07 11	16.8	264.1	5.0		37.3	14	749	04 05 30
04 05 50	---	00 07 31	16.7	264.2	5.0		37.3	20	749	04 05 31
04 06 20	W49N	00 08 01	16.7	262.9	5.0		37.1	14	749	04 06 20
04 07 20	---	00 09 01	16.6	263.1	5.0		37.1	60	751	04 06 21
04 07 50	1903+097	00 09 31	16.4	264.6	5.1		37.4	14	751	04 07 50
04 08 10	---	00 09 51	16.4	264.7	5.1		37.4	20	752	04 07 51
04 08 40	W49N	00 10 22	16.4	263.3	5.0		37.2	14	752	04 08 40
04 09 40	---	00 11 22	16.2	263.6	5.0		37.2	60	754	04 08 41
04 10 10	1903+097	00 11 52	16.1	265.1	5.1		37.4	14	754	04 10 10
04 10 30	---	00 12 12	16.0	265.1	5.1		37.4	20	754	04 10 11
04 11 00	W49N	00 12 42	16.0	263.8	5.0		37.2	15	754	04 11 00
04 12 00	---	00 13 42	15.9	264.0	5.0		37.2	60	756	04 11 01
04 12 30	1903+097	00 14 12	15.7	265.5	5.1		37.4	14	756	04 12 30
04 12 50	---	00 14 32	15.7	265.6	5.1		37.4	20	757	04 12 31
04 13 20	W49N	00 15 02	15.7	264.3	5.1		37.2	15	757	04 13 20
04 14 20	---	00 16 02	15.5	264.5	5.1		37.3	60	759	04 13 21
04 14 50	1903+097	00 16 33	15.4	266.0	5.2		37.5	14	759	04 14 50
04 15 10	---	00 16 53	15.3	266.1	5.2		37.5	20	760	04 14 51
04 15 40	W49N	00 17 23	15.3	264.8	5.1		37.3	15	760	04 15 40
04 16 40	---	00 18 23	15.2	265.0	5.1		37.3	60	762	04 15 41
04 17 10	1903+097	00 18 53	15.0	266.5	5.2		37.5	14	762	04 17 10
04 17 30	---	00 19 13	15.0	266.6	5.2		37.5	20	762	04 17 11
04 18 00	W49N	00 19 43	15.0	265.3	5.1		37.3	15	762	04 18 00
04 19 00	---	00 20 43	14.8	265.5	5.2		37.3	60	764	04 18 01
04 19 30	1903+097	00 21 13	14.7	267.0	5.2		37.5	14	764	04 19 30
04 19 50	---	00 21 33	14.6	267.0	5.3		37.5	20	765	04 19 31
04 20 20	W49N	00 22 03	14.6	265.7	5.2		37.3	15	765	04 20 20
04 21 20	---	00 23 04	14.5	265.9	5.2		37.3	60	767	04 20 21
04 21 50	1903+097	00 23 34	14.3	267.4	5.3		37.5	14	767	04 21 50
04 22 10	---	00 23 54	14.3	267.5	5.3		37.5	20	767	04 21 51

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
04 22 40	W49N	00 24 24	14.3	266.2	5.2		37.4	15	767	04 22 40
04 23 40	---	00 25 24	14.1	266.4	5.2		37.4	60	769	04 22 41
04 24 10	1903+097	00 25 54	14.0	267.9	5.3		37.5	14	769	04 24 10
04 24 30	---	00 26 14	13.9	268.0	5.3		37.5	20	770	04 24 11
04 25 00	W49N	00 26 44	13.9	266.7	5.3		37.4	15	770	04 25 00
04 26 00	---	00 27 44	13.8	266.9	5.3		37.4	60	772	04 25 01
04 26 30	1903+097	00 28 14	13.6	268.4	5.4		37.5	14	772	04 26 30
04 26 50	---	00 28 35	13.6	268.4	5.4		37.5	20	772	04 26 31
04 27 20	W49N	00 29 05	13.6	267.2	5.3		37.4	15	772	04 27 20
04 28 20	---	00 30 05	13.4	267.4	5.3		37.4	60	774	04 27 21
04 28 50	1903+097	00 30 35	13.3	268.9	5.4		37.5	14	774	04 28 50
04 29 10	---	00 30 55	13.2	268.9	5.4		37.5	20	775	04 28 51
04 29 40	W49N	00 31 25	13.2	267.6	5.3		37.4	15	775	04 29 40
04 30 40	---	00 32 25	13.1	267.8	5.4		37.4	60	777	04 29 41
04 31 10	1903+097	00 32 55	12.9	269.3	5.4		37.6	14	777	04 31 10
04 31 30	---	00 33 15	12.9	269.4	5.4		37.6	20	778	04 31 11
04 32 00	W49N	00 33 45	12.9	268.1	5.4		37.4	15	778	04 32 00
04 33 00	---	00 34 46	12.7	268.3	5.4		37.4	60	779	04 32 01
04 33 30	1903+097	00 35 16	12.6	269.8	5.5		37.6	14	779	04 33 30
04 33 50	---	00 35 36	12.5	269.9	5.5		37.6	20	780	04 33 31
04 34 20	W49N	00 36 06	12.5	268.6	5.4		37.4	15	780	04 34 20
04 35 20	---	00 37 06	12.4	268.8	5.4		37.4	60	782	04 34 21
04 35 50	1903+097	00 37 36	12.2	270.3	5.5		37.6	14	782	04 35 50
04 36 10	---	00 37 56	12.2	270.3	5.5		37.6	20	783	04 35 51
04 36 40	W49N	00 38 26	12.2	269.0	5.5		37.5	15	783	04 36 40
04 37 40	---	00 39 26	12.0	269.2	5.5		37.5	60	785	04 36 41
04 38 10	1903+097	00 39 56	11.9	270.7	5.6		37.6	14	785	04 38 10
04 38 30	---	00 40 16	11.8	270.8	5.6		37.6	20	785	04 38 11
04 39 00	W49N	00 40 47	11.8	269.5	5.5		37.5	15	785	04 39 00
04 40 00	---	00 41 47	11.7	269.7	5.5		37.5	60	787	04 39 01

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
04 40 30	1903+097	00 42 17	11.5	271.2	5.6		37.5	14	787	04 40 30
04 40 50	---	00 42 37	11.5	271.3	5.6		37.5	20	788	04 40 31
04 41 20	W49N	00 43 07	11.5	270.0	5.5		37.5	15	788	04 41 20
04 42 20	---	00 44 07	11.3	270.2	5.6		37.5	60	790	04 41 21
04 42 50	1903+097	00 44 37	11.2	271.7	5.6		37.5	14	790	04 42 50
04 43 10	---	00 44 57	11.1	271.7	5.6		37.5	20	790	04 42 51
04 43 40	W49N	00 45 27	11.1	270.4	5.6		37.5	15	790	04 43 40
04 44 40	---	00 46 27	11.0	270.6	5.6		37.5	60	792	04 43 41
04 45 10	1903+097	00 46 58	10.8	272.1	5.7		37.5	14	792	04 45 10
04 45 30	---	00 47 18	10.8	272.2	5.7		37.5	20	793	04 45 11
04 46 00	W49N	00 47 48	10.8	270.9	5.6		37.5	15	793	04 46 00
04 47 00	---	00 48 48	10.6	271.1	5.6		37.5	60	795	04 46 01
04 47 30	1903+097	00 49 18	10.5	272.6	5.7		37.5	14	795	04 47 30
04 47 50	---	00 49 38	10.4	272.7	5.7		37.5	20	796	04 47 31
04 48 20	W49N	00 50 08	10.4	271.4	5.7		37.4	15	796	04 48 20
04 49 20	---	00 51 08	10.3	271.6	5.7		37.4	60	797	04 48 21
04 49 50	1903+097	00 51 38	10.1	273.1	5.8		37.5	14	797	04 49 50
04 50 10	---	00 51 58	10.1	273.1	5.8		37.5	20	798	04 49 51
04 50 40	W49N	00 52 28	10.1	271.8	5.7		37.4	15	798	04 50 40
04 51 40	---	00 53 29	9.9	272.0	5.7		37.4	60	800	04 50 41
04 52 10	1903+097	00 53 59	9.8	273.5	5.8		37.5	14	800	04 52 10
04 52 30	---	00 54 19	9.7	273.6	5.8		37.5	20	801	04 52 11
04 53 00	W49N	00 54 49	9.7	272.3	5.7		37.4	15	801	04 53 00
04 54 00	---	00 55 49	9.6	272.5	5.7		37.4	60	803	04 53 01
04 54 30	1903+097	00 56 19	9.4	274.0	5.8		37.5	14	803	04 54 30
04 54 50	---	00 56 39	9.4	274.0	5.8		37.4	20	803	04 54 31
04 55 20	W49N	00 57 09	9.4	272.8	5.8		37.4	15	803	04 55 20
04 56 20	---	00 58 09	9.2	273.0	5.8		37.4	60	805	04 55 21
04 56 50	1903+097	00 58 39	9.1	274.4	5.9		37.4	14	805	04 56 50
04 57 10	---	00 59 00	9.0	274.5	5.9		37.4	20	806	04 56 51

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---										
04 57 40	W49N	00 59 30	9.0	273.2	5.8		37.4	15	806	04 57 40
04 58 40	---	01 00 30	8.9	273.4	5.8		37.4	60	808	04 57 41
04 59 10	1903+097	01 01 00	8.7	274.9	5.9		37.4	14	808	04 59 10
04 59 30	---	01 01 20	8.7	275.0	5.9		37.4	20	808	04 59 11
05 00 00	W49N	01 01 50	8.7	273.7	5.8		37.4	15	808	05 00 00
05 01 00	---	01 02 50	8.5	273.9	5.9		37.4	60	810	05 00 01
05 01 30	1903+097	01 03 20	8.4	275.4	5.9		37.4	14	810	05 01 30
05 01 50	---	01 03 40	8.3	275.4	6.0		37.4	20	811	05 01 31
05 02 20	W49N	01 04 10	8.3	274.2	5.9		37.3	15	811	05 02 20
05 03 20	---	01 05 11	8.2	274.4	5.9		37.3	60	813	05 02 21
05 03 50	1903+097	01 05 41	8.0	275.8	6.0		37.3	14	813	05 03 50
05 04 10	---	01 06 01	8.0	275.9	6.0		37.3	20	813	05 03 51
05 04 40	W49N	01 06 31	8.0	274.6	5.9		37.3	15	813	05 04 40
05 05 40	---	01 07 31	7.8	274.8	5.9		37.3	60	815	05 04 41
05 06 10	1903+097	01 08 01	7.7	276.3	6.0		37.3	14	815	05 06 10
05 06 30	---	01 08 21	7.6	276.4	6.0		37.3	20	816	05 06 11
05 07 00	W49N	01 08 51	7.6	275.1	6.0		37.3	15	816	05 07 00
05 08 00	---	01 09 51	7.5	275.3	6.0		37.3	60	818	05 07 01
05 08 30	1903+097	01 10 21	7.3	276.8	6.1		37.3	14	818	05 08 30
05 08 50	---	01 10 41	7.3	276.8	6.1		37.2	20	819	05 08 31
05 09 20	W49N	01 11 12	7.3	275.6	6.0		37.3	15	819	05 09 20
05 10 20	---	01 12 12	7.1	275.8	6.0		37.2	60	821	05 09 21
05 10 50	1903+097	01 12 42	7.0	277.2	6.1		37.2	14	821	05 10 50
05 11 10	---	01 13 02	6.9	277.3	6.1		37.2	20	821	05 10 51
05 11 40	W49N	01 13 32	6.9	276.0	6.0		37.2	15	821	05 11 40
05 12 40	---	01 14 32	6.8	276.2	6.1		37.2	60	823	05 11 41
05 13 10	1903+097	01 15 02	6.6	277.7	6.1		37.2	14	823	05 13 10
05 13 30	---	01 15 22	6.6	277.7	6.1		37.2	20	824	05 13 11

Schedule for TORUN (Code Tr)

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RadioAstron maser observations

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 4 Jul 2015 Day 185 ---

----- Space-ground K-band VLBI scans -----

```
05 15 00  W49N          01 16 52   6.4 276.7  6.1    37.2   75    824  05 15 00
05 30 00  ---           01 31 55   4.2 279.7  6.3    36.8   90    853  05 15 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

```
Setup group: 3          Station: TORUN          Total bit rate: 256
Format: MARK5B        Bits per sample: 2       Sample rate: 32.000
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=      U      U      L      L
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      5      1      5
BBC SB=      U      U      L      L
IF    =      A1     B1     A1     B1
```

The following frequency sets based on these setups were used.

```
Frequency Set: 5 Setup file default. Used with PCAL = off
LO sum= 22228.00 22228.00 22228.00 22228.00
BBC fr= 728.00 728.00 728.00 728.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 5
```

Track assignments are:

```
track1= 2, 4, 6, 8
barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

```
Source          Source position (RA/Dec)          Error
                (B1950)          (J2000)          (Date)          (mas)
* W49N          19 07 49.797628 * 19 10 13.409600 19 10 59.415957 0.00
                09 01 15.49441  * 09 06 12.803000 09 07 57.80196 0.00
H2O maser position from: 2013ApJ...775...79Z
```

* 1903+097	19 03 17.231937	* 19 05 39.899000	19 06 25.619334	0.00
	09 47 30.15665	* 09 52 08.40600	09 53 47.56745	0.00
	phase ref. source, 1.36 deg. from W49N			
* 1923+210	19 23 49.792437	* 19 25 59.605400	19 26 41.450635	0.00
	21 00 23.30491	* 21 06 26.16200	21 08 29.99659	0.00
	delay calibrator, 12.59 deg. from W49N			
* 1749+096	17 49 10.387929	* 17 51 32.818572	17 52 18.416633	0.00
J1751+0939	09 39 42.82575	* 09 39 00.72830	09 39 01.86125	0.00

rt012tr

E-EVN: RT012

PI: *Tudose*

Address: JIVE Phone: +31 521 596 536 EMAIL: zparagi@jive.eu Phone during obs: +31 521 596 530
Observing mode: realtime e-*vlbi*

Schedule for TORUN (Code Tr) Page 2

e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 5 Jul 2015 Day 186 ---										
Next scan frequencies: 4942.49 4942.49 4942.49 4942.49 4974.49 4974.49 4974.49 4974.49										
5006.49 5006.49 5006.49 5006.49 5038.49 5038.49 5038.49 5038.49										
Next BBC frequencies: 742.49 742.49 742.49 742.49 774.49 774.49 774.49 774.49										
806.49 806.49 806.49 806.49 838.49 838.49 838.49 838.49										
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										
18 30 00	3C345	14 38 00	64.9	109.3	-2.1		-47.5	0	0	18 30 00
18 44 20	---	14 52 22	66.9	114.0	-1.9		-45.6	860	110	18 30 01
18 45 00	3C345	14 53 02	67.0	114.2	-1.8		-45.5	34	110	18 45 00
18 59 20	---	15 07 24	68.9	119.5	-1.6		-42.9	860	221	18 45 01
19 00 00	3C345	15 08 05	69.0	119.7	-1.6		-42.7	33	221	19 00 00
19 14 20	---	15 22 27	70.8	125.8	-1.4		-39.3	860	331	19 00 01
19 15 00	3C345	15 23 07	70.9	126.1	-1.3		-39.1	33	331	19 15 00
19 29 20	---	15 37 29	72.6	133.2	-1.1		-34.7	860	441	19 15 01
19 30 00	3C345	15 38 09	72.6	133.5	-1.1		-34.5	33	441	19 30 00
19 44 20	---	15 52 32	74.1	141.7	-0.8		-28.9	860	551	19 30 01
19 45 00	3C345	15 53 12	74.2	142.2	-0.8		-28.6	33	551	19 45 00
19 59 20	---	16 07 34	75.3	151.7	-0.6		-21.8	860	662	19 45 01
20 03 20	J2025+3343	16 11 35	41.8	87.1	-4.2		-46.2	95	662	20 03 20
20 06 20	=2023+33	16 14 35	42.3	87.7	-4.2		-46.2	180	685	20 03 21
20 06 20	V404CYG	16 14 35	42.5	87.7	-4.2		-46.3	-11	685	No stop
20 09 50	---	16 18 06	43.1	88.4	-4.1		-46.3	199	712	20 06 21
20 09 50	J2025+3343	16 18 06	42.8	88.4	-4.1		-46.2	-11	712	No stop
20 11 10	=2023+33	16 19 26	43.0	88.6	-4.1		-46.2	69	722	20 09 51
20 11 10	V404CYG	16 19 26	43.3	88.7	-4.1		-46.3	-11	722	No stop
20 14 40	---	16 22 57	43.8	89.4	-4.0		-46.4	199	749	20 11 11
20 15 20	J2025+3343	16 23 37	43.6	89.4	-4.0		-46.2	29	749	20 15 20
20 16 20	=2023+33	16 24 37	43.8	89.6	-4.0		-46.2	60	756	20 15 21
20 16 20	V404CYG	16 24 37	44.0	89.7	-4.0		-46.4	-11	756	No stop
20 19 50	---	16 28 08	44.6	90.4	-3.9		-46.4	199	783	20 16 21

Schedule for TORUN (Code Tr)

Page 3

e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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	5 Jul 2015	Day 186	---						
20 19 50	J2025+3343	16 28 08	44.3	90.3	-4.0		-46.2	-11	783	No stop
20 21 10	=2023+33	16 29 28	44.5	90.6	-3.9		-46.2	69	794	20 19 51
20 21 10	V404CYG	16 29 28	44.8	90.7	-3.9		-46.4	-11	794	No stop
20 24 40	---	16 32 58	45.3	91.4	-3.9		-46.3	199	821	20 21 11
20 25 20	J2025+3343	16 33 39	45.1	91.5	-3.9		-46.2	29	821	20 25 20
20 26 20	=2023+33	16 34 39	45.3	91.7	-3.9		-46.2	60	828	20 25 21
20 26 20	V404CYG	16 34 39	45.5	91.7	-3.8		-46.3	-11	828	No stop
20 29 50	---	16 38 09	46.1	92.5	-3.8		-46.3	199	855	20 26 21
20 29 50	J2025+3343	16 38 09	45.8	92.4	-3.8		-46.2	-11	855	No stop
20 31 10	=2023+33	16 39 29	46.0	92.7	-3.8		-46.2	69	865	20 29 51
20 31 10	V404CYG	16 39 29	46.3	92.7	-3.8		-46.3	-11	865	No stop
20 34 40	---	16 43 00	46.8	93.5	-3.7		-46.2	199	892	20 31 11
20 35 20	J2025+3343	16 43 40	46.6	93.5	-3.7		-46.1	29	892	20 35 20
20 36 20	=2023+33	16 44 40	46.8	93.7	-3.7		-46.1	60	900	20 35 21
20 36 20	V404CYG	16 44 40	47.1	93.8	-3.7		-46.2	-11	900	No stop
20 39 50	---	16 48 11	47.6	94.6	-3.6		-46.2	199	927	20 36 21
20 39 50	J2025+3343	16 48 11	47.3	94.5	-3.6		-46.1	-11	927	No stop
20 41 10	=2023+33	16 49 31	47.5	94.8	-3.6		-46.0	69	937	20 39 51
20 41 10	V404CYG	16 49 31	47.8	94.9	-3.6		-46.1	-11	937	No stop
20 44 40	---	16 53 02	48.3	95.6	-3.5		-46.1	199	964	20 41 11
20 45 20	J2025+3343	16 53 42	48.1	95.7	-3.5		-46.0	29	964	20 45 20
20 46 20	=2023+33	16 54 42	48.3	95.9	-3.5		-45.9	60	972	20 45 21
20 46 20	V404CYG	16 54 42	48.6	96.0	-3.5		-46.0	-11	972	No stop
20 49 50	---	16 58 13	49.1	96.7	-3.4		-45.9	199	999	20 46 21
20 49 50	J2025+3343	16 58 13	48.8	96.7	-3.5		-45.8	-11	999	No stop
20 51 10	=2023+33	16 59 33	49.0	97.0	-3.4		-45.8	69	1009	20 49 51
20 51 10	V404CYG	16 59 33	49.3	97.0	-3.4		-45.9	-11	1009	No stop
20 54 40	---	17 03 03	49.8	97.8	-3.4		-45.8	199	1036	20 51 11
20 55 20	J2025+3343	17 03 43	49.6	97.9	-3.4		-45.7	29	1036	20 55 20
20 56 20	=2023+33	17 04 44	49.8	98.1	-3.4		-45.7	60	1044	20 55 21
20 56 20	V404CYG	17 04 44	50.0	98.2	-3.3		-45.7	-11	1044	No stop
20 59 50	---	17 08 14	50.6	99.0	-3.3		-45.6	199	1071	20 56 21

Schedule for TORUN (Code Tr)

Page 4

e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 5 Jul 2015 Day 186 ---										
20 59 50	J2025+3343	17 08 14	50.3	98.9	-3.3		-45.5	-11	1071	No stop
21 01 10	=2023+33	17 09 34	50.5	99.2	-3.3		-45.5	69	1081	20 59 51
21 01 10	V404CYG	17 09 34	50.8	99.3	-3.3		-45.6	-11	1081	No stop
21 04 40	---	17 13 05	51.3	100.1	-3.2		-45.4	199	1108	21 01 11
21 05 20	J2025+3343	17 13 45	51.1	100.2	-3.2		-45.3	29	1108	21 05 20
21 06 20	=2023+33	17 14 45	51.3	100.4	-3.2		-45.3	60	1115	21 05 21
21 06 20	V404CYG	17 14 45	51.5	100.5	-3.2		-45.4	-11	1115	No stop
21 09 50	---	17 18 16	52.0	101.3	-3.1		-45.2	199	1142	21 06 21
21 09 50	J2025+3343	17 18 16	51.8	101.2	-3.1		-45.1	-11	1142	No stop
21 11 10	=2023+33	17 19 36	52.0	101.5	-3.1		-45.1	69	1153	21 09 51
21 11 10	V404CYG	17 19 36	52.2	101.6	-3.1		-45.1	-11	1153	No stop
21 14 40	---	17 23 07	52.8	102.5	-3.0		-45.0	199	1179	21 11 11
21 15 20	J2025+3343	17 23 47	52.6	102.6	-3.0		-44.8	29	1179	21 15 20
21 16 20	=2023+33	17 24 47	52.7	102.8	-3.0		-44.8	60	1187	21 15 21
21 16 20	V404CYG	17 24 47	53.0	102.9	-3.0		-44.9	-11	1187	No stop
21 19 50	---	17 28 17	53.5	103.8	-2.9		-44.7	199	1214	21 16 21
21 19 50	J2025+3343	17 28 17	53.2	103.7	-3.0		-44.6	-11	1214	No stop
21 21 10	=2023+33	17 29 38	53.4	104.0	-2.9		-44.5	69	1224	21 19 51
21 21 10	V404CYG	17 29 38	53.7	104.1	-2.9		-44.6	-11	1224	No stop
21 24 40	---	17 33 08	54.2	105.0	-2.9		-44.4	199	1251	21 21 11
21 25 20	J2025+3343	17 33 48	54.1	105.0	-2.9		-44.2	29	1251	21 25 20
21 26 20	=2023+33	17 34 49	54.2	105.3	-2.9		-44.2	60	1259	21 25 21
21 26 20	V404CYG	17 34 49	54.5	105.4	-2.8		-44.2	-11	1259	No stop
21 29 50	---	17 38 19	55.0	106.3	-2.8		-44.0	199	1286	21 26 21
21 29 50	J2025+3343	17 38 19	54.7	106.2	-2.8		-43.9	-11	1286	No stop
21 31 10	=2023+33	17 39 39	54.9	106.5	-2.8		-43.8	69	1296	21 29 51
21 31 10	V404CYG	17 39 39	55.2	106.7	-2.8		-43.9	-11	1296	No stop
21 34 40	---	17 43 10	55.7	107.6	-2.7		-43.6	199	1323	21 31 11
21 35 20	J2025+3343	17 43 50	55.5	107.6	-2.7		-43.5	29	1323	21 35 20
21 36 20	=2023+33	17 44 50	55.6	107.9	-2.7		-43.4	60	1331	21 35 21

Schedule for TORUN (Code Tr)

Page 5

e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 5 Jul 2015 Day 186 ---										
21 36 20	V404CYG	17 44 50	55.9	108.0	-2.7		-43.5	-11	1331	No stop
21 39 50	---	17 48 21	56.4	109.0	-2.6		-43.2	199	1358	21 36 21
21 39 50	J2025+3343	17 48 21	56.1	108.9	-2.6		-43.1	-11	1358	No stop
21 41 10	=2023+33	17 49 41	56.3	109.2	-2.6		-43.0	69	1368	21 39 51
21 41 10	V404CYG	17 49 41	56.6	109.3	-2.6		-43.1	-11	1368	No stop
21 44 40	---	17 53 12	57.1	110.3	-2.5		-42.7	199	1395	21 41 11
21 45 20	J2025+3343	17 53 52	56.9	110.4	-2.5		-42.6	29	1395	21 45 20
21 46 20	=2023+33	17 54 52	57.1	110.7	-2.5		-42.5	60	1403	21 45 21
21 47 50	J2115+2933	17 56 22	47.0	102.7	-3.3		-42.4	38	1403	21 47 50
21 50 50	=2113+293	17 59 23	47.4	103.4	-3.3		-42.2	180	1426	21 47 51
21 52 20	J2025+3343	18 00 53	57.9	112.4	-2.4		-41.9	37	1426	21 52 20
21 55 20	=2023+33	18 03 53	58.3	113.3	-2.4		-41.6	180	1449	21 52 21
21 55 20	V404CYG	18 03 53	58.6	113.4	-2.3		-41.6	-11	1449	No stop
21 58 50	---	18 07 24	59.1	114.5	-2.3		-41.2	199	1476	21 55 21
21 58 50	J2025+3343	18 07 24	58.8	114.3	-2.3		-41.2	-11	1476	No stop
22 00 10	=2023+33	18 08 44	59.0	114.7	-2.3		-41.0	69	1486	21 58 51
22 00 10	V404CYG	18 08 44	59.2	114.9	-2.3		-41.0	-11	1486	No stop
22 03 40	---	18 12 15	59.7	116.0	-2.2		-40.6	199	1513	22 00 11
22 04 20	J2025+3343	18 12 55	59.5	116.0	-2.2		-40.5	29	1513	22 04 20
22 05 20	=2023+33	18 13 55	59.7	116.3	-2.2		-40.3	60	1521	22 04 21
22 05 20	V404CYG	18 13 55	59.9	116.5	-2.2		-40.4	-11	1521	No stop
22 08 50	---	18 17 26	60.4	117.6	-2.1		-39.9	199	1547	22 05 21
22 08 50	J2025+3343	18 17 26	60.2	117.4	-2.1		-39.9	-11	1547	No stop
22 10 10	=2023+33	18 18 46	60.3	117.9	-2.1		-39.7	69	1558	22 08 51
22 10 10	V404CYG	18 18 46	60.6	118.0	-2.1		-39.7	-11	1558	No stop
22 13 40	---	18 22 16	61.1	119.2	-2.0		-39.2	199	1585	22 10 11
22 14 20	J2025+3343	18 22 56	60.9	119.2	-2.0		-39.1	29	1585	22 14 20
22 15 20	=2023+33	18 23 57	61.0	119.6	-2.0		-38.9	60	1592	22 14 21
22 15 20	V404CYG	18 23 57	61.3	119.7	-2.0		-38.9	-11	1592	No stop
22 18 50	---	18 27 27	61.7	120.9	-2.0		-38.4	199	1619	22 15 21

Schedule for TORUN (Code Tr)

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e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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	5 Jul 2015	Day 186		---					
22 18 50	J2025+3343	18 27 27	61.5	120.8	-2.0		-38.4	-11	1619	No stop
22 20 10	=2023+33	18 28 47	61.6	121.2	-2.0		-38.2	69	1629	22 18 51
22 20 10	V404CYG	18 28 47	61.9	121.4	-1.9		-38.1	-11	1629	No stop
22 23 40	---	18 32 18	62.3	122.6	-1.9		-37.5	199	1656	22 20 11
22 24 20	J2025+3343	18 32 58	62.2	122.7	-1.9		-37.5	29	1656	22 24 20
22 25 20	=2023+33	18 33 58	62.3	123.0	-1.9		-37.3	60	1664	22 24 21
22 25 20	V404CYG	18 33 58	62.6	123.2	-1.8		-37.3	-11	1664	No stop
22 28 50	---	18 37 29	63.0	124.5	-1.8		-36.6	199	1691	22 25 21
22 28 50	J2025+3343	18 37 29	62.7	124.3	-1.8		-36.6	-11	1691	No stop
22 30 10	=2023+33	18 38 49	62.9	124.8	-1.8		-36.4	69	1701	22 28 51
22 30 10	V404CYG	18 38 49	63.2	125.0	-1.8		-36.4	-11	1701	No stop
22 33 40	---	18 42 20	63.6	126.3	-1.7		-35.7	199	1728	22 30 11
22 34 20	J2025+3343	18 43 00	63.4	126.3	-1.7		-35.6	29	1728	22 34 20
22 35 20	=2023+33	18 44 00	63.5	126.7	-1.7		-35.4	60	1736	22 34 21
22 35 20	V404CYG	18 44 00	63.8	126.9	-1.7		-35.3	-11	1736	No stop
22 38 50	---	18 47 30	64.2	128.3	-1.6		-34.6	199	1763	22 35 21
22 38 50	J2025+3343	18 47 30	64.0	128.1	-1.6		-34.7	-11	1763	No stop
22 40 10	=2023+33	18 48 51	64.1	128.6	-1.6		-34.4	69	1773	22 38 51
22 40 10	V404CYG	18 48 51	64.4	128.8	-1.6		-34.3	-11	1773	No stop
22 43 40	---	18 52 21	64.8	130.2	-1.5		-33.5	199	1800	22 40 11
22 44 20	J2025+3343	18 53 01	64.6	130.2	-1.5		-33.5	29	1800	22 44 20
22 45 20	=2023+33	18 54 02	64.7	130.7	-1.5		-33.2	60	1808	22 44 21
22 45 20	V404CYG	18 54 02	65.0	130.9	-1.5		-33.1	-11	1808	No stop
22 48 50	---	18 57 32	65.4	132.4	-1.5		-32.3	199	1835	22 45 21
22 48 50	J2025+3343	18 57 32	65.1	132.1	-1.5		-32.4	-11	1835	No stop
22 50 10	=2023+33	18 58 52	65.3	132.7	-1.4		-32.1	69	1845	22 48 51
22 50 10	V404CYG	18 58 52	65.5	132.9	-1.4		-32.0	-11	1845	No stop
22 53 40	---	19 02 23	65.9	134.4	-1.4		-31.1	199	1872	22 50 11
22 54 20	J2025+3343	19 03 03	65.7	134.4	-1.4		-31.0	29	1872	22 54 20
22 55 20	=2023+33	19 04 03	65.8	134.9	-1.4		-30.8	60	1879	22 54 21

Schedule for TORUN (Code Tr)

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e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

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TPStart: Recording start time. Frequencies are L0 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	5 Jul 2015	Day 186		---					
22 55 20	V404CYG	19 04 03	66.1	135.2	-1.3		-30.7	-11	1879	No stop
22 58 50	---	19 07 34	66.4	136.7	-1.3		-29.7	199	1906	22 55 21
22 58 50	J2025+3343	19 07 34	66.2	136.4	-1.3		-29.9	-11	1906	No stop
23 00 10	=2023+33	19 08 54	66.3	137.0	-1.3		-29.5	69	1917	22 58 51
23 00 10	V404CYG	19 08 54	66.6	137.3	-1.3		-29.4	-11	1917	No stop
23 03 40	---	19 12 25	66.9	139.0	-1.2		-28.4	199	1944	23 00 11
23 04 20	J2025+3343	19 13 05	66.7	138.9	-1.2		-28.3	29	1944	23 04 20
23 05 20	=2023+33	19 14 05	66.8	139.4	-1.2		-28.0	60	1951	23 04 21
23 05 20	V404CYG	19 14 05	67.1	139.7	-1.2		-27.9	-11	1951	No stop
23 08 50	---	19 17 35	67.4	141.4	-1.1		-26.8	199	1978	23 05 21
23 08 50	J2025+3343	19 17 35	67.2	141.1	-1.1		-27.0	-11	1978	No stop
23 10 10	=2023+33	19 18 56	67.3	141.7	-1.1		-26.6	69	1988	23 08 51
23 10 10	V404CYG	19 18 56	67.5	142.1	-1.1		-26.4	-11	1988	No stop
23 13 40	---	19 22 26	67.9	143.8	-1.0		-25.3	199	2015	23 10 11
23 14 20	J2025+3343	19 23 06	67.7	143.7	-1.0		-25.3	29	2015	23 14 20
23 15 20	=2023+33	19 24 06	67.8	144.2	-1.0		-25.0	60	2023	23 14 21
23 15 20	V404CYG	19 24 06	68.0	144.6	-1.0		-24.8	-11	2023	No stop
23 18 50	---	19 27 37	68.3	146.4	-1.0		-23.6	199	2050	23 15 21
23 18 50	J2025+3343	19 27 37	68.1	146.0	-1.0		-23.8	-10	2050	No stop
23 20 10	=2023+33	19 28 57	68.2	146.7	-0.9		-23.4	70	2060	23 18 51
23 20 10	V404CYG	19 28 57	68.4	147.1	-0.9		-23.1	-11	2060	No stop
23 23 40	---	19 32 28	68.7	148.9	-0.9		-21.9	199	2087	23 20 11
23 24 20	J2025+3343	19 33 08	68.5	148.9	-0.9		-21.9	29	2087	23 24 20
23 25 20	=2023+33	19 34 08	68.6	149.4	-0.9		-21.6	60	2095	23 24 21
23 25 20	V404CYG	19 34 08	68.8	149.8	-0.8		-21.3	-11	2095	No stop
23 28 50	---	19 37 39	69.1	151.7	-0.8		-20.0	199	2122	23 25 21
23 28 50	J2025+3343	19 37 39	68.9	151.3	-0.8		-20.3	-11	2122	No stop
23 30 10	=2023+33	19 38 59	68.9	152.0	-0.8		-19.8	69	2132	23 28 51
23 30 10	V404CYG	19 38 59	69.2	152.5	-0.8		-19.5	-11	2132	No stop
23 33 40	---	19 42 29	69.4	154.4	-0.7		-18.2	199	2159	23 30 11

Schedule for TORUN (Code Tr)

Page 8

e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 5 Jul 2015 Day 186 ---										
23 34 20	J2025+3343	19 43 10	69.2	154.3	-0.7		-18.3	29	2159	23 34 20
23 35 20	=2023+33	19 44 10	69.3	154.8	-0.7		-17.9	60	2167	23 34 21
23 36 50	J2115+2933	19 45 40	61.3	135.9	-1.5		-28.8	36	2167	23 36 50
23 39 50	=2113+293	19 48 40	61.6	137.1	-1.5		-28.1	180	2190	23 36 51
23 45 50	3C454.3	19 54 41	39.1	118.9	-3.0		-33.2	260	2190	23 45 50
23 48 50	---	19 57 42	39.5	119.7	-3.0		-32.9	180	2213	23 45 51
23 51 50	J2025+3343	20 00 42	70.2	164.5	-0.4		-11.2	51	2213	23 51 50
23 54 50	=2023+33	20 03 43	70.3	166.3	-0.4		-9.9	180	2236	23 51 51
23 54 50	V404CYG	20 03 43	70.5	166.9	-0.3		-9.5	-12	2236	No stop
23 58 20	---	20 07 14	70.6	169.0	-0.3		-7.9	198	2263	23 54 51
23 58 20	J2025+3343	20 07 14	70.4	168.4	-0.3		-8.3	-12	2263	No stop
23 59 40	=2023+33	20 08 34	70.4	169.2	-0.3		-7.8	68	2273	23 58 21
--- Start: Sun 5 Jul 2015 Day 186 -- Stop: Mon 6 Jul 2015 Day 187 ---										
23 59 40	V404CYG	20 08 34	70.6	169.9	-0.3		-7.3	-13	2273	No stop
00 03 10	---	20 12 04	70.7	172.1	-0.2		-5.7	197	2300	23 59 41
00 03 50	J2025+3343	20 12 44	70.5	171.8	-0.2		-5.9	28	2300	00 03 50
00 04 50	=2023+33	20 13 45	70.6	172.4	-0.2		-5.5	60	2308	00 03 51
00 04 50	V404CYG	20 13 45	70.7	173.1	-0.2		-5.0	-13	2308	No stop
00 08 20	---	20 17 15	70.8	175.3	-0.1		-3.4	197	2335	00 04 51
00 08 20	J2025+3343	20 17 15	70.6	174.6	-0.1		-3.9	-12	2335	No stop
00 09 40	=2023+33	20 18 35	70.6	175.5	-0.1		-3.3	68	2345	00 08 21
00 09 40	V404CYG	20 18 35	70.8	176.1	-0.1		-2.8	-13	2345	No stop
00 13 10	---	20 22 06	70.8	178.4	-0.0		-1.2	197	2372	00 09 41
00 13 50	J2025+3343	20 22 46	70.7	178.1	-0.1		-1.4	28	2372	00 13 50
00 14 50	=2023+33	20 23 46	70.7	178.7	-0.0		-0.9	60	2379	00 13 51
00 14 50	V404CYG	20 23 46	70.8	179.4	-0.0		-0.4	-13	2379	No stop
00 18 20	---	20 27 17	70.8	181.6	0.0		1.2	197	2406	00 14 51
00 18 20	J2025+3343	20 27 17	70.7	180.9	0.0		0.7	-12	2406	No stop
00 19 40	=2023+33	20 28 37	70.7	181.8	0.0		1.3	68	2417	00 18 21

Schedule for TORUN (Code Tr)

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e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 6 Jul 2015 Day 187 ---										
00 19 40	V404CYG	20 28 37	70.8	182.5	0.1		1.8	-13	2417	No stop
00 23 10	---	20 32 08	70.8	184.7	0.1		3.4	197	2444	00 19 41
00 23 50	J2025+3343	20 32 48	70.6	184.4	0.1		3.2	28	2444	00 23 50
00 24 50	=2023+33	20 33 48	70.6	185.0	0.1		3.6	60	2451	00 23 51
00 24 50	V404CYG	20 33 48	70.8	185.7	0.2		4.1	-13	2451	No stop
00 28 20	---	20 37 18	70.7	187.9	0.2		5.7	197	2478	00 24 51
00 28 20	J2025+3343	20 37 18	70.6	187.2	0.2		5.2	-12	2478	No stop
00 29 40	=2023+33	20 38 39	70.5	188.0	0.2		5.8	68	2488	00 28 21
00 29 40	V404CYG	20 38 39	70.7	188.8	0.2		6.3	-13	2488	No stop
00 33 10	---	20 42 09	70.6	190.9	0.3		7.9	197	2515	00 29 41
00 33 50	J2025+3343	20 42 49	70.4	190.6	0.3		7.6	28	2515	00 33 50
00 34 50	=2023+33	20 43 50	70.4	191.2	0.3		8.1	60	2523	00 33 51
00 34 50	V404CYG	20 43 50	70.5	192.0	0.3		8.6	-13	2523	No stop
00 38 20	---	20 47 20	70.4	194.1	0.4		10.2	197	2550	00 34 51
00 38 20	J2025+3343	20 47 20	70.3	193.4	0.4		9.6	-12	2550	No stop
00 39 40	=2023+33	20 48 40	70.2	194.2	0.4		10.2	68	2560	00 38 21
00 39 40	V404CYG	20 48 40	70.4	194.9	0.4		10.7	-13	2560	No stop
00 43 10	---	20 52 11	70.2	197.0	0.5		12.2	197	2587	00 39 41
00 43 50	J2025+3343	20 52 51	70.1	196.7	0.5		12.0	27	2587	00 43 50
00 44 50	=2023+33	20 53 51	70.0	197.3	0.5		12.4	60	2595	00 43 51
00 44 50	V404CYG	20 53 51	70.1	198.0	0.5		13.0	-13	2595	No stop
00 48 20	---	20 57 22	70.0	200.1	0.5		14.4	197	2622	00 44 51
00 48 20	J2025+3343	20 57 22	69.9	199.4	0.5		13.9	-12	2622	No stop
00 49 40	=2023+33	20 58 42	69.8	200.1	0.5		14.4	68	2632	00 48 21
00 49 40	V404CYG	20 58 42	69.9	200.9	0.6		15.0	-13	2632	No stop
00 53 10	---	21 02 13	69.7	202.9	0.6		16.4	197	2659	00 49 41
00 53 50	J2025+3343	21 02 53	69.6	202.6	0.6		16.1	27	2659	00 53 50
00 54 50	=2023+33	21 03 53	69.5	203.1	0.6		16.5	60	2667	00 53 51
00 54 50	V404CYG	21 03 53	69.6	203.9	0.7		17.0	-13	2667	No stop
00 58 20	---	21 07 23	69.4	205.9	0.7		18.4	197	2694	00 54 51

Schedule for TORUN (Code Tr)

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e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 6 Jul 2015 Day 187 ---										
00 58 20	J2025+3343	21 07 23	69.3	205.1	0.7		17.8	-12	2694	No stop
00 59 40	=2023+33	21 08 44	69.2	205.9	0.7		18.4	68	2704	00 58 21
00 59 40	V404CYG	21 08 44	69.3	206.6	0.7		18.9	-13	2704	No stop
01 03 10	---	21 12 14	69.0	208.5	0.8		20.2	197	2731	00 59 41
01 03 50	J2025+3343	21 12 54	68.9	208.1	0.8		19.9	28	2731	01 03 50
01 04 50	=2023+33	21 13 54	68.9	208.7	0.8		20.3	60	2738	01 03 51
01 04 50	V404CYG	21 13 54	68.9	209.4	0.8		20.8	-13	2738	No stop
01 08 20	---	21 17 25	68.7	211.3	0.9		22.1	197	2765	01 04 51
01 08 20	J2025+3343	21 17 25	68.6	210.6	0.9		21.6	-12	2765	No stop
01 09 40	=2023+33	21 18 45	68.5	211.3	0.9		22.0	68	2776	01 08 21
01 09 40	V404CYG	21 18 45	68.5	212.0	0.9		22.6	-13	2776	No stop
01 13 10	---	21 22 16	68.3	213.8	1.0		23.8	197	2803	01 09 41
01 13 50	J2025+3343	21 22 56	68.2	213.4	1.0		23.5	28	2803	01 13 50
01 14 50	=2023+33	21 23 56	68.1	214.0	1.0		23.8	60	2810	01 13 51
01 14 50	V404CYG	21 23 56	68.1	214.7	1.0		24.3	-13	2810	No stop
01 18 20	---	21 27 27	67.8	216.4	1.0		25.5	197	2837	01 14 51
01 18 20	J2025+3343	21 27 27	67.8	215.7	1.0		24.9	-12	2837	No stop
01 19 40	=2023+33	21 28 47	67.7	216.4	1.0		25.4	68	2847	01 18 21
01 19 40	V404CYG	21 28 47	67.7	217.1	1.1		25.9	-13	2847	No stop
01 23 10	---	21 32 17	67.4	218.8	1.1		27.0	197	2874	01 19 41
01 23 50	J2025+3343	21 32 58	67.3	218.4	1.1		26.7	28	2874	01 23 50
01 24 50	=2023+33	21 33 58	67.2	218.9	1.1		27.0	60	2882	01 23 51
01 24 50	V404CYG	21 33 58	67.2	219.6	1.2		27.5	-13	2882	No stop
01 28 20	---	21 37 28	66.9	221.3	1.2		28.5	197	2909	01 24 51
01 28 20	J2025+3343	21 37 28	66.8	220.6	1.2		28.0	-12	2909	No stop
01 29 40	=2023+33	21 38 49	66.7	221.2	1.2		28.4	68	2919	01 28 21
01 29 40	V404CYG	21 38 49	66.7	221.9	1.2		28.9	-13	2919	No stop
01 33 10	---	21 42 19	66.4	223.5	1.3		29.9	197	2946	01 29 41
01 33 50	J2025+3343	21 42 59	66.3	223.1	1.3		29.6	28	2946	01 33 50
01 34 50	=2023+33	21 43 59	66.2	223.5	1.3		29.8	60	2954	01 33 51

Schedule for TORUN (Code Tr)

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e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 6 Jul 2015 Day 187 ---										
01 36 50	J2115+2933	21 46 00	65.9	196.0	0.5		11.0	49	2954	01 36 50
01 39 50	=2113+293	21 49 00	65.8	197.6	0.5		12.1	180	2977	01 36 51
01 41 50	J2025+3343	21 51 01	65.4	226.6	1.4		31.7	48	2977	01 41 50
01 44 50	=2023+33	21 54 01	65.1	227.9	1.5		32.4	180	3000	01 41 51
01 44 50	V404CYG	21 54 01	65.1	228.5	1.5		32.8	-13	3000	No stop
01 48 20	---	21 57 32	64.7	230.0	1.5		33.6	197	3027	01 44 51
01 48 20	J2025+3343	21 57 32	64.7	229.3	1.5		33.2	-12	3027	No stop
01 49 40	=2023+33	21 58 52	64.6	229.9	1.6		33.5	68	3037	01 48 21
01 49 40	V404CYG	21 58 52	64.6	230.5	1.6		33.9	-12	3037	No stop
01 53 10	---	22 02 22	64.2	231.9	1.6		34.7	198	3064	01 49 41
01 53 50	J2025+3343	22 03 03	64.1	231.5	1.6		34.4	28	3064	01 53 50
01 54 50	=2023+33	22 04 03	64.0	231.9	1.6		34.6	60	3072	01 53 51
01 54 50	V404CYG	22 04 03	64.0	232.5	1.7		35.1	-12	3072	No stop
01 58 20	---	22 07 33	63.5	233.9	1.7		35.8	198	3099	01 54 51
01 58 20	J2025+3343	22 07 33	63.5	233.3	1.7		35.4	-12	3099	No stop
01 59 40	=2023+33	22 08 53	63.4	233.8	1.7		35.6	68	3109	01 58 21
01 59 40	V404CYG	22 08 53	63.4	234.4	1.7		36.0	-12	3109	No stop
02 03 10	---	22 12 24	62.9	235.7	1.8		36.7	198	3136	01 59 41
02 03 50	J2025+3343	22 13 04	62.9	235.3	1.8		36.4	28	3136	02 03 50
02 04 50	=2023+33	22 14 04	62.7	235.7	1.8		36.6	60	3144	02 03 51
02 04 50	V404CYG	22 14 04	62.7	236.3	1.8		37.0	-12	3144	No stop
02 08 20	---	22 17 35	62.3	237.5	1.9		37.6	198	3171	02 04 51
02 08 20	J2025+3343	22 17 35	62.3	236.9	1.9		37.3	-12	3171	No stop
02 09 40	=2023+33	22 18 55	62.1	237.4	1.9		37.5	68	3181	02 08 21
02 09 40	V404CYG	22 18 55	62.1	238.0	1.9		37.9	-12	3181	No stop
02 13 10	---	22 22 26	61.7	239.2	2.0		38.4	198	3208	02 09 41
02 13 50	J2025+3343	22 23 06	61.6	238.9	2.0		38.2	28	3208	02 13 50
02 14 50	=2023+33	22 24 06	61.5	239.2	2.0		38.4	60	3215	02 13 51
02 14 50	V404CYG	22 24 06	61.5	239.8	2.0		38.7	-12	3215	No stop
02 18 20	---	22 27 37	61.0	241.0	2.0		39.3	198	3242	02 14 51

Schedule for TORUN (Code Tr)

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e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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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 6 Jul 2015 Day 187 ---										
02 18 20	J2025+3343	22 27 37	61.0	240.4	2.0		38.9	-12	3242	No stop
02 19 40	=2023+33	22 28 57	60.8	240.8	2.1		39.1	68	3253	02 18 21
02 19 40	V404CYG	22 28 57	60.8	241.4	2.1		39.4	-12	3253	No stop
02 23 10	---	22 32 27	60.4	242.6	2.1		40.0	198	3279	02 19 41
02 23 50	J2025+3343	22 33 07	60.3	242.2	2.1		39.7	29	3279	02 23 50
02 24 50	=2023+33	22 34 08	60.2	242.5	2.1		39.9	60	3287	02 23 51
02 24 50	V404CYG	22 34 08	60.1	243.1	2.2		40.2	-12	3287	No stop
02 28 20	---	22 37 38	59.7	244.2	2.2		40.7	198	3314	02 24 51
02 28 20	J2025+3343	22 37 38	59.7	243.6	2.2		40.3	-11	3314	No stop
02 29 40	=2023+33	22 38 58	59.5	244.1	2.2		40.5	69	3324	02 28 21
02 29 40	V404CYG	22 38 58	59.5	244.6	2.2		40.8	-12	3324	No stop
02 33 10	---	22 42 29	59.0	245.7	2.3		41.3	198	3351	02 29 41
02 33 50	J2025+3343	22 43 09	58.9	245.4	2.3		41.0	29	3351	02 33 50
02 34 50	=2023+33	22 44 09	58.8	245.7	2.3		41.2	60	3359	02 33 51
02 34 50	V404CYG	22 44 09	58.8	246.2	2.3		41.5	-12	3359	No stop
02 38 20	---	22 47 40	58.3	247.2	2.4		41.9	198	3386	02 34 51
02 38 20	J2025+3343	22 47 40	58.3	246.7	2.4		41.6	-11	3386	No stop
02 39 40	=2023+33	22 49 00	58.1	247.1	2.4		41.7	69	3396	02 38 21
02 39 40	V404CYG	22 49 00	58.1	247.6	2.4		42.0	-12	3396	No stop
02 43 10	---	22 52 31	57.6	248.6	2.5		42.4	198	3423	02 39 41
02 43 50	J2025+3343	22 53 11	57.6	248.3	2.5		42.2	29	3423	02 43 50
02 44 50	=2023+33	22 54 11	57.4	248.6	2.5		42.3	60	3431	02 43 51
02 44 50	V404CYG	22 54 11	57.4	249.1	2.5		42.5	-12	3431	No stop
02 48 20	---	22 57 41	56.9	250.1	2.5		42.9	198	3458	02 44 51
02 48 20	J2025+3343	22 57 41	56.9	249.6	2.5		42.6	-11	3458	No stop
02 49 40	=2023+33	22 59 02	56.7	250.0	2.6		42.7	69	3468	02 48 21
02 49 40	V404CYG	22 59 02	56.7	250.5	2.6		43.0	-11	3468	No stop
02 53 10	---	23 02 32	56.2	251.4	2.6		43.3	199	3495	02 49 41
02 53 50	J2025+3343	23 03 12	56.2	251.1	2.6		43.1	29	3495	02 53 50
02 54 50	=2023+33	23 04 13	56.0	251.4	2.6		43.2	60	3503	02 53 51

Schedule for TORUN (Code Tr)

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e-EVN: rt012

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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 6 Jul 2015 Day 187 ---										
02 54 50	V404CYG	23 04 13	56.0	251.9	2.7		43.5	-11	3503	No stop
02 58 20	---	23 07 43	55.5	252.8	2.7		43.7	199	3529	02 54 51
02 58 20	J2025+3343	23 07 43	55.5	252.3	2.7		43.5	-11	3529	No stop
02 59 40	=2023+33	23 09 03	55.3	252.7	2.7		43.6	69	3540	02 58 21
02 59 40	V404CYG	23 09 03	55.3	253.2	2.7		43.8	-11	3540	No stop
03 03 10	---	23 12 34	54.8	254.1	2.8		44.1	199	3567	02 59 41
03 03 50	J2025+3343	23 13 14	54.7	253.8	2.8		43.9	29	3567	03 03 50
03 04 50	=2023+33	23 14 14	54.6	254.0	2.8		44.0	60	3574	03 03 51
03 04 50	V404CYG	23 14 14	54.5	254.5	2.8		44.2	-11	3574	No stop
03 08 20	---	23 17 45	54.0	255.4	2.9		44.4	199	3601	03 04 51
03 08 20	J2025+3343	23 17 45	54.1	254.9	2.9		44.2	-11	3601	No stop
03 09 40	=2023+33	23 19 05	53.9	255.3	2.9		44.3	69	3612	03 08 21
03 09 40	V404CYG	23 19 05	53.8	255.7	2.9		44.5	-11	3612	No stop
03 13 10	---	23 22 36	53.3	256.6	3.0		44.7	199	3638	03 09 41
03 13 50	J2025+3343	23 23 16	53.3	256.3	3.0		44.6	29	3638	03 13 50
03 14 50	=2023+33	23 24 16	53.1	256.6	3.0		44.6	60	3646	03 13 51
03 16 50	J2115+2933	23 26 16	56.7	238.2	2.2		36.0	68	3646	03 16 50
03 19 50	=2113+293	23 29 17	56.3	239.2	2.2		36.4	180	3669	03 16 51
03 22 50	3C454.3	23 32 17	52.4	194.9	0.6		9.2	75	3669	03 22 50
03 25 50	---	23 35 18	52.3	196.0	0.7		9.9	180	3692	03 22 51
03 30 20	J2025+3343	23 39 48	50.8	260.3	3.2		45.4	128	3692	03 30 20
03 33 20	=2023+33	23 42 49	50.4	261.0	3.3		45.5	180	3715	03 30 21
03 33 20	V404CYG	23 42 49	50.3	261.4	3.3		45.7	-11	3715	No stop
03 36 50	---	23 46 19	49.8	262.2	3.4		45.8	199	3742	03 33 21
03 36 50	J2025+3343	23 46 19	49.9	261.8	3.3		45.6	-11	3742	No stop
03 38 10	=2023+33	23 47 40	49.7	262.1	3.4		45.7	69	3753	03 36 51
03 38 10	V404CYG	23 47 40	49.6	262.5	3.4		45.8	-11	3753	No stop
03 41 40	---	23 51 10	49.1	263.3	3.4		45.9	199	3779	03 38 11
03 42 20	J2025+3343	23 51 50	49.0	263.0	3.4		45.8	29	3779	03 42 20
03 43 20	=2023+33	23 52 50	48.9	263.2	3.5		45.8	60	3787	03 42 21

Schedule for TORUN (Code Tr)

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e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

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TPStart: Recording start time. Frequencies are L0 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 6 Jul 2015 Day 187 ---										
03 43 20	V404CYG	23 52 50	48.8	263.6	3.5		46.0	-11	3787	No stop
03 46 50	---	23 56 21	48.3	264.4	3.5		46.1	199	3814	03 43 21
03 46 50	J2025+3343	23 56 21	48.4	264.0	3.5		45.9	-11	3814	No stop
03 48 10	=2023+33	23 57 41	48.2	264.3	3.5		46.0	69	3824	03 46 51
03 48 10	V404CYG	23 57 41	48.1	264.7	3.5		46.1	-11	3824	No stop
03 51 40	---	00 01 12	47.6	265.4	3.6		46.2	199	3851	03 48 11
03 52 20	J2025+3343	00 01 52	47.5	265.2	3.6		46.0	29	3851	03 52 20
03 53 20	=2023+33	00 02 52	47.4	265.4	3.6		46.1	60	3859	03 52 21
03 53 20	V404CYG	00 02 52	47.3	265.8	3.6		46.2	-11	3859	No stop
03 56 50	---	00 06 23	46.8	266.5	3.7		46.2	199	3886	03 53 21
03 56 50	J2025+3343	00 06 23	46.9	266.1	3.7		46.1	-10	3886	No stop
03 58 10	=2023+33	00 07 43	46.7	266.4	3.7		46.1	70	3896	03 56 51
03 58 10	V404CYG	00 07 43	46.6	266.8	3.7		46.3	-11	3896	No stop
04 01 40	---	00 11 14	46.1	267.5	3.8		46.3	199	3923	03 58 11
04 02 20	J2025+3343	00 11 54	46.0	267.3	3.8		46.2	30	3923	04 02 20
04 03 20	=2023+33	00 12 54	45.9	267.5	3.8		46.2	60	3931	04 02 21
04 03 20	V404CYG	00 12 54	45.8	267.9	3.8		46.3	-11	3931	No stop
04 06 50	---	00 16 24	45.3	268.6	3.9		46.3	199	3958	04 03 21
04 06 50	J2025+3343	00 16 24	45.4	268.2	3.8		46.2	-10	3958	No stop
04 08 10	=2023+33	00 17 45	45.2	268.5	3.9		46.2	70	3968	04 06 51
04 08 10	V404CYG	00 17 45	45.1	268.9	3.9		46.3	-11	3968	No stop
04 11 40	---	00 21 15	44.6	269.6	3.9		46.4	199	3995	04 08 11
04 12 20	J2025+3343	00 21 55	44.5	269.3	3.9		46.2	30	3995	04 12 20
04 13 20	=2023+33	00 22 55	44.4	269.5	4.0		46.2	60	4003	04 12 21
04 13 20	V404CYG	00 22 55	44.3	269.9	4.0		46.4	-11	4003	No stop
04 16 50	---	00 26 26	43.8	270.6	4.0		46.4	199	4029	04 13 21
04 16 50	J2025+3343	00 26 26	43.9	270.2	4.0		46.2	-10	4029	No stop
04 18 10	=2023+33	00 27 46	43.7	270.5	4.0		46.2	70	4040	04 16 51
04 18 10	V404CYG	00 27 46	43.6	270.9	4.1		46.3	-11	4040	No stop
04 21 40	---	00 31 17	43.1	271.6	4.1		46.3	199	4067	04 18 11

Schedule for TORUN (Code Tr)

Page 15

e-EVN: rt012

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 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 6 Jul 2015 Day 187 ---										
04 22 20	J2025+3343	00 31 57	43.0	271.3	4.1		46.2	30	4067	04 22 20
04 23 20	=2023+33	00 32 57	42.9	271.5	4.1		46.2	60	4074	04 22 21
04 23 20	V404CYG	00 32 57	42.8	271.9	4.1		46.3	-11	4074	No stop
04 26 50	---	00 36 28	42.3	272.6	4.2		46.3	199	4101	04 23 21
04 26 50	J2025+3343	00 36 28	42.4	272.2	4.2		46.2	-10	4101	No stop
04 28 10	=2023+33	00 37 48	42.2	272.5	4.2		46.2	70	4112	04 26 51
04 28 10	V404CYG	00 37 48	42.1	272.8	4.2		46.3	-11	4112	No stop
04 31 40	---	00 41 18	41.6	273.5	4.3		46.2	199	4138	04 28 11
04 32 20	J2025+3343	00 41 59	41.5	273.3	4.3		46.2	30	4138	04 32 20
04 33 20	=2023+33	00 42 59	41.4	273.5	4.3		46.1	60	4146	04 32 21
04 33 20	V404CYG	00 42 59	41.3	273.8	4.3		46.2	-10	4146	No stop
04 36 50	---	00 46 29	40.8	274.5	4.4		46.2	200	4173	04 33 21
04 36 50	J2025+3343	00 46 29	40.9	274.1	4.3		46.1	-10	4173	No stop
04 38 10	=2023+33	00 47 50	40.7	274.4	4.4		46.1	70	4183	04 36 51
04 38 10	V404CYG	00 47 50	40.6	274.7	4.4		46.1	-10	4183	No stop
04 41 40	---	00 51 20	40.1	275.4	4.4		46.1	200	4210	04 38 11
04 42 20	J2025+3343	00 52 00	40.0	275.2	4.4		46.0	30	4210	04 42 20
04 43 20	=2023+33	00 53 00	39.9	275.4	4.5		46.0	60	4218	04 42 21
04 43 20	V404CYG	00 53 00	39.8	275.7	4.5		46.1	-10	4218	No stop
04 46 50	---	00 56 31	39.3	276.4	4.5		46.0	200	4245	04 43 21
04 46 50	J2025+3343	00 56 31	39.4	276.0	4.5		45.9	-10	4245	No stop
04 48 10	=2023+33	00 57 51	39.2	276.3	4.5		45.9	70	4255	04 46 51
04 48 10	V404CYG	00 57 51	39.1	276.6	4.6		46.0	-10	4255	No stop
04 51 40	---	01 01 22	38.6	277.3	4.6		45.9	200	4282	04 48 11
04 52 20	J2025+3343	01 02 02	38.5	277.1	4.6		45.8	30	4282	04 52 20
04 53 20	=2023+33	01 03 02	38.4	277.2	4.6		45.8	60	4290	04 52 21
04 55 20	J2115+2933	01 05 02	42.7	263.8	3.8		43.4	77	4290	04 55 20
05 00 00	=2113+293	01 09 43	42.0	264.8	3.9		43.5	280	4326	04 55 21

SETUP FILE INFORMATION:

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

=====
 Setup file: sess215.C1024

Setup group:	5	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=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
	4200.00	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	U
	L	L	U	U	L	L	U	U	U
IF SB =	U	U	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	LCP
	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	2	6	2	6	6
	3	7	3	7	4	8	4	8	8
BBC SB=	L	L	U	U	L	L	U	U	U
	L	L	U	U	L	L	U	U	U
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1
	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

Frequency Set: 6 Setup file default. Used with PCAL = off

LO sum=	4942.49	4942.49	4942.49	4942.49	4974.49	4974.49	4974.49	4974.49
	5006.49	5006.49	5006.49	5006.49	5038.49	5038.49	5038.49	5038.49
BBC fr=	742.49	742.49	742.49	742.49	774.49	774.49	774.49	774.49
	806.49	806.49	806.49	806.49	838.49	838.49	838.49	838.49
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: 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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* V404CYG	20 22 06.299542	* 20 24 03.821432	20 24 42.097379	0.00
	33 42 16.16032	* 33 52 01.90134	33 55 10.39598	0.00
J1642+3948	16 41 17.606228	* 16 42 58.809965	16 43 31.592875	0.77
* 3C345	39 54 10.81496	* 39 48 36.99402	39 47 11.86793	0.52
* J2025+3343	20 23 12.987114	* 20 25 10.842114	20 25 49.216367	0.15
2023+33	33 33 10.52771	* 33 43 00.21435	33 46 09.87784	0.13
* J2115+2933	21 13 20.577468	* 21 15 29.413455	21 16 11.001018	0.12
2113+293	29 21 06.68457	* 29 33 38.36687	29 37 35.52212	0.10
J2253+1608	22 51 29.519738	* 22 53 57.747937	22 54 44.717138	0.68
* 3C454.3	15 52 54.34810	* 16 08 53.56093	16 13 52.15813	0.72

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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.584522	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 07.27346	0.00
	fake circumpolar target for a TS to look at			
* 1633+382	16 33 30.625100	* 16 35 15.492975	16 35 49.270029	0.00
J1635+3808	38 14 10.08266	* 38 08 04.50043	38 06 31.04595	0.00
	./rk12ag_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 16451 observations, RA-A03-04, RA-A03-0			

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)
1633+382	108.1

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 $60 \text{ deg } F^{-0.6}$ 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

rk12ahtr

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Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 12 Jul 2015 Day 193 ---

----- 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	1726+455	22 32 53	42.1 -66.6	5.1		51.8	0	0	02 00 00	
02 12 00	---	22 44 55	40.5 -64.8	5.3		50.8	720	23	02 00 01	
02 12 30	1726+455	22 45 25	40.4 -64.7	5.3		50.8	24	23	02 12 30	
02 24 30	---	22 57 27	38.8 -63.0	5.5		49.8	720	46	02 12 31	
02 25 00	1726+455	22 57 57	38.7 -62.9	5.5		49.7	24	46	02 25 00	
02 37 00	---	23 09 59	37.1 -61.2	5.7		48.6	720	69	02 25 01	
02 37 30	1726+455	23 10 29	37.0 -61.1	5.7		48.6	24	69	02 37 30	
02 50 00	---	23 23 01	35.4 -59.3	5.9		47.4	750	93	02 37 31	

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) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 35.537101	0.00
	85 16 41.77889 * 85 00 00.000000	84 55 07.23602	0.00
	fake circumpolar target for a TS to look at		
* 1726+455	17 26 01.198749 * 17 27 27.650803	17 27 56.175081	0.00
J1727+4530	45 33 04.55106 * 45 30 39.73121	45 30 13.69406	0.00
	./rk12ah_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 62139 observations, RA-A03-04		

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)
1726+455	107.5

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 $60 \text{deg } F^{-0.6}$ 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

rk12aitr

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 12 Jul 2015 Day 193 ---

----- 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 20 00	2021+614	00 53 16	54.3	-48.8	4.5		72.1	0	0	04 20 00
04 39 30	---	01 12 49	52.1	-47.5	4.8		68.9	1170	37	04 20 01
04 40 00	2021+614	01 13 19	52.0	-47.5	4.8		68.8	24	37	04 40 00
05 00 00	---	01 33 22	49.9	-46.0	5.2		65.5	1200	76	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:	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) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 35.515138	0.00
	85 16 41.77889 * 85 00 00.000000	84 55 07.21827	0.00
	fake circumpolar target for a TS to look at		
* 2021+614	20 21 13.300234 * 20 22 06.681752	20 22 26.583767	0.00
J2022+6136	61 27 18.15575 * 61 36 58.80476	61 40 04.18589	0.00
	./rk12ai_sources.radioastron AGN, CSO, rfc_2013d Petrov, 2013, unpublished 3249 observations, RA-A03-04, RA-A		

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)
2021+614	95.5

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 $60 \text{ deg } F^{-0.6}$ 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

rk12ajtr

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

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are L0 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 12 Jul 2015 Day 193 ---

----- 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	2005+403	03 33 42	20.7	-49.2	7.4	36.7	0	0	07 00 00
07 14 30	---	03 48 15	19.1	-46.8	7.7	35.2	870	28	07 00 01
07 15 00	2005+403	03 48 45	19.0	-46.7	7.7	35.1	24	28	07 15 00
07 25 00	---	03 58 46	18.0	-45.1	7.8	34.0	600	47	07 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

07 30 00	2005+403	04 03 47	17.4	-44.2	7.9	33.4	294	47	07 30 00
07 44 30	---	04 18 19	15.9	-41.8	8.2	31.8	870	75	07 30 01
07 45 00	2005+403	04 18 50	15.9	-41.7	8.2	31.7	24	75	07 45 00
08 00 00	---	04 33 52	14.4	-39.2	8.4	29.9	900	104	07 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: 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

=====
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) (B1950)	(J2000)	(Date)	Error (mas)
* 2005+403	20 05 59.558893	* 20 07 44.944844	20 08 19.737695	0.00
J2007+4029	40 21 01.80221	* 40 29 48.60406	40 32 41.18635	0.00

rk12aktr

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes 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 12 Jul 2015 Day 193 ---

----- 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
```

14 00 00	1442+101	10 34 51	24.1	106.3	-4.2	-35.8	0	0	14 00 00
14 19 30	---	10 54 24	26.9	110.7	-3.9	-34.8	1170	37	14 00 01
14 20 00	1442+101	10 54 54	26.9	110.8	-3.9	-34.7	24	37	14 20 00
14 40 00	---	11 14 58	29.7	115.4	-3.5	-33.4	1200	76	14 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:        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: 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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.422384	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 07.14044	0.00
	fake circumpolar target for a TS to look at			
* 1442+101	14 42 50.483804	* 14 45 16.465253	14 46 02.369982	0.00
J1445+0958	10 11 12.14439	* 09 58 36.07265	09 54 54.41543	0.00
QQ172	./rk12ak_sources.radioastron			
	AGN, HIGHz, rfc_2013d Petrov, 2013, unpublished 1336 observations, RA-A03-04, RA			

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)
1442+101	104.3

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 $60 \text{ deg } F^{-0.6}$ 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


```

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) (B1950)	(Date)	Error (mas)	
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.401043	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 07.12186	0.00
	fake circumpolar target for a TS to look at			
* 1402+044	14 02 29.977464	* 14 05 01.119814	14 05 48.452448	0.00
J1405+0415	04 29 55.30133	* 04 15 35.81874	04 11 18.62240	0.00
	./rk12al_sources.radioastron			
	AGN, HIGHz, BAL QSO, rfc_2013d Petrov, 2013, unpublished 1370 observations, RA-A			

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)
1402+044    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 $60 \text{ deg } F^{-0.6}$ 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

```

rk12amtr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes recorded to this point.
 TPStart: Recording start time. Frequencies are L0 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 20 Jul 2015 Day 201 ---										
----- 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	1636+473	15 07 03	74.4	102.7	-1.5	-59.7	0	0	18 00 00	
18 14 30	---	15 21 35	76.5	107.8	-1.3	-57.4	870	28	18 00 01	
18 15 00	1636+473	15 22 05	76.5	108.0	-1.3	-57.3	24	28	18 15 00	
18 29 30	---	15 36 38	78.6	114.5	-1.0	-53.6	870	56	18 15 01	
18 30 00	1636+473	15 37 08	78.7	114.7	-1.0	-53.5	23	56	18 30 00	
18 44 30	---	15 51 40	80.6	123.4	-0.8	-47.6	870	84	18 30 01	
18 45 00	1636+473	15 52 10	80.6	123.8	-0.8	-47.3	23	84	18 45 00	
19 00 00	---	16 07 13	82.4	136.5	-0.5	-37.5	900	112	18 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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.912062	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.57190	0.00
	fake circumpolar target for a TS to look at			
* 1636+473	16 36 19.144415	* 16 37 45.130558	16 38 13.054706	0.00
J1637+4717	47 23 28.57983	* 47 17 33.83103	47 16 06.37538	0.00
	./rk12am_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 4851 observations, RA-A03-04, RA-A02-12			

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)
1636+473	98.5

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 $60 \text{ deg } F^{-0.6}$ 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

rk12antr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr) Page 2

 RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 21 Jul 2015 Day 202 ---

----- 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						
02 00 00	1758+388	23 08 22	37.4 -72.8	5.1		47.4	0	0	0	02 00 00
02 12 00	---	23 20 24	35.7 -70.8	5.3		46.7	720	23	23	02 00 01
02 12 30	1758+388	23 20 54	35.6 -70.7	5.3		46.7	24	23	23	02 12 30
02 24 30	---	23 32 56	33.9 -68.8	5.5		45.9	720	46	46	02 12 31
02 25 00	1758+388	23 33 26	33.9 -68.7	5.5		45.9	24	46	46	02 25 00
02 37 00	---	23 45 28	32.2 -66.7	5.7		45.1	720	69	69	02 25 01
02 37 30	1758+388	23 45 58	32.1 -66.7	5.8		45.0	24	69	69	02 37 30
02 50 00	---	23 58 30	30.4 -64.6	6.0		44.1	750	93	93	02 37 31

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 ./rk12an_freq.dat:

tr1cm

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= 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:  3  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:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.849649	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.51441	0.00
	fake circumpolar target for a TS to look at			
* 1758+388	17 58 44.703952	* 18 00 24.765361	18 00 57.488643	0.00
J1800+3848	38 48 32.47341	* 38 48 30.69739	38 48 49.56144	0.00
	./rk12an_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3569 observations, RA-A03-04, RA-A02-12			

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)
1758+388    114.4

```

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 $60 \text{ deg } F^{-0.6}$ 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

```

rk12aotr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes 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 21 Jul 2015 Day 202 ---

----- 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	2135+508	01 08 42	58.3	-71.9	3.5		65.3	0	0	04 00 00	
04 12 00	---	01 20 44	56.5	-70.4	3.7		64.3	720	23	04 00 01	
04 12 30	2135+508	01 21 14	56.5	-70.3	3.7		64.2	24	23	04 12 30	
04 24 30	---	01 33 16	54.8	-68.9	3.9		63.1	720	46	04 12 31	
04 25 00	2135+508	01 33 46	54.7	-68.8	3.9		63.1	24	46	04 25 00	
04 37 00	---	01 45 48	53.0	-67.3	4.1		61.9	720	69	04 25 01	
04 37 30	2135+508	01 46 18	53.0	-67.3	4.1		61.9	24	69	04 37 30	
04 50 00	---	01 58 50	51.2	-65.7	4.4		60.6	750	93	04 37 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:  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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.833835	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.49992	0.00
	fake circumpolar target for a TS to look at			
* 2135+508	21 35 15.499567	* 21 37 00.986207	21 37 36.399444	0.00
J2137+5101	50 48 05.19436	* 51 01 36.12906	51 05 50.73441	0.00
	./rk12ao_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 64 observations, RA-A03-04, RA-A02-12			

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)
2135+508    105.3

```

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 $60 \text{ deg } F^{-0.6}$ 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

```

rk12aptr

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes 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 21 Jul 2015 Day 202 ---

----- 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

08 00 00	2201+315	05 09 21	16.2	-58.1	7.1	36.9	0	0	08 00 00
08 19 30	---	05 28 54	13.7	-54.6	7.4	35.2	1170	37	08 00 01
08 20 00	2201+315	05 29 24	13.7	-54.5	7.4	35.1	24	37	08 20 00
08 40 00	---	05 49 28	11.3	-50.9	7.8	33.3	1200	76	08 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: 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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.801057	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.46998	0.00
	fake circumpolar target for a TS to look at			
* 2201+315	22 01 01.441997	* 22 03 14.975788	22 03 58.277482	0.00
J2203+3145	31 31 05.87498	* 31 45 38.26991	31 50 13.35361	0.00
	./rk12ap_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 33331 observations, RA-A03-04, RA-A02-1			

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)
2201+315	120.0

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 $60 \text{ deg } F^{-0.6}$ 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


```

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

```

==== 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) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1636+473	16 36 19.144415	* 16 37 45.130558	16 38 13.040105	0.00
J1637+4717	47 23 28.57983	* 47 17 33.83103	47 16 06.51038	0.00

rk12artr

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

Schedule for TORUN (Code Tr) Page 2
RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 21 Jul 2015 Day 202 ---										
----- 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										
14 00 00	1502+036	11 10 20	20.9	113.8	-3.9		-33.4	0	0	14 00 00
14 14 30	---	11 24 53	22.9	117.1	-3.7		-32.4	870	28	14 00 01
14 15 00	1502+036	11 25 23	22.9	117.2	-3.7		-32.3	24	28	14 15 00
14 29 30	---	11 39 55	24.9	120.6	-3.4		-31.2	870	56	14 15 01
14 30 00	1502+036	11 40 25	24.9	120.7	-3.4		-31.1	24	56	14 30 00
14 44 30	---	11 54 57	26.8	124.2	-3.2		-29.8	870	84	14 30 01
14 45 00	1502+036	11 55 28	26.8	124.3	-3.2		-29.8	24	84	14 45 00
15 00 00	---	12 10 30	28.7	128.0	-2.9		-28.3	900	112	14 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: 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: 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) (B1950)	(Date)	Error (mas)	
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.753665	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.42683	0.00
	fake circumpolar target for a TS to look at			
* 1502+036	15 02 35.669002	* 15 05 06.477156	15 05 53.957409	0.00
J1505+0326	03 38 07.37337	* 03 26 30.81249	03 23 07.00917	0.00
	./rk12ar_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 5451 observations, RA-A03-04, RA			

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+036	103.6

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 $60 \text{ deg } F^{-0.6}$ 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

rk12attr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 29 Jul 2015 Day 210 ---

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

Table with columns: Time, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. Rows include scan frequencies and detailed scan data for 18:00:00 to 18:50:00.

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:  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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.197582	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 03.54579	0.00
	fake circumpolar target for a TS to look at			
* 1638+398	16 38 48.169687	* 16 40 29.632771	16 41 02.143592	0.00
J1640+3946	39 52 30.08654	* 39 46 46.02835	39 45 22.74084	0.00
NRA0512	./rk12at_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 112829 observations, RA-A03-04, RA-A02-			

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)
1638+398    100.1

```

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 $60 \text{ deg } F^{-0.6}$ 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

```

rk12autr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr) Page 2
 RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
 Early: Seconds between end of slew and start. Dwell: On source seconds.
 Disk: GBytes 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 29 Jul 2015 Day 210 ---

----- 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 1800+440    17 42 52  80.4 158.8 -0.3    -17.6   0       0   20 00 00
20 14 30 ---          17 57 24  81.0 174.7 -0.1     -4.4  870      28   20 00 01

20 15 00 1800+440    17 57 54  81.0 175.3 -0.1     -3.9   22      28   20 15 00
20 25 00 ---          18 07 56  80.9 186.7  0.1      5.6  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 1800+440    18 12 57  80.8 192.4  0.2      10.3  289      47   20 30 00
20 44 30 ---          18 27 29  80.1 207.5  0.4      22.7  870      75   20 30 01

20 45 00 1800+440    18 27 59  80.0 207.9  0.4      23.1   22      75   20 45 00
21 00 00 ---          18 43 02  78.7 220.9  0.7      33.2  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 ./rk12au_freq.dat:
 tr1cm

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= 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

```

==== 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

```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1800+440	18 00 03.197727	* 18 01 32.314821	18 02 01.656384	0.00
J1801+4404	44 04 18.35293	* 44 04 21.90023	44 04 44.90866	0.00

rk12awtr

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

Schedule for TORUN (Code Tr) Page 2

RadioAstron AGN Survey

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 30 Jul 2015 Day 211 ---

----- 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 20 00 1817+387    00 03 54 32.2 -66.9 5.7    45.1    0    0    02 20 00
02 39 30 ---                              00 23 27 29.6 -63.7 6.1    43.7 1170    37    02 20 01

02 40 00 1817+387    00 23 57 29.5 -63.6 6.1    43.6    24    37    02 40 00
03 00 00 ---                              00 44 01 26.9 -60.4 6.4    42.0 1200    76    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:    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) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.146080	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 03.44701	0.00
	fake circumpolar target for a TS to look at			
* 1817+387	18 17 46.175701	* 18 19 26.547379	18 19 59.390770	0.00
J1819+3845	38 43 40.47033	* 38 45 01.78611	38 45 47.99681	0.00
	./rk12aw_sources.radioastron			
	AGN, IDV, rfc_2013d Petrov, 2013, unpublished 89 observations, RA-A03-04, RA-A02			

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)
1817+387	114.4

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 $60 \text{ deg } F^{-0.6}$ 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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