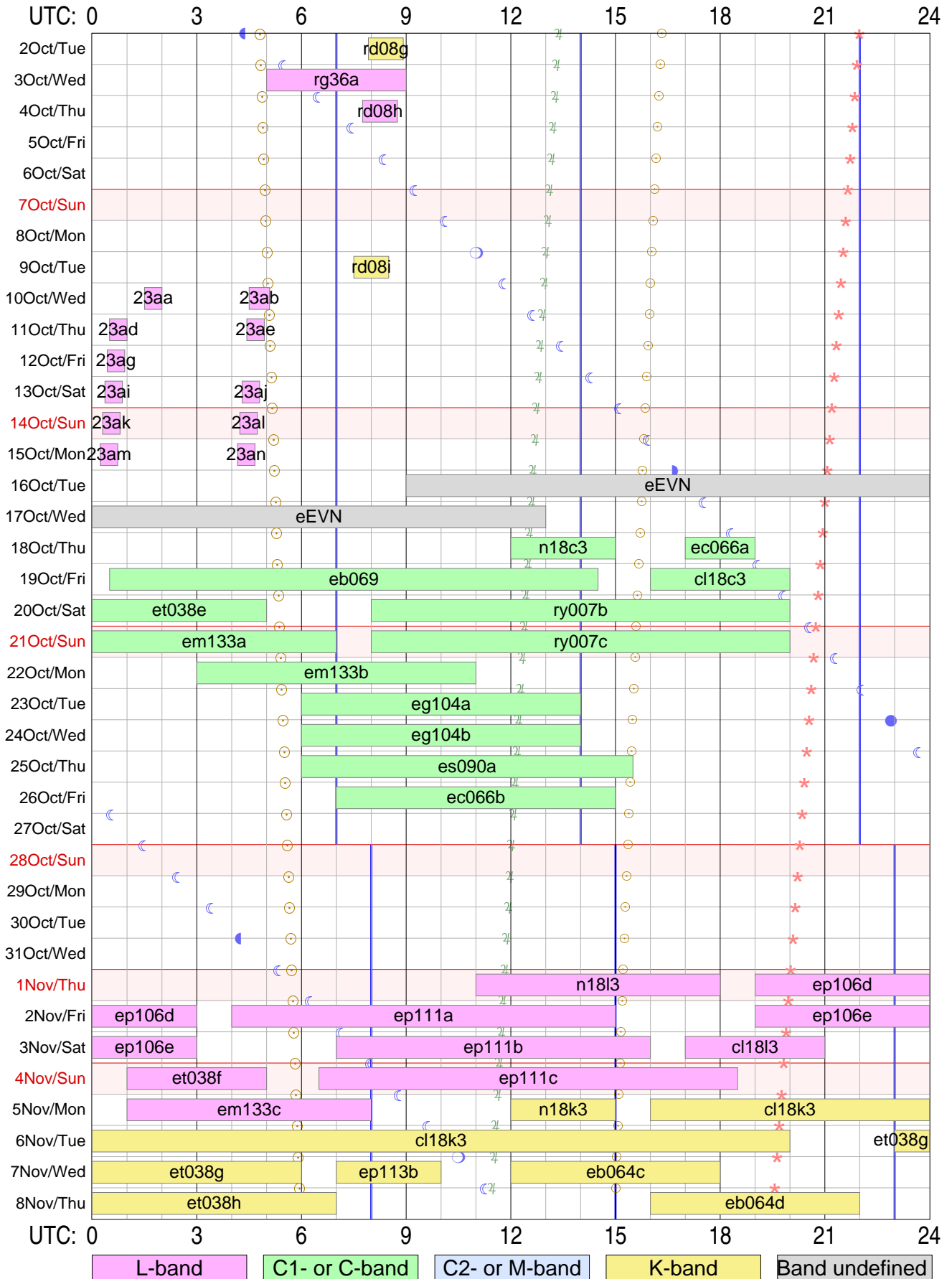


# Tr VLBI plan for Oct/Nov 2018



Strona zostawiona celowo pusta

# RadioAstron & EVN Experiments

## Oct 2018

Uytkownik ftp dla logw i schedulw RA: grt

ftp://webinet.asc.rssi.ru

Przykad dla log files: cd GRT\_log\_files/2014\_09/2014\_09\_01\_raks08ak

Przykad dla sched files: cd schedule/grtsched/RAKS/rk08ak

291	18	10	Czw	12 00	15 00	n18c3	"C"	1	EVN	5	0.69
291	18	10	Czw	17 00	19 00	ec066a	"C"	2	EVN	2	0.92
292	19	10	Pia	0 30	14 30	eb069	"C"	3	EVN	2	6.45
292	19	10	Pia	16 00	20 00	cl18c3	"C"	4	---	0	0.00
293	20	10	Sob	0 00	5 00	et038e	"C"	5	EVN	6	2.30
293	20	10	Sob	8 00	20 00	ry007b	"C"	6	EVN	5	5.53
294	21	10	Nie	0 00	7 00	em133a	"C"	7	EVN	1	3.23
294	21	10	Nie	8 00	20 00	ry007c	"C"	8	EVN	5	5.53
295	22	10	Pon	3 00	11 00	em133b	"C"	9	EVN	8	3.69
296	23	10	Wto	6 00	14 00	eg104a	"C"	10	EVN	8	3.69
297	24	10	Sro	6 00	14 00	eg104b	"C"	11	EVN	8	3.69
298	25	10	Czw	6 00	15 30	es090a	"C"	12	EVN	9	4.38
299	26	10	Pia	7 00	15 00	ec066b	"C"	13	EVN	0	3.69
305	1	11	Czw	11 00	18 00	n18l3	"L"	14	EVN	7	1.61
305	1	11	Czw	19 00	24 00	ep106d	"L"				
306	2	11	Pia	0 00	3 00	ep106d	"L"	15	EVN	2	3.69
306	2	11	Pia	4 00	15 00	ep111a	"L"	16	EVN	2	5.07
306	2	11	Pia	19 00	24 00	ep106e	"L"				
307	3	11	Sob	0 00	3 00	ep106e	"L"	17	EVN	2	3.69
307	3	11	Sob	7 00	16 00	ep111b	"L"	18	EVN	7	4.15
307	3	11	Sob	17 00	21 00	cl18l3	"L"	19	---	0	0.00
308	4	11	Nie	1 00	5 00	et038f	"L"	20	EVN	2	1.84
308	4	11	Nie	6 30	18 30	ep111c	"L"	21	EVN	0	5.53
309	5	11	Pon	1 00	8 00	em133c	"L"	22	EVN	3	3.23
309	5	11	Pon	12 00	15 00	n18k3	"K"	23	EVN	8	1.38
309	5	11	Pon	16 00	24 00	cl18k3	"K"				
310	6	11	Wto	0 00	20 00	cl18k3	"K"	24	---	0	0.00
310	6	11	Wto	4 00	15 00	es090c	"K"	25	EVN	7	5.07
310	6	11	Wto	23 00	24 00	et038g	"K"				
311	7	11	Sro	0 00	6 00	et038g	"K"	26	EVN	7	3.23
311	7	11	Sro	7 00	10 00	ep113b	"K"	27	EVN	0	1.38
311	7	11	Sro	12 00	18 00	eb064c	"K"	28	EVN	7	2.76
312	8	11	Czw	0 00	7 00	et038h	"K"	29	EVN	9	3.23
312	8	11	Czw	16 00	22 00	eb064d	"K"	30	EVN	1	2.76

273 16 10 Wto 9 00 113 00 eEVN " "

275 2 10 Wto 7 55 8 55 rd08g "K "

276 3 10 Sro 5 00 9 00 rg36a "L "

277 4 10 Czw 7 45 8 45 rd08h "L "

282	9	10	Wto	7	30	8	30	rd08i	"K	"
283	10	10	Sro	1	30	2	00	rk23aa	"L	"
283	10	10	Sro	4	30	5	05	rk23ab	"L	"
284	11	10	Czw	0	30	1	00	rk23ad	"L	"
284	11	10	Czw	4	26	4	56	rk23ae	"L	"
285	12	10	Pia	0	26	0	56	rk23ag	"L	"
286	13	10	Sob	0	22	0	52	rk23ai	"L	"
286	13	10	Sob	4	18	4	48	rk23aj	"L	"
287	14	10	Nie	0	18	0	48	rk23ak	"L	"
287	14	10	Nie	4	14	4	44	rk23al	"L	"
288	15	10	Pon	0	14	0	44	rk23am	"L	"
288	15	10	Pon	4	10	4	40	rk23an	"L	"

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

<http://paulo.astro.uni.torun.pl/~pw/VLBI/schedules/oct18.pdf>



```

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

```

The following frequency sets based on these setups were used.

```

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

```

Track assignments are:

```

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

```

#### 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 38.951735	0.00
	85 16 41.77889	* 85 00 00.000000	84 53 47.55790	0.00
	fake circumpolar target for a TS to look at			
* 0506+056	05 06 45.765584	* 05 09 25.964476	05 10 25.592990	0.00
J0509+0541	05 37 50.30294	* 05 41 35.33359	05 42 57.37612	0.00
	./rd08g_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 207 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)
0506+056    111.0

```

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

```

**rg36atr**

RADIOASTRON PULSAR OBSERVATIONS

PI: Robert Main, Alexey Rudnitskiy

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia

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

Schedule for TORUN                      (Code Tr )

Page 2

RadioAstron Pulsar 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
-----
```

--- Wed 3 Oct 2018 Day 276 ---

----- This is a 1min calibration scan with auto-level (AGC) ON -----

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

05 00 00 CRAB                      07 01 41 54.9 216.2 1.4                      22.5      0                      0      Stopped

05 01 00 ---                      07 02 41 54.8 216.6 1.5                      22.7      60                      0

----- Please make sure Pcal, noise diode (Tsys) and auto-level (AGC) are OFF now -----

05 02 00 CRAB                      07 03 42 54.7 216.9 1.5                      22.9      53                      0      05 02 00

05 21 00 ---                      07 22 45 52.8 223.7 1.8                      26.6    1140                      36      05 02 01

05 21 30 CRAB                      07 23 15 52.8 223.9 1.8                      26.7      24                      36      05 21 30

05 40 30 ---                      07 42 18 50.7 230.2 2.1                      29.8    1140                      73      05 21 31

05 41 00 CRAB                      07 42 48 50.6 230.3 2.1                      29.9      24                      73      05 41 00

06 00 00 ---                      08 01 51 48.3 236.1 2.4                      32.5    1140                      109     05 41 01

06 00 30 CRAB                      08 02 21 48.3 236.3 2.4                      32.6      24                      109     06 00 30

06 19 30 ---                      08 21 24 45.8 241.7 2.8                      34.8    1140                      146     06 00 31

06 20 00 CRAB                      08 21 54 45.8 241.8 2.8                      34.8      24                      146     06 20 00

06 39 00 ---                      08 40 57 43.2 246.8 3.1                      36.6    1140                      182     06 20 01

06 39 30 CRAB                      08 41 28 43.1 247.0 3.1                      36.6      24                      182     06 39 30

06 58 30 ---                      09 00 31 40.4 251.7 3.4                      37.9    1140                      219     06 39 31

06 59 00 CRAB                      09 01 01 40.4 251.8 3.4                      38.0      24                      219     06 59 00

07 18 00 ---                      09 20 04 37.6 256.3 3.7                      39.0    1140                      255     06 59 01

07 18 30 CRAB                      09 20 34 37.5 256.4 3.7                      39.0      24                      255     07 18 30

07 37 00 ---                      09 39 07 34.8 260.5 4.1                      39.7    1110                      291     07 18 31

07 37 30 CRAB                      09 39 37 34.7 260.6 4.1                      39.7      24                      291     07 37 30

07 56 00 ---                      09 58 10 32.0 264.5 4.4                      40.2    1110                      326     07 37 31

----- This is a 1min calibration scan with auto-level (AGC) ON -----

07 57 00 CRAB                      09 59 10 31.8 264.8 4.4                      40.2      54                      326     Stopped

07 58 00 ---                      10 00 10 31.7 265.0 4.4                      40.2      60                      326

Schedule for TORUN (Code Tr )

Page 3

RadioAstron Pulsar observations

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

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

Disk: GBytes 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 3 Oct 2018 Day 276 ---

----- Please make sure Pcal, noise diode (Tsys) and auto-level (AGC) are OFF now -----

```
08 00 00  CRAB          10 02 11  31.4 265.4  4.4      40.2  114      326  08 00 00
08 20 00  ---          10 22 14  28.4 269.5  4.8      40.4 1200      365  08 00 01

08 20 30  CRAB          10 22 44  28.3 269.6  4.8      40.4   24      365  08 20 30
08 40 00  ---          10 42 17  25.4 273.4  5.1      40.3 1170      402  08 20 31

08 40 30  CRAB          10 42 47  25.3 273.5  5.1      40.3   24      402  08 40 30
09 00 00  ---          11 02 21  22.4 277.3  5.4      40.0 1170      440  08 40 31
```

## SETUP FILE INFORMATION:

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

===== Setup file: ra18cm2\_autolevel.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:
```

Disk used to record data.



Setup not used for recording 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 = off  
 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

==== Setup file: ra18cm2.set

Setup group: 10	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

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

```

The following frequency sets based on these setups were used.

```

Frequency Set:  11  Setup file default.  Used with PCAL = off
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:  11

```

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 39.005453	0.00
	85 16 41.77889	* 85 00 00.000000	84 53 47.18190	0.00
	fake circumpolar target for a TS to look at			
* CRAB	05 31 31.427725	* 05 34 31.973000	05 35 39.043990	0.00
J0534+2200	21 58 54.40670	* 22 00 52.06000	22 01 28.44909	0.00
B0531+21	./rg36a_sources.radioastron			
	PSR GP DM=56.791, RA-A02-05, RA-A06-03			

#### 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)
CRAB       105.7

```

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

```



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 39.093435	0.00
	85 16 41.77889	* 85 00 00.000000	84 53 46.71141	0.00
	fake circumpolar target for a TS to look at			
* 0506+056	05 06 45.765584	* 05 09 25.964476	05 10 25.660548	0.00
J0509+0541	05 37 50.30294	* 05 41 35.33359	05 42 57.43670	0.00
	./rd08h_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 207 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)
0506+056	112.9

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

## Contents

Graphical Plan of Experiments in Oct 2018 .....	1
Experiment Listing .....	3
rd08gtr – RadioAstron AGN observations .....	4
rg36atr – RadioAstron Pulsar observations .....	6
rd08htr – RadioAstron AGN observations .....	10