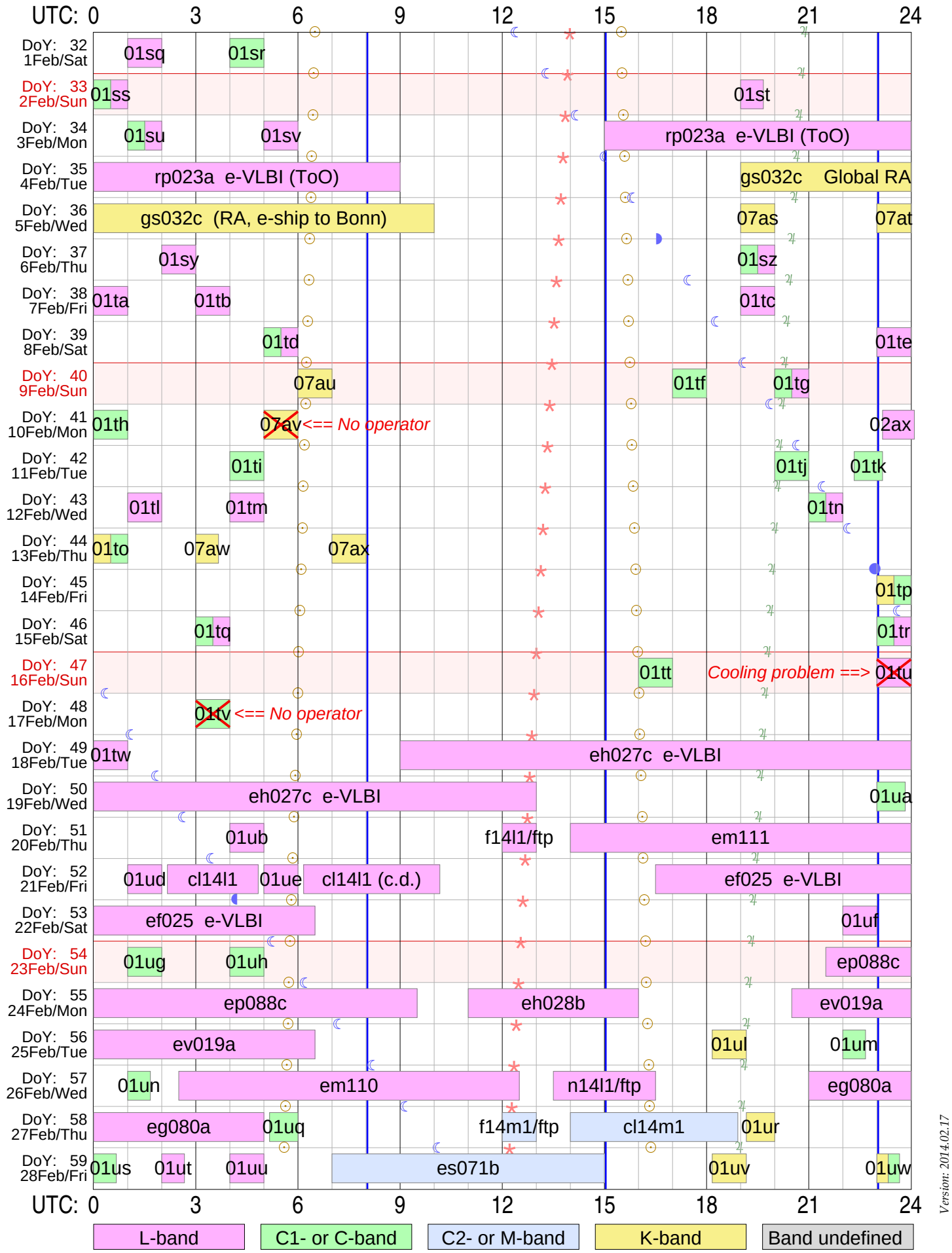
Tr VLBI plan for Feb 2014



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: 205.5 hours in 70 experiments scheduled

Two initial characters (rk) are omitted from RA experiment names!

Version: 2014.02.17

Strona zostawiona celowo pusta

RadioAstron and EVN Experiments
February 2014

Użytkownik i hasło ftp dla logów i schedulów RA: `grt K0&th%`
`ftp://webinet.asc.rssi.ru`
Przykład dla log files: `cd GRT_log_files/2013_08/2013_08_01_raks02aa`
Przykład dla sched files: `cd schedule/grtsched/RAKS/rk02aa`

DoY	DoM	WD	UT_Start h	UT_Start m	UT_Stop h	UT_Stop m	Experim. name	Band	Uwagi
32	1	Sob	1	00	2	00	rk01sq	L	
32	1	Sob	4	00	5	00	rk01sr	C	
33	2	Nie	0	00	1	00	rk01ss	C & L	
33	2	Nie	19	00	19	40	rk01st	L	
34	3	Pon	1	00	2	00	rk01su	C & L	
34	3	Pon	5	00	6	00	rk01sv	L	
49	3	Pon	15	00	24+09	00	rp023a	L	e-VLBI (ToO)
35	4	Wto	19	00	24+10	00	gs032c	K	
36	5	Sro	19	00	20	00	rk07as	K	
36	5	Sro	23	00	24	00	rk07at	K	
37	6	Czw	2	00	3	00	rk01sy	L	
37	6	Czw	19	00	20	00	rk01sz	C & L	
38	7	Pia	0	00	1	00	rk01ta	L	
38	7	Pia	3	00	4	00	rk01tb	L	
38	7	Pia	19	00	20	00	rk01tc	L	
39	8	Sob	5	00	6	00	rk01td	C & L	
39	8	Sob	23	00	24	00	rk01te	L	
40	9	Nie	6	00	7	00	rk07au	K	
40	9	Nie	17	00	18	00	rk01tf	C	
40	9	Nie	20	00	21	00	rk01tg	C & L	
41	10	Pon	0	00	1	00	rk01th	C	
41	10	Pon	5	00	6	00	rk07av	K	
41	10	Pon	23	10	24	10	rk02ax	L	
42	11	Wto	4	00	5	00	rk01ti	C	
42	11	Wto	20	00	21	00	rk01tj	C	
42	11	Wto	22	20	23	10	rk01tk	C	
43	12	Sro	1	00	2	00	rk01tl	L	
43	12	Sro	4	00	5	00	rk01tm	L	
43	12	Sro	21	00	22	00	rk01tn	C & L	
44	13	Czw	0	00	1	00	rk01to	K & C	
44	13	Czw	3	00	3	40	rk07aw	K	
44	13	Czw	7	00	8	00	rk07ax	K	
45	14	Pia	23	00	24	00	rk01tp	K & C	
46	15	Sob	3	00	4	00	rk01tq	C & L	
46	15	Sob	23	00	24	00	rk01tr	C & L	
47	16	Nie	16	00	17	00	rk01tt	C	
47	16	Nie	23	00	24	00	rk01tu	L	
48	17	Pon	3	00	4	00	rk01tv	C	
49	18	Wto	0	00	1	00	rk01tw	L	
49	18	Wto	9	00	24+07	50	eh027c	L	e-VLBI (reg.), rp023b

50	19	Sro	23	00	23	50	rk01ua	C	
51	20	Czw	4	00	5	00	rk01ub	L	
51	20	Czw	12	00	13	00	f14l1	L	ftp
51	20	Czw	14	00	24	00	em111	L	
52	21	Pia	1	00	2	00	rk01ud	L	
52	21	Pia	1	00	6	00	cl14l1	L	lokalny
52	21	Pia	5	00	6	00	rk01ue	L	
52	21	Pia	16	30	24+06	30	ef025	L	e-VLBI
53	22	Sob	22	00	23	00	rk01uf	L	
54	23	Nie	1	00	2	00	rk01ug	C	
54	23	Nie	4	00	5	00	rk01uh	C	
54	23	Nie	21	30	24+09	30	ep088c	L	
55	24	Pon	11	00	16	00	eh028b	L	
55	24	Pon	20	30	24+06	30	ev019a	L	
56	25	Wto	18	10	19	10	rk01ul	K	
56	25	Wto	22	00	22	40	rk01um	C	
57	26	Sro	1	00	1	40	rk01un	C	
57	26	Sro	2	30	12	30	em110	L	
57	26	Sro	13	30	16	30	n14l1	L	ftp
57	26	Sro	21	00	24+05	00	eg080a	L	
58	27	Czw	5	10	6	00	rk01uq	C	
58	27	Czw	12	00	13	00	f14m1	M	ftp
58	27	Czw	14	00	18	55	cl14m1	M	lokalny
58	27	Czw	19	10	20	00	rk01ur	K	
59	28	Pia	0	00	0	40	rk01us	C	
59	28	Pia	2	00	2	40	rk01ut	L	added
59	28	Pia	4	00	5	00	rk01uu	L	
59	28	Pia	7	00	15	00	es071b	M	
59	28	Pia	18	10	19	10	rk01uv	K	
59	28	Pia	23	00	23	40	rk01uw	K & C	

Razem 70 eksperymentow

Do zapisu obserwacji RadioAstronu dedykowany jest dyskpak

TR-00002/1600

montowany w banku A. Gdyby ten się zapełnił, trzeba użyć innego paka zamontowanego w banku B obok **TR-00002/1600** (lub samego w A). Jeśli zaczęto w banku B, kolejne eksperymenty trzeba nagrywać także w B.

UWAGA: 1-godzinne eksperymenty RA zwykle wymagają ok. 110 GB wolnego miejsca na dyskpaku (dłuższe odpowiednio więcej).

rk01sqtr

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
-------------------------------------------------------------------------------------------

 --- Sat   1 Feb 2014   Day  32 ---

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1642+690     10 58 55  49.6  33.6 -5.7     -67.6     0        0   01 00 00
01 14 30  ---          11 13 27  50.9  34.4 -5.5     -70.5   870       28   01 00 01

01 15 00  1642+690     11 13 57  50.9  34.4 -5.5     -70.6    24       28   01 15 00
01 29 30  ---          11 28 30  52.1  35.0 -5.2     -73.4   870       56   01 15 01

01 30 00  1642+690     11 29 00  52.2  35.1 -5.2     -73.5    24       56   01 30 00
01 44 30  ---          11 43 32  53.5  35.6 -5.0     -76.5   870       84   01 30 01

01 45 00  1642+690     11 44 02  53.5  35.6 -5.0     -76.6    24       84   01 45 00
02 00 00  ---          11 59 05  54.8  36.1 -4.7     -79.7   900      112   01 45 01


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


 ======== Setup file: ra18cm2.set
   Matching groups in ./rk01sq_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1642+690          16 42 18.064877   * 16 42 07.848507     16 42 02.680084       0.00
  J1642+6856        69 02 13.21708    * 68 56 39.75636      68 54 53.58895        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1642+690            97.2

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

rk01srtr

RadioAstron AGN survey

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```


```
Observing mode: C-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
-------------------------------------------------------------------------------------------

 --- Sat   1 Feb 2014   Day  32 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1228+126     13 59 24  45.6 211.5  1.5      18.7     0         0   04 00 00
04 14 30  ---          14 13 57  44.4 216.2  1.7      21.3   870        28   04 00 01

04 15 00  1228+126     14 14 27  44.3 216.4  1.7      21.4    24        28   04 15 00
04 29 30  ---          14 28 59  43.0 220.9  2.0      23.7   870        56   04 15 01

04 30 00  1228+126     14 29 29  42.9 221.1  2.0      23.8    24        56   04 30 00
04 44 30  ---          14 44 02  41.4 225.4  2.2      26.0   870        84   04 30 01

04 45 00  1228+126     14 44 32  41.4 225.6  2.2      26.0    24        84   04 45 00
05 00 00  ---          14 59 34  39.7 229.9  2.5      28.0   900       112   04 45 01


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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01sr_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1228+126          12 28 17.569280   * 12 30 49.423382     12 31 33.444365       0.00
  J1230+1223        12 40 01.74883    * 12 23 28.04365      12 18 36.04802        0.00


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)
  1228+126           128.5

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

rk01sstr

RadioAstron AGN survey

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```


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
######################## 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   2 Feb 2014   Day  33 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1514+197     10 02 42  22.2  86.7 -5.2     -39.5     0         0   00 00 00
00 14 30  ---          10 17 14  24.4  89.6 -5.0     -39.6   870        28   00 00 01

00 15 00  1514+197     10 17 44  24.4  89.7 -5.0     -39.6    24        28   00 15 00
00 25 00  ---          10 27 46  25.9  91.7 -4.8     -39.5   600        47   00 15 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

00 30 00  1514+197     10 32 46  26.7  92.7 -4.7     -39.5   293        47   00 30 00
00 44 30  ---          10 47 19  28.9  95.7 -4.5     -39.3   870        75   00 30 01

00 45 00  1514+197     10 47 49  28.9  95.8 -4.5     -39.3    24        75   00 45 00
01 00 00  ---          11 02 51  31.2  99.0 -4.2     -39.0   900       104   00 45 01


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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01ss_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)
```

```
  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=   4200.00   4200.00   4200.00   4200.00
  Net SB=         L         L         U         U
  IF SB =         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         L         L         U         U
  IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

  Frequency Set:   7  Setup file default.  Used pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   7

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


======== Setup file: ra18cm2.set
  Matching groups in ./rk01ss_freq.dat:
    tr18cm          E-mail Borkowski 12Mar98, preferred alternative

  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=   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U
  IF SB =         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         U         U         L         L
  IF    =         C         A         C         A
```

```
 The following frequency sets based on these setups were used.

  Frequency Set:   9  Setup file default.  Used pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   9

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1514+197          15 14 40.985841   * 15 16 56.796164     15 17 35.304173       0.00
  J1516+1932        19 43 10.94234    * 19 32 12.99191      19 29 00.12828        0.00


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)
  1514+197            92.1

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

rk01sttr

RadioAstron AGN survey

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


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

Schedule for TORUN     (Code Tr )                                  Page   2
               RadioAstron 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   2 Feb 2014   Day  33 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 00 00  0648-165     05 05 49  16.7 153.7 -1.8     -16.1     0         0   19 00 00
19 19 30  ---          05 25 22  17.8 158.4 -1.4     -13.3  1170        37   19 00 01

19 20 00  0648-165     05 25 52  17.9 158.6 -1.4     -13.2    24        37   19 20 00
19 40 00  ---          05 45 55  18.9 163.5 -1.1     -10.3  1200        76   19 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
   Matching groups in ./rk01st_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0648-165          06 48 10.295571   * 06 50 24.581861     06 51 04.262992       0.00
  J0650-1637       -16 34 05.88130    *-16 37 39.72548     -16 38 58.38463        0.00


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)
  0648-165           133.0

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

rk01sutr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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```


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
######################## 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
------------------------------------------------------------------------------------------

 --- Mon   3 Feb 2014   Day  34 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  0507+179     11 06 48  14.9 -79.7  5.9      38.4     0         0   01 00 00
01 14 30  ---          11 21 20  12.8 -76.9  6.2      38.0   870        28   01 00 01

01 15 00  0507+179     11 21 50  12.7 -76.8  6.2      37.9    24        28   01 15 00
01 25 00  ---          11 31 52  11.3 -74.9  6.3      37.6   600        47   01 15 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

01 30 00  0507+179     11 36 53  10.5 -73.9  6.4      37.4   293        47   01 30 00
01 44 30  ---          11 51 25   8.5 -71.1  6.7      36.7   870        75   01 30 01

01 45 00  0507+179     11 51 55   8.4 -71.1  6.7      36.7    24        75   01 45 00
02 00 00  ---          12 06 58   6.3 -68.1  6.9      35.9   900       104   01 45 01


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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01su_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)
```

```
  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=   4200.00   4200.00   4200.00   4200.00
  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 pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   2

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


======== Setup file: ra18cm2.set
  Matching groups in ./rk01su_freq.dat:
    tr18cm          E-mail Borkowski 12Mar98, preferred alternative

  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=   2300.00   2300.00   2300.00   2300.00
  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 pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   3

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0507+179          05 07 07.486545   * 05 10 02.369131     05 10 53.305693       0.00
  J0510+1800        17 56 58.64618    * 18 00 41.58163      18 01 35.05633        0.00


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)
  0507+179           124.0

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

rk01svtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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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
-------------------------------------------------------------------------------------------

 --- Mon   3 Feb 2014   Day  34 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 00 00  1351-018     15 07 27  32.7 201.7  1.2      12.8     0         0   05 00 00
05 14 30  ---          15 22 00  31.8 205.9  1.5      15.2   870        28   05 00 01

05 15 00  1351-018     15 22 30  31.8 206.0  1.5      15.3    24        28   05 15 00
05 29 30  ---          15 37 02  30.7 210.1  1.7      17.5   870        56   05 15 01

05 30 00  1351-018     15 37 32  30.7 210.2  1.7      17.6    24        56   05 30 00
05 44 30  ---          15 52 05  29.5 214.2  2.0      19.7   870        84   05 30 01

05 45 00  1351-018     15 52 35  29.5 214.3  2.0      19.8    24        84   05 45 00
06 00 00  ---          16 07 37  28.2 218.3  2.2      21.9   900       112   05 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
   Matching groups in ./rk01sv_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1351-018          13 51 32.032818   * 13 54 06.895322     13 54 51.539554       0.00
  J1354-0206       -01 51 20.07716    *-02 06 03.19066     -02 10 16.14198        0.00


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)
  1351-018           106.6

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

rp023atr

e-EVN: SN2014J in M82

PI: *Miguel Perez-Torres*


```
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```


```
Observing mode: realtime e-vlbi
```

```
Schedule for TORUN     (Code Tr )                                    Page   2
                e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon   3 Feb 2014   Day  34 ---

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

15 00 00  DA193        01 09 06  41.0  75.2 -4.8     -49.1     0         0   15 00 00
15 15 00  ---          01 24 08  43.2  77.7 -4.5     -49.8   900       115   15 00 01

15 15 40  DA193        01 24 49  43.3  77.8 -4.5     -49.8    34       115   15 15 40
15 30 00  ---          01 39 11  45.4  80.3 -4.3     -50.4   860       225   15 15 41

15 30 40  DA193        01 39 51  45.5  80.4 -4.3     -50.4    34       225   15 30 40
15 45 00  ---          01 54 13  47.6  82.9 -4.0     -50.9   860       335   15 30 41

15 45 40  DA193        01 54 53  47.7  83.1 -4.0     -50.9    34       335   15 45 40
16 00 00  ---          02 09 16  49.9  85.7 -3.8     -51.2   860       445   15 45 41

16 00 40  DA193        02 09 56  50.0  85.8 -3.8     -51.2    34       445   16 00 40
16 15 00  ---          02 24 18  52.1  88.6 -3.5     -51.4   860       556   16 00 41

16 15 40  DA193        02 24 58  52.2  88.7 -3.5     -51.4    34       556   16 15 40
16 30 00  ---          02 39 21  54.4  91.6 -3.3     -51.4   860       666   16 15 41

16 30 40  DA193        02 40 01  54.5  91.7 -3.3     -51.4    34       666   16 30 40
16 45 00  ---          02 54 23  56.6  94.8 -3.0     -51.2   860       776   16 30 41

16 45 40  DA193        02 55 03  56.7  94.9 -3.0     -51.2    34       776   16 45 40
17 00 00  ---          03 09 26  58.9  98.2 -2.8     -50.7   860       886   16 45 41

17 04 00  J0958+6533   03 13 26  42.6  33.5 -6.8     -53.1    95       886   17 04 00
17 14 00  =0954+658    03 23 28  43.5  34.4 -6.6     -54.8   600       963   17 04 01
```

Schedule for TORUN (Code Tr) Page 3

e-EVN: SN2014J in M82

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

Start UT / Stop UT	Source	Start LST	Start EL	Start AZ	Stop HA	Stop UP	Stop ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 3 Feb 2014 Day 34 ---										
17 15 00	M81	03 24 28	45.7	30.6	-6.5		-58.4	37	963	17 15 00
17 24 00	---	03 33 30	46.4	31.2	-6.4		-60.1	540	1032	17 15 01
17 24 00	SN2014J	03 33 30	46.7	30.4	-6.4		-60.6	-13	1032	No stop
17 28 00	---	03 37 30	47.0	30.6	-6.3		-61.4	227	1062	17 24 01
17 28 00	M81	03 37 30	46.8	31.4	-6.3		-60.9	-13	1062	No stop
17 29 00	---	03 38 30	46.8	31.5	-6.3		-61.0	47	1070	17 28 01
17 29 00	SN2014J	03 38 30	47.1	30.7	-6.3		-61.6	-13	1070	No stop
17 33 00	---	03 42 31	47.4	30.9	-6.2		-62.3	227	1101	17 29 01
17 33 30	M81	03 43 01	47.2	31.8	-6.2		-61.9	17	1101	17 33 30
17 34 00	---	03 43 31	47.2	31.8	-6.2		-62.0	30	1105	17 33 31
17 34 00	SN2014J	03 43 31	47.5	31.0	-6.2		-62.5	-13	1105	No stop
17 38 00	---	03 47 32	47.8	31.2	-6.2		-63.3	227	1135	17 34 01
17 38 00	M81	03 47 32	47.5	32.0	-6.2		-62.7	-13	1135	No stop
17 39 00	---	03 48 32	47.6	32.1	-6.1		-62.9	47	1143	17 38 01
17 39 00	SN2014J	03 48 32	47.9	31.3	-6.1		-63.5	-13	1143	No stop
17 43 00	---	03 52 33	48.2	31.5	-6.1		-64.3	227	1174	17 39 01
17 43 00	M81	03 52 33	47.9	32.4	-6.1		-63.7	-13	1174	No stop
17 44 00	---	03 53 33	48.0	32.4	-6.1		-63.9	47	1181	17 43 01
17 44 00	SN2014J	03 53 33	48.3	31.6	-6.1		-64.5	-13	1181	No stop
17 48 00	---	03 57 34	48.6	31.8	-6.0		-65.2	227	1212	17 44 01
17 48 00	M81	03 57 34	48.4	32.6	-6.0		-64.6	-13	1212	No stop
17 49 00	---	03 58 34	48.4	32.7	-6.0		-64.8	47	1220	17 48 01
17 49 00	SN2014J	03 58 34	48.7	31.9	-6.0		-65.4	-13	1220	No stop
17 53 00	---	04 02 34	49.0	32.1	-5.9		-66.2	227	1251	17 49 01
17 53 30	M81	04 03 04	48.8	33.0	-5.9		-65.7	17	1251	17 53 30
17 54 00	---	04 03 35	48.8	33.0	-5.9		-65.8	30	1254	17 53 31
17 54 00	SN2014J	04 03 35	49.1	32.1	-5.9		-66.4	-13	1254	No stop
17 58 00	---	04 07 35	49.4	32.3	-5.8		-67.2	227	1285	17 54 01
17 58 00	M81	04 07 35	49.2	33.2	-5.8		-66.6	-13	1285	No stop
17 59 00	---	04 08 35	49.3	33.3	-5.8		-66.7	47	1293	17 58 01
17 59 00	SN2014J	04 08 35	49.5	32.4	-5.8		-67.4	-13	1293	No stop
18 03 00	---	04 12 36	49.8	32.6	-5.7		-68.2	227	1324	17 59 01

```
Schedule for TORUN     (Code Tr )                                Page   4
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon   3 Feb 2014   Day  34 ---

18 03 00  M81          04 12 36  49.6  33.5 -5.7     -67.5   -13     1324   No stop
18 04 00  ---          04 13 36  49.7  33.5 -5.7     -67.7    47     1331   18 03 01

18 04 00  SN2014J      04 13 36  49.9  32.6 -5.7     -68.3   -13     1331   No stop
18 08 00  ---          04 17 37  50.2  32.8 -5.7     -69.1   227     1362   18 04 01

18 08 00  M81          04 17 37  50.0  33.7 -5.7     -68.5   -13     1362   No stop
18 09 00  ---          04 18 37  50.1  33.8 -5.6     -68.7    47     1370   18 08 01

18 09 00  SN2014J      04 18 37  50.3  32.9 -5.6     -69.3   -13     1370   No stop
18 13 00  ---          04 22 38  50.6  33.1 -5.6     -70.1   227     1400   18 09 01

18 13 30  M81          04 23 08  50.5  34.0 -5.6     -69.6    16     1400   18 13 30
18 14 00  ---          04 23 38  50.5  34.0 -5.6     -69.7    30     1404   18 13 31

18 14 00  SN2014J      04 23 38  50.7  33.1 -5.6     -70.3   -13     1404   No stop
18 18 00  ---          04 27 38  51.0  33.3 -5.5     -71.1   227     1435   18 14 01

18 18 00  M81          04 27 38  50.8  34.2 -5.5     -70.4   -14     1435   No stop
18 19 00  ---          04 28 39  50.9  34.3 -5.5     -70.6    46     1443   18 18 01

18 19 00  SN2014J      04 28 39  51.1  33.4 -5.5     -71.3   -14     1443   No stop
18 23 00  ---          04 32 39  51.4  33.5 -5.4     -72.1   226     1473   18 19 01

18 23 00  M81          04 32 39  51.3  34.5 -5.4     -71.4   -14     1473   No stop
18 24 00  ---          04 33 39  51.4  34.5 -5.4     -71.6    46     1481   18 23 01

18 24 00  SN2014J      04 33 39  51.5  33.6 -5.4     -72.3   -14     1481   No stop
18 28 00  ---          04 37 40  51.9  33.7 -5.3     -73.1   226     1512   18 24 01

18 28 00  M81          04 37 40  51.7  34.7 -5.3     -72.4   -14     1512   No stop
18 29 00  ---          04 38 40  51.8  34.7 -5.3     -72.6    46     1519   18 28 01

18 29 00  SN2014J      04 38 40  51.9  33.8 -5.3     -73.3   -14     1519   No stop
18 33 00  ---          04 42 41  52.3  33.9 -5.2     -74.2   226     1550   18 29 01

18 33 30  M81          04 43 11  52.2  34.9 -5.2     -73.5    16     1550   18 33 30
18 34 00  ---          04 43 41  52.2  34.9 -5.2     -73.6    30     1554   18 33 31

18 34 00  SN2014J      04 43 41  52.4  34.0 -5.2     -74.4   -14     1554   No stop
18 38 00  ---          04 47 42  52.7  34.1 -5.2     -75.2   226     1585   18 34 01

18 38 00  M81          04 47 42  52.6  35.1 -5.2     -74.4   -14     1585   No stop
18 39 00  ---          04 48 42  52.6  35.1 -5.1     -74.6    46     1592   18 38 01

18 39 00  SN2014J      04 48 42  52.8  34.2 -5.1     -75.4   -14     1592   No stop
18 43 00  ---          04 52 43  53.1  34.3 -5.1     -76.2   226     1623   18 39 01
```

```
Schedule for TORUN     (Code Tr )                                Page   5
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon   3 Feb 2014   Day  34 ---

18 43 00  M81          04 52 43  53.0  35.3 -5.1     -75.5   -14     1623   No stop
18 44 00  ---          04 53 43  53.1  35.3 -5.1     -75.7    46     1631   18 43 01

18 45 00  J0958+6533   04 54 43  51.9  40.7 -5.1     -70.9    34     1631   18 45 00
18 48 00  =0954+658    04 57 43  52.2  40.9 -5.0     -71.4   180     1654   18 45 01

18 49 00  M81          04 58 44  53.5  35.5 -5.0     -76.7    34     1654   18 49 00
18 49 30  ---          04 59 14  53.6  35.5 -5.0     -76.8    30     1658   18 49 01

18 49 30  SN2014J      04 59 14  53.7  34.5 -5.0     -77.6   -14     1658   No stop
18 53 30  ---          05 03 14  54.0  34.7 -4.9     -78.4   226     1688   18 49 31

18 53 30  M81          05 03 14  53.9  35.7 -4.9     -77.6   -14     1688   No stop
18 54 30  ---          05 04 14  54.0  35.7 -4.9     -77.8    46     1696   18 53 31

18 54 30  SN2014J      05 04 14  54.1  34.7 -4.9     -78.6   -14     1696   No stop
18 58 30  ---          05 08 15  54.4  34.8 -4.8     -79.5   226     1727   18 54 31

18 59 00  M81          05 08 45  54.4  35.8 -4.8     -78.8    16     1727   18 59 00
18 59 30  ---          05 09 15  54.4  35.9 -4.8     -78.9    30     1731   18 59 01

18 59 30  SN2014J      05 09 15  54.5  34.8 -4.8     -79.7   -14     1731   No stop
19 03 30  ---          05 13 16  54.9  34.9 -4.7     -80.5   226     1761   18 59 31

19 03 30  M81          05 13 16  54.8  36.0 -4.7     -79.7   -14     1761   No stop
19 04 30  ---          05 14 16  54.9  36.0 -4.7     -79.9    46     1769   19 03 31

19 04 30  SN2014J      05 14 16  55.0  35.0 -4.7     -80.7   -14     1769   No stop
19 08 30  ---          05 18 17  55.3  35.0 -4.6     -81.6   226     1800   19 04 31

19 08 30  M81          05 18 17  55.2  36.1 -4.6     -80.8   -14     1800   No stop
19 09 30  ---          05 19 17  55.3  36.1 -4.6     -81.0    46     1807   19 08 31

19 09 30  SN2014J      05 19 17  55.4  35.1 -4.6     -81.8   -14     1807   No stop
19 13 30  ---          05 23 18  55.7  35.1 -4.6     -82.7   226     1838   19 09 31

19 13 30  M81          05 23 18  55.7  36.2 -4.6     -81.8   -14     1838   No stop
19 14 30  ---          05 24 18  55.8  36.2 -4.5     -82.1    46     1846   19 13 31

19 14 30  SN2014J      05 24 18  55.8  35.2 -4.5     -82.9   -14     1846   No stop
19 18 30  ---          05 28 18  56.2  35.2 -4.5     -83.8   226     1876   19 14 31

19 19 00  M81          05 28 49  56.2  36.3 -4.5     -83.0    16     1876   19 19 00
19 19 30  ---          05 29 19  56.2  36.3 -4.5     -83.1    30     1880   19 19 01

19 19 30  SN2014J      05 29 19  56.3  35.3 -4.5     -84.0   -14     1880   No stop
19 23 30  ---          05 33 19  56.6  35.3 -4.4     -84.9   226     1911   19 19 31
```

Schedule for TORUN (Code Tr) Page 6

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 3 Feb 2014 Day 34 ---										
19 23 30	M81	05 33 19	56.6	36.4	-4.4		-84.0	-14	1911	No stop
19 24 30	---	05 34 19	56.7	36.4	-4.4		-84.2	46	1919	19 23 31
19 24 30	SN2014J	05 34 19	56.7	35.3	-4.4		-85.1	-14	1919	No stop
19 28 30	---	05 38 20	57.0	35.4	-4.3		-86.0	226	1949	19 24 31
19 28 30	M81	05 38 20	57.0	36.5	-4.3		-85.1	-14	1949	No stop
19 29 30	---	05 39 20	57.1	36.5	-4.3		-85.4	46	1957	19 28 31
19 29 30	SN2014J	05 39 20	57.1	35.4	-4.3		-86.3	-14	1957	No stop
19 33 30	---	05 43 21	57.5	35.4	-4.2		-87.2	226	1988	19 29 31
19 33 30	M81	05 43 21	57.5	36.6	-4.2		-86.2	-15	1988	No stop
19 34 30	---	05 44 21	57.6	36.6	-4.2		-86.5	45	1996	19 33 31
19 34 30	SN2014J	05 44 21	57.6	35.4	-4.2		-87.4	-15	1996	No stop
19 38 30	---	05 48 22	57.9	35.5	-4.1		-88.3	225	2026	19 34 31
19 39 00	M81	05 48 52	58.0	36.6	-4.1		-87.5	15	2026	19 39 00
19 39 30	---	05 49 22	58.0	36.6	-4.1		-87.6	30	2030	19 39 01
19 39 30	SN2014J	05 49 22	58.0	35.5	-4.1		-88.5	-15	2030	No stop
19 43 30	---	05 53 23	58.4	35.5	-4.1		-89.5	225	2061	19 39 31
19 43 30	M81	05 53 23	58.4	36.6	-4.1		-88.5	-15	2061	No stop
19 44 30	---	05 54 23	58.5	36.6	-4.0		-88.8	45	2068	19 43 31
19 44 30	SN2014J	05 54 23	58.4	35.5	-4.0		-89.7	-15	2068	No stop
19 48 30	---	05 58 23	58.8	35.5	-4.0		-90.6	225	2099	19 44 31
19 48 30	M81	05 58 23	58.8	36.7	-4.0		-89.7	-15	2099	No stop
19 49 30	---	05 59 24	58.9	36.7	-4.0		-89.9	45	2107	19 48 31
19 49 30	SN2014J	05 59 24	58.9	35.5	-4.0		-90.9	-15	2107	No stop
19 53 30	---	06 03 24	59.2	35.5	-3.9		-91.8	225	2138	19 49 31
19 53 30	M81	06 03 24	59.3	36.6	-3.9		-90.9	-15	2138	No stop
19 54 30	---	06 04 24	59.3	36.6	-3.9		-91.1	45	2145	19 53 31
19 54 30	SN2014J	06 04 24	59.3	35.5	-3.9		-92.1	-15	2145	No stop
19 58 30	---	06 08 25	59.7	35.4	-3.8		-93.0	225	2176	19 54 31
19 59 00	M81	06 08 55	59.8	36.6	-3.8		-92.2	15	2176	19 59 00
19 59 30	---	06 09 25	59.8	36.6	-3.8		-92.3	30	2180	19 59 01
19 59 30	SN2014J	06 09 25	59.8	35.4	-3.8		-93.3	-15	2180	No stop
20 03 30	---	06 13 26	60.1	35.4	-3.7		-94.3	225	2211	19 59 31

Schedule for TORUN (Code Tr) Page 7

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 3 Feb 2014 Day 34 ---										
20 03 30	M81	06 13 26	60.2	36.6	-3.7		-93.2	-15	2211	No stop
20 04 30	---	06 14 26	60.2	36.6	-3.7		-93.5	45	2218	20 03 31
20 04 30	SN2014J	06 14 26	60.2	35.4	-3.7		-94.5	-15	2218	No stop
20 08 30	---	06 18 27	60.5	35.3	-3.6		-95.5	225	2249	20 04 31
20 08 30	M81	06 18 27	60.6	36.5	-3.6		-94.5	-15	2249	No stop
20 09 30	---	06 19 27	60.7	36.5	-3.6		-94.7	45	2257	20 08 31
20 09 30	SN2014J	06 19 27	60.6	35.3	-3.6		-95.8	-15	2257	No stop
20 13 30	---	06 23 27	61.0	35.2	-3.6		-96.8	225	2287	20 09 31
20 13 30	M81	06 23 27	61.1	36.4	-3.6		-95.7	-15	2287	No stop
20 14 30	---	06 24 28	61.1	36.4	-3.5		-96.0	45	2295	20 13 31
20 14 30	SN2014J	06 24 28	61.1	35.2	-3.5		-97.0	-15	2295	No stop
20 18 30	---	06 28 28	61.4	35.1	-3.5		-98.0	225	2326	20 14 31
20 19 00	M81	06 28 58	61.5	36.3	-3.5		-97.1	15	2326	20 19 00
20 19 30	---	06 29 28	61.6	36.3	-3.5		-97.2	30	2330	20 19 01
20 19 30	SN2014J	06 29 28	61.5	35.1	-3.5		-98.3	-15	2330	No stop
20 23 30	---	06 33 29	61.8	34.9	-3.4		-99.3	225	2360	20 19 31
20 23 30	M81	06 33 29	61.9	36.2	-3.4		-98.3	-15	2360	No stop
20 24 30	---	06 34 29	62.0	36.2	-3.4		-98.5	45	2368	20 23 31
20 24 30	SN2014J	06 34 29	61.9	34.9	-3.4		-99.6	-15	2368	No stop
20 28 30	---	06 38 30	62.3	34.8	-3.3		-100.7	225	2399	20 24 31
20 28 30	M81	06 38 30	62.4	36.1	-3.3		-99.6	-15	2399	No stop
20 29 30	---	06 39 30	62.5	36.0	-3.3		-99.8	45	2406	20 28 31
20 29 30	SN2014J	06 39 30	62.4	34.7	-3.3		-100.9	-15	2406	No stop
20 33 30	---	06 43 31	62.7	34.6	-3.2		-102.0	225	2437	20 29 31
20 33 30	M81	06 43 31	62.8	35.9	-3.2		-100.9	-15	2437	No stop
20 34 30	---	06 44 31	62.9	35.9	-3.2		-101.1	45	2445	20 33 31
20 34 30	SN2014J	06 44 31	62.8	34.6	-3.2		-102.3	-15	2445	No stop
20 38 30	---	06 48 32	63.1	34.4	-3.1		-103.4	225	2476	20 34 31
20 39 00	M81	06 49 02	63.3	35.7	-3.1		-102.4	15	2476	20 39 00
20 39 30	---	06 49 32	63.4	35.6	-3.1		-102.5	30	2479	20 39 01

Schedule for TORUN (Code Tr) Page 8

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 3 Feb 2014 Day 34 ---										
20 39 30	SN2014J	06 49 32	63.2	34.3	-3.1		-103.6	-15	2479	No stop
20 43 30	---	06 53 32	63.5	34.1	-3.1		-104.7	225	2510	20 39 31
20 43 30	M81	06 53 32	63.7	35.5	-3.1		-103.6	-15	2510	No stop
20 44 30	---	06 54 33	63.8	35.4	-3.0		-103.9	45	2518	20 43 31
20 44 30	SN2014J	06 54 33	63.6	34.1	-3.0		-105.0	-15	2518	No stop
20 48 30	---	06 58 33	64.0	33.9	-3.0		-106.2	225	2548	20 44 31
20 48 30	M81	06 58 33	64.1	35.2	-3.0		-105.0	-15	2548	No stop
20 49 30	---	06 59 33	64.2	35.2	-3.0		-105.3	45	2556	20 48 31
20 50 30	J0958+6533	07 00 34	64.7	43.2	-3.0		-97.5	29	2556	20 50 30
20 53 30	=0954+658	07 03 34	65.0	43.1	-2.9		-98.3	180	2579	20 50 31
20 54 30	M81	07 04 34	64.7	34.9	-2.9		-106.7	29	2579	20 54 30
20 55 00	---	07 05 04	64.7	34.8	-2.9		-106.9	30	2583	20 54 31
20 55 00	SN2014J	07 05 04	64.5	33.5	-2.9		-108.0	-15	2583	No stop
20 59 00	---	07 09 05	64.8	33.2	-2.8		-109.2	225	2614	20 55 01
20 59 00	M81	07 09 05	65.0	34.6	-2.8		-108.0	-15	2614	No stop
21 00 00	---	07 10 05	65.1	34.5	-2.8		-108.3	45	2621	20 59 01
21 00 00	SN2014J	07 10 05	64.9	33.2	-2.8		-109.5	-15	2621	No stop
21 04 00	---	07 14 06	65.3	32.9	-2.7		-110.7	225	2652	21 00 01
21 04 30	M81	07 14 36	65.5	34.2	-2.7		-109.7	15	2652	21 04 30
21 05 00	---	07 15 06	65.6	34.2	-2.7		-109.8	30	2656	21 04 31
21 05 00	SN2014J	07 15 06	65.3	32.8	-2.7		-111.0	-15	2656	No stop
21 09 00	---	07 19 07	65.7	32.5	-2.6		-112.2	225	2687	21 05 01
21 09 00	M81	07 19 07	65.9	33.9	-2.6		-111.0	-15	2687	No stop
21 10 00	---	07 20 07	66.0	33.8	-2.6		-111.3	45	2694	21 09 01
21 10 00	SN2014J	07 20 07	65.7	32.4	-2.6		-112.5	-16	2694	No stop
21 14 00	---	07 24 07	66.1	32.1	-2.5		-113.8	224	2725	21 10 01
21 14 00	M81	07 24 07	66.3	33.5	-2.5		-112.6	-15	2725	No stop
21 15 00	---	07 25 08	66.4	33.4	-2.5		-112.9	45	2733	21 14 01
21 15 00	SN2014J	07 25 08	66.1	32.0	-2.5		-114.1	-16	2733	No stop
21 19 00	---	07 29 08	66.5	31.6	-2.5		-115.4	224	2764	21 15 01

Schedule for TORUN (Code Tr) Page 9

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 3 Feb 2014 Day 34 ---										
21 19 00	M81	07 29 08	66.7	33.0	-2.5		-114.1	-15	2764	No stop
21 20 00	---	07 30 08	66.8	32.9	-2.4		-114.5	45	2771	21 19 01
21 20 00	SN2014J	07 30 08	66.5	31.5	-2.4		-115.7	-16	2771	No stop
21 24 00	---	07 34 09	66.8	31.1	-2.4		-117.0	224	2802	21 20 01
21 24 30	M81	07 34 39	67.2	32.5	-2.4		-115.9	15	2802	21 24 30
21 25 00	---	07 35 09	67.2	32.4	-2.4		-116.1	30	2806	21 24 31
21 25 00	SN2014J	07 35 09	66.9	31.0	-2.4		-117.3	-16	2806	No stop
21 29 00	---	07 39 10	67.2	30.6	-2.3		-118.6	224	2836	21 25 01
21 29 00	M81	07 39 10	67.5	32.0	-2.3		-117.4	-15	2836	No stop
21 30 00	---	07 40 10	67.6	31.9	-2.3		-117.7	45	2844	21 29 01
21 30 00	SN2014J	07 40 10	67.3	30.5	-2.3		-119.0	-16	2844	No stop
21 34 00	---	07 44 11	67.6	30.1	-2.2		-120.3	224	2875	21 30 01
21 34 00	M81	07 44 11	67.9	31.4	-2.2		-119.1	-15	2875	No stop
21 35 00	---	07 45 11	68.0	31.3	-2.2		-119.4	45	2883	21 34 01
21 35 00	SN2014J	07 45 11	67.7	29.9	-2.2		-120.7	-16	2883	No stop
21 39 00	---	07 49 12	68.0	29.5	-2.1		-122.1	224	2913	21 35 01
21 39 00	M81	07 49 12	68.3	30.8	-2.1		-120.8	-15	2913	No stop
21 40 00	---	07 50 12	68.4	30.7	-2.1		-121.2	45	2921	21 39 01
21 40 00	SN2014J	07 50 12	68.1	29.3	-2.1		-122.4	-16	2921	No stop
21 44 00	---	07 54 12	68.4	28.8	-2.0		-123.8	224	2952	21 40 01
21 44 30	M81	07 54 42	68.7	30.1	-2.0		-122.8	15	2952	21 44 30
21 45 00	---	07 55 13	68.8	30.1	-2.0		-123.0	30	2956	21 44 31
21 45 00	SN2014J	07 55 13	68.4	28.7	-2.0		-124.2	-16	2956	No stop
21 49 00	---	07 59 13	68.7	28.1	-2.0		-125.6	224	2986	21 45 01
21 49 00	M81	07 59 13	69.1	29.5	-2.0		-124.4	-15	2986	No stop
21 50 00	---	08 00 13	69.2	29.4	-1.9		-124.8	45	2994	21 49 01
21 50 00	SN2014J	08 00 13	68.8	28.0	-1.9		-126.0	-16	2994	No stop
21 54 00	---	08 04 14	69.1	27.4	-1.9		-127.5	224	3025	21 50 01
21 54 00	M81	08 04 14	69.4	28.8	-1.9		-126.3	-15	3025	No stop
21 55 00	---	08 05 14	69.5	28.6	-1.9		-126.6	45	3032	21 54 01

Schedule for TORUN (Code Tr) Page 10

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 3 Feb 2014 Day 34 ---										
21 55 00	SN2014J	08 05 14	69.1	27.3	-1.9		-127.9	-15	3032	No stop
21 59 00	---	08 09 15	69.4	26.7	-1.8		-129.4	225	3063	21 55 01
21 59 00	M81	08 09 15	69.8	28.0	-1.8		-128.2	-15	3063	No stop
22 00 00	---	08 10 15	69.9	27.8	-1.8		-128.6	45	3071	21 59 01
22 00 00	SN2014J	08 10 15	69.5	26.5	-1.8		-129.8	-15	3071	No stop
22 04 00	---	08 14 16	69.7	25.8	-1.7		-131.3	225	3101	22 00 01
22 04 30	M81	08 14 46	70.2	27.1	-1.7		-130.3	15	3101	22 04 30
22 05 00	---	08 15 16	70.2	27.0	-1.7		-130.5	30	3105	22 04 31
22 05 00	SN2014J	08 15 16	69.8	25.7	-1.7		-131.7	-15	3105	No stop
22 09 00	---	08 19 16	70.1	25.0	-1.6		-133.3	225	3136	22 05 01
22 09 00	M81	08 19 16	70.5	26.3	-1.6		-132.1	-15	3136	No stop
22 10 00	---	08 20 17	70.6	26.1	-1.6		-132.5	45	3144	22 09 01
22 10 00	SN2014J	08 20 17	70.1	24.8	-1.6		-133.7	-15	3144	No stop
22 14 00	---	08 24 17	70.4	24.1	-1.5		-135.3	225	3174	22 10 01
22 14 00	M81	08 24 17	70.8	25.4	-1.5		-134.2	-15	3174	No stop
22 15 00	---	08 25 17	70.9	25.2	-1.5		-134.6	45	3182	22 14 01
22 15 00	SN2014J	08 25 17	70.4	23.9	-1.5		-135.7	-15	3182	No stop
22 19 00	---	08 29 18	70.7	23.1	-1.5		-137.4	225	3213	22 15 01
22 19 00	M81	08 29 18	71.1	24.4	-1.5		-136.3	-15	3213	No stop
22 20 00	---	08 30 18	71.2	24.2	-1.4		-136.7	45	3220	22 19 01
22 20 00	SN2014J	08 30 18	70.7	22.9	-1.4		-137.8	-15	3220	No stop
22 24 00	---	08 34 19	71.0	22.1	-1.4		-139.5	225	3251	22 20 01
22 24 30	M81	08 34 49	71.5	23.2	-1.4		-138.6	15	3251	22 24 30
22 25 00	---	08 35 19	71.5	23.1	-1.4		-138.8	30	3255	22 24 31
22 25 00	SN2014J	08 35 19	71.0	21.9	-1.4		-139.9	-15	3255	No stop
22 29 00	---	08 39 20	71.2	21.1	-1.3		-141.7	225	3286	22 25 01
22 29 00	M81	08 39 20	71.7	22.3	-1.3		-140.6	-15	3286	No stop
22 30 00	---	08 40 20	71.8	22.0	-1.3		-141.0	45	3293	22 29 01
22 30 00	SN2014J	08 40 20	71.3	20.9	-1.3		-142.1	-15	3293	No stop
22 34 00	---	08 44 21	71.5	20.0	-1.2		-143.9	225	3324	22 30 01

```
Schedule for TORUN     (Code Tr )                                Page  11
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon   3 Feb 2014   Day  34 ---

22 34 00  M81          08 44 21  72.0  21.1 -1.2    -142.8   -14     3324   No stop
22 35 00  ---          08 45 21  72.1  20.9 -1.2    -143.3    46     3332   22 34 01

22 35 00  SN2014J      08 45 21  71.6  19.8 -1.2    -144.3   -15     3332   No stop
22 39 00  ---          08 49 21  71.8  18.9 -1.1    -146.1   225     3363   22 35 01

22 39 00  M81          08 49 21  72.3  20.0 -1.1    -145.1   -14     3363   No stop
22 40 00  ---          08 50 22  72.3  19.7 -1.1    -145.6    46     3370   22 39 01

22 40 00  SN2014J      08 50 22  71.8  18.6 -1.1    -146.6   -14     3370   No stop
22 44 00  ---          08 54 22  72.0  17.7 -1.0    -148.4   226     3401   22 40 01

22 44 30  M81          08 54 52  72.5  18.6 -1.0    -147.7    16     3401   22 44 30
22 45 00  ---          08 55 22  72.6  18.5 -1.0    -148.0    30     3405   22 44 31

22 45 00  SN2014J      08 55 22  72.0  17.5 -1.0    -148.9   -14     3405   No stop
22 49 00  ---          08 59 23  72.2  16.5 -1.0    -150.8   226     3436   22 45 01

22 49 00  M81          08 59 23  72.8  17.4 -1.0    -149.9   -14     3436   No stop
22 50 00  ---          09 00 23  72.8  17.2 -0.9    -150.4    46     3443   22 49 01

22 50 00  SN2014J      09 00 23  72.3  16.2 -0.9    -151.2   -14     3443   No stop
22 54 00  ---          09 04 24  72.4  15.2 -0.9    -153.1   226     3474   22 50 01

22 54 00  M81          09 04 24  73.0  16.1 -0.9    -152.3   -14     3474   No stop
22 55 00  ---          09 05 24  73.0  15.8 -0.9    -152.8    46     3482   22 54 01

22 56 00  J0958+6533   09 06 24  75.9  23.2 -0.9    -145.2    30     3482   22 56 00
22 59 00  =0954+658    09 09 25  76.1  22.1 -0.8    -146.9   180     3505   22 56 01

23 00 00  M81          09 10 25  73.2  14.4 -0.8    -155.3    30     3505   23 00 00
23 00 30  ---          09 10 55  73.2  14.3 -0.8    -155.6    30     3508   23 00 01

23 00 30  SN2014J      09 10 55  72.7  13.5 -0.8    -156.3   -14     3508   No stop
23 04 30  ---          09 14 56  72.8  12.4 -0.7    -158.3   226     3539   23 00 31

23 04 30  M81          09 14 56  73.4  13.1 -0.7    -157.6   -14     3539   No stop
23 05 30  ---          09 15 56  73.4  12.8 -0.7    -158.1    46     3547   23 04 31

23 05 30  SN2014J      09 15 56  72.8  12.1 -0.7    -158.8   -14     3547   No stop
23 09 30  ---          09 19 56  73.0  11.0 -0.6    -160.8   226     3578   23 05 31

23 10 00  M81          09 20 26  73.5  11.5 -0.6    -160.5    16     3578   23 10 00
23 10 30  ---          09 20 57  73.6  11.4 -0.6    -160.7    30     3581   23 10 01
```

Schedule for TORUN (Code Tr) Page 12

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 3 Feb 2014 Day 34 ---										
23 10 30	SN2014J	09 20 57	73.0	10.7	-0.6		-161.3	-14	3581	No stop
23 14 30	---	09 24 57	73.1	9.6	-0.5		-163.3	226	3612	23 10 31
23 14 30	M81	09 24 57	73.7	10.2	-0.5		-162.8	-14	3612	No stop
23 15 30	---	09 25 57	73.7	9.9	-0.5		-163.3	46	3620	23 14 31
23 15 30	SN2014J	09 25 57	73.1	9.3	-0.5		-163.8	-14	3620	No stop
23 19 30	---	09 29 58	73.2	8.1	-0.4		-165.9	226	3651	23 15 31
23 19 30	M81	09 29 58	73.8	8.6	-0.4		-165.5	-14	3651	No stop
23 20 30	---	09 30 58	73.8	8.3	-0.4		-166.0	46	3658	23 19 31
23 20 30	SN2014J	09 30 58	73.2	7.8	-0.4		-166.4	-14	3658	No stop
23 24 30	---	09 34 59	73.3	6.7	-0.4		-168.5	226	3689	23 20 31
23 24 30	M81	09 34 59	73.9	7.0	-0.4		-168.1	-14	3689	No stop
23 25 30	---	09 35 59	73.9	6.7	-0.3		-168.7	46	3697	23 24 31
23 25 30	SN2014J	09 35 59	73.3	6.4	-0.3		-169.0	-14	3697	No stop
23 29 30	---	09 40 00	73.4	5.2	-0.3		-171.1	226	3727	23 25 31
23 30 00	M81	09 40 30	74.0	5.3	-0.3		-171.1	16	3727	23 30 00
23 30 30	---	09 41 00	74.0	5.1	-0.3		-171.4	30	3731	23 30 01
23 30 30	SN2014J	09 41 00	73.4	4.9	-0.3		-171.6	-14	3731	No stop
23 34 30	---	09 45 00	73.4	3.6	-0.2		-173.7	226	3762	23 30 31
23 34 30	M81	09 45 00	74.0	3.8	-0.2		-173.6	-14	3762	No stop
23 35 30	---	09 46 01	74.1	3.5	-0.2		-174.1	46	3770	23 34 31
23 35 30	SN2014J	09 46 01	73.4	3.3	-0.2		-174.2	-14	3770	No stop
23 39 30	---	09 50 01	73.5	2.1	-0.1		-176.4	226	3800	23 35 31
23 39 30	M81	09 50 01	74.1	2.2	-0.1		-176.3	-14	3800	No stop
23 40 30	---	09 51 01	74.1	1.9	-0.1		-176.9	46	3808	23 39 31
23 40 30	SN2014J	09 51 01	73.5	1.8	-0.1		-176.9	-14	3808	No stop
23 44 30	---	09 55 02	73.5	0.6	-0.0		-179.0	226	3839	23 40 31
23 44 30	M81	09 55 02	74.1	0.6	-0.0		-179.1	-14	3839	No stop
23 45 30	---	09 56 02	74.1	0.2	-0.0		-179.6	46	3846	23 44 31
23 45 30	SN2014J	09 56 02	73.5	0.3	-0.0		-179.5	-14	3846	No stop
23 49 30	---	10 00 03	73.5	-1.0	0.1		178.3	226	3877	23 45 31

```
Schedule for TORUN     (Code Tr )                                Page  13
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon   3 Feb 2014   Day  34 ---

23 50 00  M81          10 00 33  74.1  -1.2  0.1     177.9    16     3877   23 50 00
23 50 30  ---          10 01 03  74.1  -1.4  0.1     177.6    30     3881   23 50 01

23 50 30  SN2014J      10 01 03  73.5  -1.3  0.1     177.8   -14     3881   No stop
23 54 30  ---          10 05 04  73.5  -2.5  0.1     175.7   226     3912   23 50 31

23 54 30  M81          10 05 04  74.1  -2.7  0.1     175.5   -14     3912   No stop
23 55 30  ---          10 06 04  74.1  -3.0  0.2     174.9    46     3919   23 54 31

23 55 30  SN2014J      10 06 04  73.5  -2.8  0.2     175.2   -14     3919   No stop
23 59 30  ---          10 10 05  73.4  -4.0  0.2     173.1   226     3950   23 55 31

 --- Start: Mon   3 Feb 2014   Day  34 -- Stop: Tue   4 Feb 2014   Day  35 ---

23 59 30  M81          10 10 05  74.0  -4.3  0.2     172.7   -14     3950   No stop
00 00 30  ---          10 11 05  74.0  -4.7  0.2     172.2    46     3958   23 59 31

00 00 30  SN2014J      10 11 05  73.4  -4.3  0.2     172.5   -14     3958   No stop
00 04 30  ---          10 15 05  73.4  -5.5  0.3     170.4   226     3988   00 00 31

00 04 30  M81          10 15 05  74.0  -6.0  0.3     170.0   -14     3988   No stop
00 05 30  ---          10 16 06  73.9  -6.3  0.3     169.5    46     3996   00 04 31

00 05 30  SN2014J      10 16 06  73.3  -5.8  0.3     169.9   -14     3996   No stop
00 09 30  ---          10 20 06  73.3  -7.0  0.4     167.8   226     4027   00 05 31

00 10 00  M81          10 20 36  73.9  -7.7  0.4     167.0    16     4027   00 10 00
00 10 30  ---          10 21 06  73.8  -7.9  0.4     166.8    30     4031   00 10 01

00 10 30  SN2014J      10 21 06  73.3  -7.3  0.4     167.3   -14     4031   No stop
00 14 30  ---          10 25 07  73.2  -8.5  0.5     165.2   226     4061   00 10 31

00 14 30  M81          10 25 07  73.8  -9.1  0.5     164.6   -14     4061   No stop
00 15 30  ---          10 26 07  73.7  -9.4  0.5     164.1    46     4069   00 14 31

00 15 30  SN2014J      10 26 07  73.2  -8.8  0.5     164.7   -14     4069   No stop
00 19 30  ---          10 30 08  73.1  -9.9  0.6     162.7   226     4100   00 15 31

00 19 30  M81          10 30 08  73.6 -10.6  0.6     162.0   -14     4100   No stop
00 20 30  ---          10 31 08  73.6 -10.9  0.6     161.5    46     4108   00 19 31

00 20 30  SN2014J      10 31 08  73.0 -10.2  0.6     162.2   -14     4108   No stop
00 24 30  ---          10 35 09  72.9 -11.4  0.6     160.2   226     4138   00 20 31
```

```
Schedule for TORUN     (Code Tr )                                Page  14
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

00 24 30  M81          10 35 09  73.5 -12.1  0.6     159.4   -14     4138   No stop
00 25 30  ---          10 36 09  73.5 -12.4  0.7     158.9    46     4146   00 24 31

00 25 30  SN2014J      10 36 09  72.9 -11.6  0.7     159.7   -14     4146   No stop
00 29 30  ---          10 40 10  72.8 -12.7  0.7     157.7   226     4177   00 25 31

00 30 00  M81          10 40 40  73.3 -13.7  0.7     156.6    16     4177   00 30 00
00 30 30  ---          10 41 10  73.3 -13.9  0.7     156.3    30     4180   00 30 01

00 30 30  SN2014J      10 41 10  72.7 -13.0  0.7     157.2   -14     4180   No stop
00 34 30  ---          10 45 10  72.6 -14.1  0.8     155.2   226     4211   00 30 31

00 34 30  M81          10 45 10  73.1 -15.0  0.8     154.3   -14     4211   No stop
00 35 30  ---          10 46 11  73.1 -15.3  0.8     153.8    46     4219   00 34 31

00 35 30  SN2014J      10 46 11  72.5 -14.4  0.8     154.7   -14     4219   No stop
00 39 30  ---          10 50 11  72.4 -15.4  0.9     152.8   226     4250   00 35 31

00 39 30  M81          10 50 11  72.9 -16.4  0.9     151.8   -14     4250   No stop
00 40 30  ---          10 51 11  72.9 -16.7  0.9     151.3    46     4257   00 39 31

00 40 30  SN2014J      10 51 11  72.4 -15.6  0.9     152.3   -14     4257   No stop
00 44 30  ---          10 55 12  72.2 -16.7  1.0     150.4   226     4288   00 40 31

00 44 30  M81          10 55 12  72.7 -17.7  1.0     149.4   -14     4288   No stop
00 45 30  ---          10 56 12  72.7 -18.0  1.0     148.9    46     4296   00 44 31

00 45 30  SN2014J      10 56 12  72.1 -16.9  1.0     149.9   -14     4296   No stop
00 49 30  ---          11 00 13  72.0 -17.9  1.1     148.1   226     4326   00 45 31

00 50 00  M81          11 00 43  72.4 -19.1  1.1     146.7    15     4326   00 50 00
00 50 30  ---          11 01 13  72.4 -19.2  1.1     146.5    30     4330   00 50 01

00 50 30  SN2014J      11 01 13  71.9 -18.1  1.1     147.6   -14     4330   No stop
00 54 30  ---          11 05 14  71.7 -19.0  1.1     145.8   226     4361   00 50 31

00 54 30  M81          11 05 14  72.2 -20.2  1.1     144.6   -15     4361   No stop
00 55 30  ---          11 06 14  72.2 -20.4  1.2     144.2    45     4369   00 54 31

00 55 30  SN2014J      11 06 14  71.7 -19.3  1.2     145.3   -15     4369   No stop
00 59 30  ---          11 10 14  71.5 -20.2  1.2     143.5   225     4399   00 55 31

00 59 30  M81          11 10 14  71.9 -21.4  1.2     142.4   -15     4399   No stop
01 00 30  ---          11 11 15  71.9 -21.6  1.2     141.9    45     4407   00 59 31
```

```
Schedule for TORUN     (Code Tr )                                Page  15
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

01 01 30  J0958+6533   11 12 15  74.7 -29.1  1.2     135.2    30     4407   01 01 30
01 04 30  =0954+658    11 15 15  74.4 -29.9  1.3     133.7   180     4430   01 01 31

01 05 30  M81          11 16 15  71.6 -22.7  1.3     139.7    30     4430   01 05 30
01 06 00  ---          11 16 46  71.6 -22.8  1.3     139.5    30     4434   01 05 31

01 06 00  SN2014J      11 16 46  71.1 -21.6  1.3     140.7   -15     4434   No stop
01 10 00  ---          11 20 46  70.9 -22.4  1.4     139.0   225     4465   01 06 01

01 10 00  M81          11 20 46  71.3 -23.7  1.4     137.7   -15     4465   No stop
01 11 00  ---          11 21 46  71.3 -23.9  1.4     137.3    45     4472   01 10 01

01 11 00  SN2014J      11 21 46  70.8 -22.6  1.4     138.5   -15     4472   No stop
01 15 00  ---          11 25 47  70.6 -23.4  1.5     136.9   225     4503   01 11 01

01 15 30  M81          11 26 17  71.0 -24.8  1.5     135.4    15     4503   01 15 30
01 16 00  ---          11 26 47  71.0 -24.9  1.5     135.2    30     4507   01 15 31

01 16 00  SN2014J      11 26 47  70.5 -23.6  1.5     136.5   -15     4507   No stop
01 20 00  ---          11 30 48  70.3 -24.3  1.6     134.8   225     4538   01 16 01

01 20 00  M81          11 30 48  70.7 -25.7  1.6     133.5   -15     4538   No stop
01 21 00  ---          11 31 48  70.6 -25.8  1.6     133.1    45     4545   01 20 01

01 21 00  SN2014J      11 31 48  70.2 -24.5  1.6     134.4   -15     4545   No stop
01 25 00  ---          11 35 49  70.0 -25.2  1.6     132.8   225     4576   01 21 01

01 25 00  M81          11 35 49  70.4 -26.6  1.7     131.5   -16     4576   No stop
01 26 00  ---          11 36 49  70.3 -26.7  1.7     131.1    44     4584   01 25 01

01 26 00  SN2014J      11 36 49  69.9 -25.4  1.7     132.4   -15     4584   No stop
01 30 00  ---          11 40 49  69.7 -26.1  1.7     130.8   225     4614   01 26 01

01 30 00  M81          11 40 49  70.0 -27.4  1.7     129.5   -16     4614   No stop
01 31 00  ---          11 41 50  70.0 -27.6  1.8     129.1    44     4622   01 30 01

01 31 00  SN2014J      11 41 50  69.6 -26.2  1.7     130.4   -15     4622   No stop
01 35 00  ---          11 45 50  69.3 -26.9  1.8     128.9   225     4653   01 31 01

01 35 30  M81          11 46 20  69.7 -28.3  1.8     127.4    14     4653   01 35 30
01 36 00  ---          11 46 50  69.6 -28.4  1.8     127.2    30     4657   01 35 31

01 36 00  SN2014J      11 46 50  69.3 -27.0  1.8     128.5   -15     4657   No stop
01 40 00  ---          11 50 51  69.0 -27.6  1.9     127.0   225     4687   01 36 01
```

```
Schedule for TORUN     (Code Tr )                                Page  16
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

01 40 00  M81          11 50 51  69.3 -29.0  1.9     125.7   -16     4687   No stop
01 41 00  ---          11 51 51  69.3 -29.2  1.9     125.3    44     4695   01 40 01

01 41 00  SN2014J      11 51 51  68.9 -27.8  1.9     126.7   -16     4695   No stop
01 45 00  ---          11 55 52  68.6 -28.3  2.0     125.2   224     4726   01 41 01

01 45 00  M81          11 55 52  69.0 -29.7  2.0     123.8   -16     4726   No stop
01 46 00  ---          11 56 52  68.9 -29.9  2.0     123.5    44     4733   01 45 01

01 46 00  SN2014J      11 56 52  68.6 -28.5  2.0     124.8   -16     4733   No stop
01 50 00  ---          12 00 53  68.3 -29.0  2.1     123.4   224     4764   01 46 01

01 50 00  M81          12 00 53  68.6 -30.4  2.1     122.0   -16     4764   No stop
01 51 00  ---          12 01 53  68.5 -30.5  2.1     121.7    44     4772   01 50 01

01 51 00  SN2014J      12 01 53  68.2 -29.1  2.1     123.0   -16     4772   No stop
01 55 00  ---          12 05 54  67.9 -29.6  2.1     121.6   224     4803   01 51 01

01 55 30  M81          12 06 24  68.2 -31.1  2.2     120.1    14     4803   01 55 30
01 56 00  ---          12 06 54  68.1 -31.2  2.2     119.9    30     4806   01 55 31

01 56 00  SN2014J      12 06 54  67.8 -29.7  2.2     121.3   -16     4806   No stop
02 00 00  ---          12 10 54  67.5 -30.2  2.2     119.9   224     4837   01 56 01

02 00 00  M81          12 10 54  67.8 -31.6  2.2     118.6   -16     4837   No stop
02 01 00  ---          12 11 55  67.7 -31.7  2.3     118.2    44     4845   02 00 01

02 01 00  SN2014J      12 11 55  67.4 -30.3  2.2     119.6   -16     4845   No stop
02 05 00  ---          12 15 55  67.1 -30.8  2.3     118.2   224     4876   02 01 01

02 05 00  M81          12 15 55  67.4 -32.2  2.3     116.9   -16     4876   No stop
02 06 00  ---          12 16 55  67.3 -32.3  2.3     116.6    44     4883   02 05 01

02 06 00  SN2014J      12 16 55  67.1 -30.9  2.3     117.9   -16     4883   No stop
02 10 00  ---          12 20 56  66.8 -31.3  2.4     116.6   224     4914   02 06 01

02 10 00  M81          12 20 56  67.0 -32.7  2.4     115.2   -16     4914   No stop
02 11 00  ---          12 21 56  66.9 -32.8  2.4     114.9    44     4922   02 10 01

02 11 00  SN2014J      12 21 56  66.7 -31.4  2.4     116.3   -16     4922   No stop
02 15 00  ---          12 25 57  66.4 -31.7  2.5     115.0   224     4952   02 11 01

02 15 30  M81          12 26 27  66.6 -33.2  2.5     113.5    14     4952   02 15 30
02 16 00  ---          12 26 57  66.5 -33.2  2.5     113.3    30     4956   02 15 31
```

Schedule for TORUN (Code Tr) Page 17

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 4 Feb 2014 Day 35 ---										
02 16 00	SN2014J	12 26 57	66.3	-31.8	2.5		114.7	-16	4956	No stop
02 20 00	---	12 30 58	66.0	-32.2	2.6		113.4	224	4987	02 16 01
02 20 00	M81	12 30 58	66.2	-33.6	2.6		112.1	-16	4987	No stop
02 21 00	---	12 31 58	66.1	-33.7	2.6		111.8	44	4995	02 20 01
02 21 00	SN2014J	12 31 58	65.9	-32.3	2.6		113.1	-16	4995	No stop
02 25 00	---	12 35 59	65.6	-32.6	2.7		111.8	224	5025	02 21 01
02 25 00	M81	12 35 59	65.8	-34.0	2.7		110.5	-16	5025	No stop
02 26 00	---	12 36 59	65.7	-34.1	2.7		110.2	44	5033	02 25 01
02 26 00	SN2014J	12 36 59	65.5	-32.7	2.7		111.5	-15	5033	No stop
02 30 00	---	12 40 59	65.1	-33.0	2.7		110.3	225	5064	02 26 01
02 30 00	M81	12 40 59	65.3	-34.4	2.7		109.0	-16	5064	No stop
02 31 00	---	12 41 59	65.3	-34.4	2.8		108.7	44	5071	02 30 01
02 31 00	SN2014J	12 41 59	65.1	-33.0	2.8		110.0	-15	5071	No stop
02 35 00	---	12 46 00	64.7	-33.3	2.8		108.8	225	5102	02 31 01
02 35 30	M81	12 46 30	64.9	-34.7	2.8		107.4	14	5102	02 35 30
02 36 00	---	12 47 00	64.8	-34.8	2.8		107.3	30	5106	02 35 31
02 36 00	SN2014J	12 47 00	64.7	-33.4	2.8		108.5	-15	5106	No stop
02 40 00	---	12 51 01	64.3	-33.6	2.9		107.4	225	5137	02 36 01
02 40 00	M81	12 51 01	64.5	-35.0	2.9		106.1	-15	5137	No stop
02 41 00	---	12 52 01	64.4	-35.1	2.9		105.8	45	5144	02 40 01
02 41 00	SN2014J	12 52 01	64.2	-33.7	2.9		107.1	-15	5144	No stop
02 45 00	---	12 56 02	63.9	-33.9	3.0		105.9	225	5175	02 41 01
02 45 00	M81	12 56 02	64.1	-35.3	3.0		104.7	-15	5175	No stop
02 46 00	---	12 57 02	64.0	-35.3	3.0		104.4	45	5183	02 45 01
02 46 00	SN2014J	12 57 02	63.8	-34.0	3.0		105.7	-15	5183	No stop
02 50 00	---	13 01 03	63.5	-34.2	3.1		104.5	225	5213	02 46 01
02 50 00	M81	13 01 03	63.6	-35.5	3.1		103.3	-15	5213	No stop
02 51 00	---	13 02 03	63.5	-35.6	3.1		103.0	45	5221	02 50 01
02 51 00	SN2014J	13 02 03	63.4	-34.2	3.1		104.3	-15	5221	No stop
02 55 00	---	13 06 03	63.1	-34.4	3.2		103.2	225	5252	02 51 01

Schedule for TORUN (Code Tr) Page 18

e-EVN: SN2014J in M82

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 4 Feb 2014 Day 35 ---										
02 55 30	M81	13 06 34	63.1	-35.8	3.2		101.8	15	5252	02 55 30
02 56 00	---	13 07 04	63.1	-35.8	3.2		101.7	30	5256	02 55 31
02 56 00	SN2014J	13 07 04	63.0	-34.5	3.2		102.9	-15	5256	No stop
03 00 00	---	13 11 04	62.6	-34.6	3.2		101.8	225	5286	02 56 01
03 00 00	M81	13 11 04	62.7	-35.9	3.2		100.6	-15	5286	No stop
03 01 00	---	13 12 04	62.6	-36.0	3.3		100.3	45	5294	03 00 01
03 01 00	SN2014J	13 12 04	62.5	-34.7	3.3		101.5	-15	5294	No stop
03 05 00	---	13 16 05	62.2	-34.8	3.3		100.5	225	5325	03 01 01
03 05 00	M81	13 16 05	62.3	-36.1	3.3		99.3	-15	5325	No stop
03 06 00	---	13 17 05	62.2	-36.1	3.3		99.0	45	5332	03 05 01
03 07 00	J0958+6533	13 18 05	62.8	-43.6	3.3		92.9	30	5332	03 07 00
03 10 00	=0954+658	13 21 06	62.5	-43.7	3.4		92.1	180	5356	03 07 01
03 11 00	M81	13 22 06	61.8	-36.3	3.4		97.7	30	5356	03 11 00
03 11 30	---	13 22 36	61.7	-36.3	3.4		97.6	30	5359	03 11 01
03 11 30	SN2014J	13 22 36	61.6	-35.0	3.4		98.8	-15	5359	No stop
03 15 30	---	13 26 37	61.3	-35.1	3.5		97.7	225	5390	03 11 31
03 15 30	M81	13 26 37	61.4	-36.4	3.5		96.6	-15	5390	No stop
03 16 30	---	13 27 37	61.3	-36.4	3.5		96.3	45	5398	03 15 31
03 16 30	SN2014J	13 27 37	61.2	-35.1	3.5		97.5	-15	5398	No stop
03 20 30	---	13 31 38	60.9	-35.2	3.6		96.4	225	5428	03 16 31
03 21 00	M81	13 32 08	60.9	-36.5	3.6		95.2	15	5428	03 21 00
03 21 30	---	13 32 38	60.8	-36.5	3.6		95.1	30	5432	03 21 01
03 21 30	SN2014J	13 32 38	60.8	-35.2	3.6		96.2	-15	5432	No stop
03 25 30	---	13 36 38	60.4	-35.3	3.7		95.2	225	5463	03 21 31
03 25 30	M81	13 36 38	60.5	-36.5	3.7		94.1	-15	5463	No stop
03 26 30	---	13 37 39	60.4	-36.6	3.7		93.8	45	5471	03 25 31
03 26 30	SN2014J	13 37 39	60.3	-35.3	3.7		94.9	-15	5471	No stop
03 30 30	---	13 41 39	60.0	-35.4	3.7		94.0	225	5501	03 26 31
03 30 30	M81	13 41 39	60.0	-36.6	3.7		92.9	-15	5501	No stop
03 31 30	---	13 42 39	59.9	-36.6	3.8		92.6	45	5509	03 30 31

```
Schedule for TORUN     (Code Tr )                                Page  19
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

03 31 30  SN2014J      13 42 39  59.9 -35.4  3.8      93.7   -15     5509   No stop
03 35 30  ---          13 46 40  59.6 -35.4  3.8      92.7   225     5540   03 31 31

03 35 30  M81          13 46 40  59.6 -36.6  3.8      91.7   -15     5540   No stop
03 36 30  ---          13 47 40  59.5 -36.6  3.8      91.4    45     5548   03 35 31

03 36 30  SN2014J      13 47 40  59.5 -35.4  3.8      92.5   -15     5548   No stop
03 40 30  ---          13 51 41  59.1 -35.5  3.9      91.5   225     5578   03 36 31

03 41 00  M81          13 52 11  59.1 -36.7  3.9      90.4    15     5578   03 41 00
03 41 30  ---          13 52 41  59.0 -36.7  3.9      90.2    30     5582   03 41 01

03 41 30  SN2014J      13 52 41  59.0 -35.5  3.9      91.3   -15     5582   No stop
03 45 30  ---          13 56 42  58.7 -35.5  4.0      90.4   225     5613   03 41 31

03 45 30  M81          13 56 42  58.7 -36.6  4.0      89.3   -15     5613   No stop
03 46 30  ---          13 57 42  58.6 -36.6  4.0      89.1    45     5620   03 45 31

03 46 30  SN2014J      13 57 42  58.6 -35.5  4.0      90.1   -15     5620   No stop
03 50 30  ---          14 01 43  58.2 -35.5  4.1      89.2   225     5651   03 46 31

03 50 30  M81          14 01 43  58.2 -36.6  4.1      88.2   -15     5651   No stop
03 51 30  ---          14 02 43  58.1 -36.6  4.1      87.9    45     5659   03 50 31

03 51 30  SN2014J      14 02 43  58.2 -35.5  4.1      88.9   -15     5659   No stop
03 55 30  ---          14 06 43  57.8 -35.5  4.2      88.0   225     5690   03 51 31

03 55 30  M81          14 06 43  57.8 -36.6  4.2      87.0   -15     5690   No stop
03 56 30  ---          14 07 44  57.7 -36.6  4.2      86.8    45     5697   03 55 31

03 56 30  SN2014J      14 07 44  57.7 -35.4  4.2      87.8   -15     5697   No stop
04 00 30  ---          14 11 44  57.4 -35.4  4.2      86.9   225     5728   03 56 31

04 01 00  M81          14 12 14  57.3 -36.5  4.3      85.8    16     5728   04 01 00
04 01 30  ---          14 12 44  57.2 -36.5  4.3      85.7    30     5732   04 01 01

04 01 30  SN2014J      14 12 44  57.3 -35.4  4.3      86.7   -14     5732   No stop
04 05 30  ---          14 16 45  56.9 -35.4  4.3      85.7   226     5763   04 01 31

04 05 30  M81          14 16 45  56.9 -36.5  4.3      84.8   -14     5763   No stop
04 06 30  ---          14 17 45  56.8 -36.5  4.3      84.6    46     5770   04 05 31

04 06 30  SN2014J      14 17 45  56.9 -35.4  4.3      85.5   -14     5770   No stop
04 10 30  ---          14 21 46  56.5 -35.3  4.4      84.6   226     5801   04 06 31

04 10 30  M81          14 21 46  56.4 -36.4  4.4      83.7   -14     5801   No stop
04 11 30  ---          14 22 46  56.3 -36.4  4.4      83.5    46     5809   04 10 31
```

```
Schedule for TORUN     (Code Tr )                                Page  20
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

04 11 30  SN2014J      14 22 46  56.4 -35.3  4.4      84.4   -14     5809   No stop
04 15 30  ---          14 26 47  56.1 -35.2  4.5      83.5   226     5839   04 11 31

04 15 30  M81          14 26 47  56.0 -36.3  4.5      82.6   -14     5839   No stop
04 16 30  ---          14 27 47  55.9 -36.3  4.5      82.4    46     5847   04 15 31

04 16 30  SN2014J      14 27 47  56.0 -35.2  4.5      83.3   -14     5847   No stop
04 20 30  ---          14 31 47  55.6 -35.1  4.6      82.4   226     5878   04 16 31

04 21 00  M81          14 32 18  55.5 -36.2  4.6      81.4    16     5878   04 21 00
04 21 30  ---          14 32 48  55.4 -36.2  4.6      81.3    30     5882   04 21 01

04 21 30  SN2014J      14 32 48  55.5 -35.1  4.6      82.2   -14     5882   No stop
04 25 30  ---          14 36 48  55.2 -35.0  4.7      81.3   226     5912   04 21 31

04 25 30  M81          14 36 48  55.1 -36.1  4.7      80.4   -14     5912   No stop
04 26 30  ---          14 37 48  55.0 -36.0  4.7      80.2    46     5920   04 25 31

04 26 30  SN2014J      14 37 48  55.1 -35.0  4.7      81.1   -14     5920   No stop
04 30 30  ---          14 41 49  54.8 -34.9  4.7      80.3   226     5951   04 26 31

04 30 30  M81          14 41 49  54.6 -35.9  4.8      79.4   -14     5951   No stop
04 31 30  ---          14 42 49  54.6 -35.9  4.8      79.2    46     5958   04 30 31

04 31 30  SN2014J      14 42 49  54.7 -34.9  4.8      80.1   -14     5958   No stop
04 35 30  ---          14 46 50  54.3 -34.8  4.8      79.2   226     5989   04 31 31

04 35 30  M81          14 46 50  54.2 -35.8  4.8      78.3   -14     5989   No stop
04 36 30  ---          14 47 50  54.1 -35.7  4.9      78.1    46     5997   04 35 31

04 36 30  SN2014J      14 47 50  54.3 -34.7  4.8      79.0   -14     5997   No stop
04 40 30  ---          14 51 51  53.9 -34.6  4.9      78.1   226     6028   04 36 31

04 41 00  M81          14 52 21  53.7 -35.6  4.9      77.2    16     6028   04 41 00
04 41 30  ---          14 52 51  53.7 -35.6  4.9      77.1    30     6031   04 41 01

04 41 30  SN2014J      14 52 51  53.8 -34.6  4.9      77.9   -14     6031   No stop
04 45 30  ---          14 56 52  53.5 -34.5  5.0      77.1   226     6062   04 41 31

04 45 30  M81          14 56 52  53.3 -35.4  5.0      76.3   -14     6062   No stop
04 46 30  ---          14 57 52  53.2 -35.4  5.0      76.1    46     6070   04 45 31

04 46 30  SN2014J      14 57 52  53.4 -34.4  5.0      76.9   -14     6070   No stop
04 50 30  ---          15 01 52  53.1 -34.3  5.1      76.1   226     6100   04 46 31

04 50 30  M81          15 01 52  52.9 -35.3  5.1      75.2   -14     6100   No stop
04 51 30  ---          15 02 53  52.8 -35.2  5.1      75.0    46     6108   04 50 31
```

```
Schedule for TORUN     (Code Tr )                                Page  21
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

04 51 30  SN2014J      15 02 53  53.0 -34.3  5.1      75.8   -14     6108   No stop
04 55 30  ---          15 06 53  52.6 -34.1  5.2      75.0   226     6139   04 51 31

04 55 30  M81          15 06 53  52.5 -35.1  5.2      74.2   -14     6139   No stop
04 56 30  ---          15 07 53  52.4 -35.0  5.2      74.0    46     6147   04 55 31

04 56 30  SN2014J      15 07 53  52.6 -34.1  5.2      74.8   -14     6147   No stop
05 00 30  ---          15 11 54  52.2 -33.9  5.2      74.0   226     6177   04 56 31

05 01 00  M81          15 12 24  52.0 -34.8  5.3      73.1    16     6177   05 01 00
05 01 30  ---          15 12 54  51.9 -34.8  5.3      73.0    30     6181   05 01 01

05 01 30  SN2014J      15 12 54  52.1 -33.9  5.3      73.8   -14     6181   No stop
05 05 30  ---          15 16 55  51.8 -33.7  5.3      73.0   226     6212   05 01 31

05 05 30  M81          15 16 55  51.6 -34.6  5.3      72.2   -14     6212   No stop
05 06 30  ---          15 17 55  51.5 -34.6  5.4      72.0    46     6220   05 05 31

05 06 30  SN2014J      15 17 55  51.7 -33.7  5.3      72.8   -14     6220   No stop
05 10 30  ---          15 21 56  51.4 -33.5  5.4      72.0   226     6250   05 06 31

05 10 30  M81          15 21 56  51.2 -34.4  5.4      71.2   -14     6250   No stop
05 11 30  ---          15 22 56  51.1 -34.4  5.4      71.0    46     6258   05 10 31

05 12 30  J0958+6533   15 23 56  50.0 -39.6  5.4      67.4    34     6258   05 12 30
05 15 30  =0954+658    15 26 57  49.8 -39.5  5.5      66.9   180     6281   05 12 31

05 16 30  M81          15 27 57  50.7 -34.1  5.5      70.0    34     6281   05 16 30
05 17 00  ---          15 28 27  50.6 -34.1  5.5      69.9    30     6285   05 16 31

05 17 00  SN2014J      15 28 27  50.8 -33.2  5.5      70.7   -14     6285   No stop
05 21 00  ---          15 32 27  50.5 -33.0  5.6      69.9   226     6316   05 17 01

05 21 00  M81          15 32 27  50.3 -33.9  5.6      69.2   -13     6316   No stop
05 22 00  ---          15 33 28  50.2 -33.9  5.6      69.0    47     6323   05 21 01

05 22 00  SN2014J      15 33 28  50.4 -33.0  5.6      69.7   -13     6323   No stop
05 26 00  ---          15 37 28  50.1 -32.8  5.7      68.9   227     6354   05 22 01

05 26 30  M81          15 37 58  49.8 -33.6  5.7      68.1    17     6354   05 26 30
05 27 00  ---          15 38 28  49.8 -33.6  5.7      68.0    30     6358   05 26 31

05 27 00  SN2014J      15 38 28  50.0 -32.7  5.7      68.7   -13     6358   No stop
05 31 00  ---          15 42 29  49.7 -32.5  5.8      67.9   227     6388   05 27 01

05 31 00  M81          15 42 29  49.5 -33.4  5.8      67.2   -13     6388   No stop
05 32 00  ---          15 43 29  49.4 -33.3  5.8      67.0    47     6396   05 31 01
```

```
Schedule for TORUN     (Code Tr )                                Page  22
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

05 32 00  SN2014J      15 43 29  49.6 -32.5  5.8      67.7   -13     6396   No stop
05 36 00  ---          15 47 30  49.3 -32.3  5.8      66.9   227     6427   05 32 01

05 36 00  M81          15 47 30  49.0 -33.1  5.8      66.2   -13     6427   No stop
05 37 00  ---          15 48 30  49.0 -33.1  5.9      66.1    47     6435   05 36 01

05 37 00  SN2014J      15 48 30  49.2 -32.2  5.9      66.7   -13     6435   No stop
05 41 00  ---          15 52 31  48.9 -32.0  5.9      66.0   227     6465   05 37 01

05 41 00  M81          15 52 31  48.6 -32.8  5.9      65.3   -13     6465   No stop
05 42 00  ---          15 53 31  48.6 -32.8  5.9      65.1    47     6473   05 41 01

05 42 00  SN2014J      15 53 31  48.8 -32.0  5.9      65.8   -13     6473   No stop
05 46 00  ---          15 57 32  48.5 -31.7  6.0      65.0   227     6504   05 42 01

05 46 30  M81          15 58 02  48.2 -32.5  6.0      64.2    17     6504   05 46 30
05 47 00  ---          15 58 32  48.1 -32.5  6.0      64.1    30     6508   05 46 31

05 47 00  SN2014J      15 58 32  48.4 -31.7  6.0      64.8   -13     6508   No stop
05 51 00  ---          16 02 32  48.1 -31.5  6.1      64.0   227     6538   05 47 01

05 51 00  M81          16 02 32  47.8 -32.3  6.1      63.4   -13     6538   No stop
05 52 00  ---          16 03 33  47.7 -32.2  6.1      63.2    47     6546   05 51 01

05 52 00  SN2014J      16 03 33  48.0 -31.4  6.1      63.8   -13     6546   No stop
05 56 00  ---          16 07 33  47.7 -31.2  6.2      63.1   227     6577   05 52 01

05 56 00  M81          16 07 33  47.4 -32.0  6.2      62.4   -13     6577   No stop
05 57 00  ---          16 08 33  47.3 -31.9  6.2      62.3    47     6584   05 56 01

05 57 00  SN2014J      16 08 33  47.6 -31.1  6.2      62.9   -13     6584   No stop
06 01 00  ---          16 12 34  47.3 -30.9  6.3      62.1   227     6615   05 57 01

06 01 00  M81          16 12 34  47.0 -31.6  6.3      61.5   -13     6615   No stop
06 02 00  ---          16 13 34  46.9 -31.6  6.3      61.3    47     6623   06 01 01

06 02 00  SN2014J      16 13 34  47.2 -30.8  6.3      61.9   -13     6623   No stop
06 06 00  ---          16 17 35  46.9 -30.6  6.3      61.2   227     6653   06 02 01

06 06 30  M81          16 18 05  46.6 -31.3  6.4      60.5    17     6653   06 06 30
06 07 00  ---          16 18 35  46.6 -31.3  6.4      60.4    30     6657   06 06 31

06 07 00  SN2014J      16 18 35  46.9 -30.5  6.4      61.0   -13     6657   No stop
06 11 00  ---          16 22 36  46.6 -30.2  6.4      60.2   227     6688   06 07 01

06 11 00  M81          16 22 36  46.2 -31.0  6.4      59.6   -13     6688   No stop
06 12 00  ---          16 23 36  46.2 -30.9  6.4      59.4    47     6696   06 11 01
```

```
Schedule for TORUN     (Code Tr )                                Page  23
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

06 12 00  SN2014J      16 23 36  46.5 -30.2  6.4      60.0   -13     6696   No stop
06 16 00  ---          16 27 36  46.2 -29.9  6.5      59.3   227     6726   06 12 01

06 16 00  M81          16 27 36  45.9 -30.7  6.5      58.7   -13     6726   No stop
06 17 00  ---          16 28 37  45.8 -30.6  6.5      58.5    47     6734   06 16 01

06 17 00  SN2014J      16 28 37  46.1 -29.9  6.5      59.1   -13     6734   No stop
06 21 00  ---          16 32 37  45.8 -29.6  6.6      58.3   227     6765   06 17 01

06 21 00  M81          16 32 37  45.5 -30.3  6.6      57.8   -13     6765   No stop
06 22 00  ---          16 33 37  45.4 -30.3  6.6      57.6    47     6772   06 21 01

06 22 00  SN2014J      16 33 37  45.7 -29.5  6.6      58.1   -13     6772   No stop
06 26 00  ---          16 37 38  45.4 -29.3  6.7      57.4   227     6803   06 22 01

06 26 30  M81          16 38 08  45.1 -29.9  6.7      56.7    17     6803   06 26 30
06 27 00  ---          16 38 38  45.0 -29.9  6.7      56.7    30     6807   06 26 31

06 27 00  SN2014J      16 38 38  45.4 -29.2  6.7      57.2   -13     6807   No stop
06 31 00  ---          16 42 39  45.1 -28.9  6.8      56.5   227     6838   06 27 01

06 31 00  M81          16 42 39  44.7 -29.6  6.8      55.9   -12     6838   No stop
06 32 00  ---          16 43 39  44.6 -29.6  6.8      55.7    48     6845   06 31 01

06 32 00  SN2014J      16 43 39  45.0 -28.9  6.8      56.3   -13     6845   No stop
06 36 00  ---          16 47 40  44.7 -28.6  6.8      55.5   227     6876   06 32 01

06 36 00  M81          16 47 40  44.4 -29.3  6.8      55.0   -12     6876   No stop
06 37 00  ---          16 48 40  44.3 -29.2  6.9      54.8    48     6884   06 36 01

06 37 00  SN2014J      16 48 40  44.6 -28.5  6.9      55.3   -12     6884   No stop
06 41 00  ---          16 52 41  44.4 -28.2  6.9      54.6   228     6915   06 37 01

06 41 00  M81          16 52 41  44.0 -28.9  6.9      54.1   -12     6915   No stop
06 42 00  ---          16 53 41  43.9 -28.8  6.9      53.9    48     6922   06 41 01

06 42 00  SN2014J      16 53 41  44.3 -28.2  6.9      54.4   -12     6922   No stop
06 46 00  ---          16 57 41  44.0 -27.9  7.0      53.7   228     6953   06 42 01

06 46 30  M81          16 58 11  43.6 -28.5  7.0      53.1    18     6953   06 46 30
06 47 00  ---          16 58 42  43.6 -28.5  7.0      53.0    30     6957   06 46 31

06 47 00  SN2014J      16 58 42  43.9 -27.8  7.0      53.5   -12     6957   No stop
06 51 00  ---          17 02 42  43.6 -27.5  7.1      52.7   228     6988   06 47 01

06 51 00  M81          17 02 42  43.3 -28.2  7.1      52.3   -12     6988   No stop
06 52 00  ---          17 03 42  43.2 -28.1  7.1      52.1    48     6995   06 51 01
```

```
Schedule for TORUN     (Code Tr )                                Page  24
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

06 52 00  SN2014J      17 03 42  43.6 -27.4  7.1      52.6   -12     6995   No stop
06 56 00  ---          17 07 43  43.3 -27.1  7.2      51.8   228     7026   06 52 01

06 56 00  M81          17 07 43  42.9 -27.8  7.2      51.3   -12     7026   No stop
06 57 00  ---          17 08 43  42.8 -27.7  7.2      51.2    48     7034   06 56 01

06 57 00  SN2014J      17 08 43  43.2 -27.1  7.2      51.6   -12     7034   No stop
07 01 00  ---          17 12 44  43.0 -26.8  7.3      50.9   228     7064   06 57 01

07 01 00  M81          17 12 44  42.6 -27.4  7.3      50.4   -12     7064   No stop
07 02 00  ---          17 13 44  42.5 -27.3  7.3      50.3    48     7072   07 01 01

07 02 00  SN2014J      17 13 44  42.9 -26.7  7.3      50.7   -12     7072   No stop
07 06 00  ---          17 17 45  42.6 -26.4  7.3      50.0   228     7103   07 02 01

07 06 30  M81          17 18 15  42.2 -27.0  7.4      49.4    18     7103   07 06 30
07 07 00  ---          17 18 45  42.2 -26.9  7.4      49.3    30     7107   07 06 31

07 07 00  SN2014J      17 18 45  42.6 -26.3  7.4      49.8   -12     7107   No stop
07 11 00  ---          17 22 45  42.3 -26.0  7.4      49.1   228     7137   07 07 01

07 11 00  M81          17 22 45  41.9 -26.6  7.4      48.6   -12     7137   No stop
07 12 00  ---          17 23 46  41.8 -26.5  7.5      48.4    48     7145   07 11 01

07 12 00  SN2014J      17 23 46  42.2 -25.9  7.4      48.9   -12     7145   No stop
07 16 00  ---          17 27 46  42.0 -25.6  7.5      48.2   228     7176   07 12 01

07 16 00  M81          17 27 46  41.5 -26.2  7.5      47.7   -13     7176   No stop
07 17 00  ---          17 28 46  41.5 -26.1  7.5      47.5    47     7183   07 16 01

07 18 00  J0958+6533   17 29 47  39.2 -29.7  7.5      45.8    38     7183   07 18 00
07 21 00  =0954+658    17 32 47  39.0 -29.4  7.5      45.2   180     7206   07 18 01

07 22 00  M81          17 33 47  41.2 -25.7  7.6      46.6    38     7206   07 22 00
07 22 30  ---          17 34 17  41.1 -25.7  7.6      46.6    30     7210   07 22 01

07 22 30  SN2014J      17 34 17  41.5 -25.1  7.6      47.0   -12     7210   No stop
07 26 30  ---          17 38 18  41.3 -24.8  7.7      46.2   228     7241   07 22 31

07 26 30  M81          17 38 18  40.9 -25.4  7.7      45.8   -13     7241   No stop
07 27 30  ---          17 39 18  40.8 -25.3  7.7      45.7    47     7249   07 26 31

07 27 30  SN2014J      17 39 18  41.2 -24.7  7.7      46.1   -13     7249   No stop
07 31 30  ---          17 43 19  41.0 -24.4  7.8      45.3   227     7279   07 27 31

07 32 00  M81          17 43 49  40.5 -24.9  7.8      44.8    17     7279   07 32 00
07 32 30  ---          17 44 19  40.5 -24.9  7.8      44.8    30     7283   07 32 01
```

```
Schedule for TORUN     (Code Tr )                                Page  25
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

07 32 30  SN2014J      17 44 19  40.9 -24.3  7.8      45.2   -13     7283   No stop
07 36 30  ---          17 48 20  40.7 -24.0  7.9      44.4   227     7314   07 32 31

07 36 30  M81          17 48 20  40.2 -24.5  7.9      44.0   -13     7314   No stop
07 37 30  ---          17 49 20  40.2 -24.4  7.9      43.9    47     7322   07 36 31

07 37 30  SN2014J      17 49 20  40.6 -23.9  7.9      44.2   -13     7322   No stop
07 41 30  ---          17 53 20  40.4 -23.6  7.9      43.5   227     7352   07 37 31

07 41 30  M81          17 53 20  39.9 -24.1  7.9      43.1   -13     7352   No stop
07 42 30  ---          17 54 21  39.9 -24.0  8.0      43.0    47     7360   07 41 31

07 42 30  SN2014J      17 54 21  40.3 -23.5  8.0      43.3   -13     7360   No stop
07 46 30  ---          17 58 21  40.1 -23.1  8.0      42.6   227     7391   07 42 31

07 46 30  M81          17 58 21  39.6 -23.7  8.0      42.2   -13     7391   No stop
07 47 30  ---          17 59 21  39.6 -23.6  8.0      42.1    47     7398   07 46 31

07 47 30  SN2014J      17 59 21  40.0 -23.1  8.0      42.4   -13     7398   No stop
07 51 30  ---          18 03 22  39.8 -22.7  8.1      41.7   227     7429   07 47 31

07 52 00  M81          18 03 52  39.3 -23.2  8.1      41.3    17     7429   07 52 00
07 52 30  ---          18 04 22  39.3 -23.1  8.1      41.2    30     7433   07 52 01

07 52 30  SN2014J      18 04 22  39.7 -22.6  8.1      41.5   -13     7433   No stop
07 56 30  ---          18 08 23  39.5 -22.3  8.2      40.8   227     7464   07 52 31

07 56 30  M81          18 08 23  39.0 -22.8  8.2      40.5   -13     7464   No stop
07 57 30  ---          18 09 23  39.0 -22.7  8.2      40.3    47     7471   07 56 31

07 57 30  SN2014J      18 09 23  39.4 -22.2  8.2      40.6   -13     7471   No stop
08 01 30  ---          18 13 24  39.2 -21.9  8.3      39.9   227     7502   07 57 31

08 01 30  M81          18 13 24  38.7 -22.3  8.3      39.6   -13     7502   No stop
08 02 30  ---          18 14 24  38.7 -22.3  8.3      39.4    47     7510   08 01 31

08 02 30  SN2014J      18 14 24  39.1 -21.8  8.3      39.7   -13     7510   No stop
08 06 30  ---          18 18 25  38.9 -21.4  8.4      39.0   227     7541   08 02 31

08 06 30  M81          18 18 25  38.4 -21.9  8.4      38.7   -13     7541   No stop
08 07 30  ---          18 19 25  38.4 -21.8  8.4      38.5    47     7548   08 06 31

08 07 30  SN2014J      18 19 25  38.9 -21.3  8.4      38.8   -13     7548   No stop
08 11 30  ---          18 23 25  38.7 -21.0  8.4      38.1   227     7579   08 07 31

08 12 00  M81          18 23 56  38.1 -21.4  8.5      37.7    17     7579   08 12 00
08 12 30  ---          18 24 26  38.1 -21.4  8.5      37.6    30     7583   08 12 01
```

```
Schedule for TORUN     (Code Tr )                                Page  26
               e-EVN: SN2014J in M82
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

08 12 30  SN2014J      18 24 26  38.6 -20.9  8.5      37.9   -13     7583   No stop
08 16 30  ---          18 28 26  38.4 -20.5  8.5      37.2   227     7613   08 12 31

08 16 30  M81          18 28 26  37.9 -21.0  8.5      36.9   -13     7613   No stop
08 17 30  ---          18 29 26  37.8 -20.9  8.5      36.7    47     7621   08 16 31

08 17 30  SN2014J      18 29 26  38.3 -20.5  8.5      37.0   -13     7621   No stop
08 21 30  ---          18 33 27  38.1 -20.1  8.6      36.3   227     7652   08 17 31

08 21 30  M81          18 33 27  37.6 -20.5  8.6      36.0   -13     7652   No stop
08 22 30  ---          18 34 27  37.6 -20.4  8.6      35.8    47     7660   08 21 31

08 22 30  SN2014J      18 34 27  38.1 -20.0  8.6      36.1   -13     7660   No stop
08 26 30  ---          18 38 28  37.9 -19.7  8.7      35.4   227     7690   08 22 31

08 26 30  M81          18 38 28  37.4 -20.1  8.7      35.1   -13     7690   No stop
08 27 30  ---          18 39 28  37.3 -20.0  8.7      34.9    47     7698   08 26 31

08 27 30  SN2014J      18 39 28  37.8 -19.6  8.7      35.2   -13     7698   No stop
08 31 30  ---          18 43 29  37.6 -19.2  8.8      34.5   227     7729   08 27 31

08 32 00  M81          18 43 59  37.1 -19.6  8.8      34.1    17     7729   08 32 00
08 32 30  ---          18 44 29  37.1 -19.5  8.8      34.0    30     7733   08 32 01

08 32 30  SN2014J      18 44 29  37.6 -19.1  8.8      34.3   -13     7733   No stop
08 36 30  ---          18 48 30  37.4 -18.7  8.9      33.6   227     7763   08 32 31

08 36 30  M81          18 48 30  36.9 -19.1  8.9      33.3   -13     7763   No stop
08 37 30  ---          18 49 30  36.8 -19.1  8.9      33.2    47     7771   08 36 31

08 37 30  SN2014J      18 49 30  37.3 -18.7  8.9      33.4   -13     7771   No stop
08 41 30  ---          18 53 30  37.1 -18.3  8.9      32.7   227     7802   08 37 31

08 41 30  M81          18 53 30  36.6 -18.7  8.9      32.4   -13     7802   No stop
08 42 30  ---          18 54 31  36.6 -18.6  9.0      32.3    47     7809   08 41 31

08 42 30  SN2014J      18 54 31  37.1 -18.2  9.0      32.5   -13     7809   No stop
08 46 30  ---          18 58 31  36.9 -17.8  9.0      31.8   227     7840   08 42 31

08 46 30  M81          18 58 31  36.4 -18.2  9.0      31.6   -13     7840   No stop
08 47 30  ---          18 59 31  36.3 -18.1  9.0      31.4    47     7848   08 46 31

08 48 30  J0958+6533   19 00 31  33.4 -20.5  9.0      30.5    35     7848   08 48 30
08 53 30  =0954+658    19 05 32  33.2 -20.0  9.1      29.6   300     7886   08 48 31

08 54 30  M81          19 06 32  36.0 -17.4  9.2      30.1    35     7886   08 54 30
08 59 30  ---          19 11 33  35.8 -17.0  9.2      29.2   300     7925   08 54 31
```

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


 ======== Setup file: sess114.L1024
   Matching groups in /aps3/sched11.0/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    2         Station: TORUN            Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2        Sample rate: 32.000
   Number of channels: 16    DBE type:                 Speedup factor:   0.50

   Disk used to record data.

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

  The following frequency sets based on these setups were used.

   Frequency Set:   5  Setup file default.  Used pcal sets:   1
   LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
             1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
   BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
              625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
   Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
               16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
    Matching frequency sets:   5

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = OFF
    PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
    PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
    PCALFR1=     0     0     0     0     0     0     0     0
    PCALFR2=     0     0     0     0     0     0     0     0

   Track assignments are:
    track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
    barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* SN2014J	09 51 33.408895	* 09 55 42.217000	09 56 55.146175	0.00
	69 54 39.93207	* 69 40 26.56000	69 36 08.98813	0.00
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 32.020480	0.13
* DA193	39 48 21.94578	* 39 48 49.16493	39 48 50.65418	0.10
J0955+6903	09 51 27.310820	* 09 55 33.173064	09 56 45.231133	0.29
* M81	69 18 08.14417	* 69 03 55.06083	68 59 37.56348	0.10
* J0958+6533	09 54 57.847935	* 09 58 47.245115	09 59 54.425986	0.24
0954+658	65 48 15.53883	* 65 33 54.81802	65 29 34.95652	0.10

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)
SN2014J	126.2
DA193	132.0
M81	126.8
J0958+6533	130.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

gs032ctr

The nuclear structure in nearby AGN

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```
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```


Observing mode: K-band, dual-pol, Radioastron-compatible frequency setup

```
Schedule for TORUN     (Code Tr )                                   Page   2
               The nuclear structure in nearby AGN
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

 ---------- Space segment 03: 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  1228+126     06 13 52   7.2  79.1 -6.3     -37.1     0         0   20 00 00
20 09 30  ---          06 23 23   8.6  80.9 -6.1     -37.4   570        18   20 00 01

20 10 00  1228+126     06 23 53   8.7  81.0 -6.1     -37.4    24        18   20 10 00
20 19 30  ---          06 33 25  10.1  82.9 -6.0     -37.6   570        36   20 10 01

20 20 00  1228+126     06 33 55  10.2  83.0 -6.0     -37.6    24        36   20 20 00
20 30 00  ---          06 43 57  11.7  85.0 -5.8     -37.8   600        56   20 20 01

 ---------- K-band GRT-only VLBI scans - segment 04Ka; Time for KVN sky-dip ----------

20 35 00  1226+023     06 48 58   4.4  92.6 -5.7     -36.9   257        56   20 35 00
20 45 00  ---          06 58 59   5.9  94.7 -5.5     -36.8   600        75   20 35 01

20 46 00  1228+126     06 59 59  14.1  88.1 -5.5     -37.9    16        75   20 46 00
20 50 00  ---          07 04 00  14.7  88.9 -5.5     -37.9   240        83   20 46 01

20 50 40  1228+126     07 04 40  14.8  89.1 -5.4     -37.9    34        83   20 50 40
20 58 00  ---          07 12 01  15.9  90.5 -5.3     -37.9   440        97   20 50 41

21 00 00  1236+077     07 14 02  11.0  92.3 -5.4     -37.2    87        97   21 00 00
21 02 00  ---          07 16 02  11.3  92.7 -5.4     -37.2   120       100   21 00 01

21 03 00  1226+023     07 17 02   8.6  98.3 -5.2     -36.5    34       100   21 03 00
21 13 00  ---          07 27 04  10.1 100.3 -5.0     -36.2   600       120   21 03 01

21 14 00  1228+126     07 28 04  18.3  93.8 -5.1     -37.8    16       120   21 14 00
21 18 00  ---          07 32 05  18.9  94.6 -5.0     -37.8   240       127   21 14 01

21 18 40  1228+126     07 32 45  19.0  94.7 -5.0     -37.8    34       127   21 18 40
21 23 00  ---          07 37 05  19.6  95.6 -4.9     -37.7   260       136   21 18 41
```

```
Schedule for TORUN     (Code Tr )                                Page   3
               The nuclear structure in nearby AGN
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

21 23 40  1228+126     07 37 46  19.7  95.8 -4.9     -37.7    34      136   21 23 40
21 28 00  ---          07 42 06  20.4  96.7 -4.8     -37.6   260      144   21 23 41

 ---------- K-band GRT-only VLBI scans - segment 04Kb ----------

21 30 00  1236+077     07 44 07  15.5  98.4 -4.9     -36.8    87      144   21 30 00
21 32 00  ---          07 46 07  15.8  98.8 -4.9     -36.8   120      148   21 30 01

21 33 00  1228+126     07 47 07  21.1  97.7 -4.7     -37.5    26      148   21 33 00
21 39 00  ---          07 53 08  22.0  98.9 -4.6     -37.4   360      159   21 33 01

21 39 40  1228+126     07 53 48  22.1  99.1 -4.6     -37.4    34      159   21 39 40
21 43 30  ---          07 57 39  22.7  99.9 -4.6     -37.3   230      167   21 39 41

21 44 30  1236+077     07 58 39  17.7 101.4 -4.7     -36.4    27      167   21 44 30
21 46 30  ---          08 00 39  18.0 101.8 -4.7     -36.3   120      171   21 44 31

21 47 30  1228+126     08 01 39  23.3 100.7 -4.5     -37.1    26      171   21 47 30
21 51 20  ---          08 05 30  23.8 101.6 -4.4     -37.0   230      178   21 47 31

21 52 00  1228+126     08 06 10  23.9 101.7 -4.4     -37.0    34      178   21 52 00
21 58 00  ---          08 12 11  24.8 103.0 -4.3     -36.8   360      189   21 52 01

22 00 00  1236+077     08 14 12  19.9 104.7 -4.4     -35.9    87      189   22 00 00
22 02 00  ---          08 16 12  20.2 105.1 -4.4     -35.8   120      193   22 00 01

22 03 00  1228+126     08 17 12  25.6 104.1 -4.2     -36.6    26      193   22 03 00
22 09 00  ---          08 23 13  26.4 105.4 -4.1     -36.3   360      205   22 03 01

22 09 40  1228+126     08 23 53  26.5 105.5 -4.1     -36.3    34      205   22 09 40
22 13 30  ---          08 27 44  27.1 106.4 -4.1     -36.1   230      212   22 09 41

22 14 30  1236+077     08 28 44  22.0 107.9 -4.2     -35.2    27      212   22 14 30
22 16 30  ---          08 30 44  22.3 108.3 -4.2     -35.1   120      216   22 14 31

22 17 30  1228+126     08 31 44  27.7 107.3 -4.0     -35.9    26      216   22 17 30
22 21 20  ---          08 35 35  28.2 108.1 -3.9     -35.7   230      223   22 17 31

22 22 00  1228+126     08 36 15  28.3 108.3 -3.9     -35.7    34      223   22 22 00
22 28 00  ---          08 42 16  29.2 109.7 -3.8     -35.4   360      235   22 22 01

 ---------- K-band GRT-only VLBI scans - segment 04Kc ----------

22 30 00  1236+077     08 44 16  24.2 111.3 -3.9     -34.3    87      235   22 30 00
22 32 00  ---          08 46 17  24.5 111.7 -3.9     -34.2   120      239   22 30 01
```

```
Schedule for TORUN     (Code Tr )                                  Page   4
               The nuclear structure in nearby AGN
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   4 Feb 2014   Day  35 ---

22 33 00  1228+126     08 47 17  29.9 110.8 -3.7     -35.1    26      239   22 33 00
22 39 00  ---          08 53 18  30.7 112.2 -3.6     -34.7   360      250   22 33 01

22 39 40  1228+126     08 53 58  30.8 112.4 -3.6     -34.6    34      250   22 39 40
22 43 30  ---          08 57 49  31.3 113.3 -3.6     -34.4   230      258   22 39 41

22 44 30  1236+077     08 58 49  26.2 114.6 -3.7     -33.4    27      258   22 44 30
22 46 30  ---          09 00 49  26.5 115.1 -3.7     -33.3   120      261   22 44 31

22 47 30  1228+126     09 01 49  31.9 114.2 -3.5     -34.1    26      261   22 47 30
22 51 20  ---          09 05 40  32.4 115.1 -3.4     -33.8   230      269   22 47 31

22 52 00  1228+126     09 06 20  32.5 115.3 -3.4     -33.8    34      269   22 52 00
22 58 00  ---          09 12 21  33.3 116.8 -3.3     -33.3   360      280   22 52 01

23 00 00  1236+077     09 14 21  28.3 118.2 -3.4     -32.2    87      280   23 00 00
23 02 00  ---          09 16 22  28.6 118.7 -3.4     -32.1   120      284   23 00 01

23 03 00  1228+126     09 17 22  34.0 118.0 -3.2     -32.9    26      284   23 03 00
23 09 00  ---          09 23 23  34.8 119.5 -3.1     -32.3   360      296   23 03 01

23 09 40  1228+126     09 24 03  34.9 119.7 -3.1     -32.3    34      296   23 09 40
23 13 30  ---          09 27 54  35.4 120.6 -3.1     -31.9   230      303   23 09 41

23 14 30  1236+077     09 28 54  30.2 121.8 -3.2     -31.0    27      303   23 14 30
23 16 30  ---          09 30 54  30.5 122.3 -3.2     -30.8   120      307   23 14 31

23 17 30  1228+126     09 31 54  35.9 121.7 -3.0     -31.5    26      307   23 17 30
23 21 20  ---          09 35 45  36.4 122.6 -2.9     -31.2   230      314   23 17 31

23 22 00  1228+126     09 36 25  36.4 122.8 -2.9     -31.1    34      314   23 22 00
23 28 00  ---          09 42 26  37.2 124.4 -2.8     -30.5   360      326   23 22 01

 ---------- K-band GRT-only VLBI scans - segment 04Kd; Time for KVN sky-dip ----------

23 35 00  1226+023     09 49 27  29.1 132.5 -2.7     -26.3   373      326   23 35 00
23 45 00  ---          09 59 29  30.2 135.1 -2.5     -25.1   600      345   23 35 01

23 46 00  1228+126     10 00 29  39.4 129.3 -2.5     -28.4    12      345   23 46 00
23 50 00  ---          10 04 30  39.8 130.4 -2.5     -27.9   240      353   23 46 01

23 50 40  1228+126     10 05 10  39.9 130.6 -2.4     -27.8    34      353   23 50 40
23 58 00  ---          10 12 31  40.7 132.7 -2.3     -26.9   440      367   23 50 41

 --- Wed   5 Feb 2014   Day  36 ---

00 00 00  1236+077     10 14 31  35.6 133.6 -2.4     -26.0    86      367   00 00 00
00 02 00  ---          10 16 32  35.8 134.2 -2.4     -25.8   120      371   00 00 01
```

```
Schedule for TORUN     (Code Tr )                                Page   5
               The nuclear structure in nearby AGN
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   5 Feb 2014   Day  36 ---

00 03 00  1226+023     10 17 32  32.0 139.9 -2.2     -22.7    32      371   00 03 00
00 13 00  ---          10 27 33  33.0 142.7 -2.0     -21.4   600      390   00 03 01

00 14 00  1228+126     10 28 34  42.4 137.4 -2.0     -24.6    11      390   00 14 00
00 18 00  ---          10 32 34  42.8 138.6 -2.0     -24.0   240      397   00 14 01

00 18 40  1228+126     10 33 14  42.9 138.8 -2.0     -23.9    34      397   00 18 40
00 23 00  ---          10 37 35  43.3 140.2 -1.9     -23.2   260      406   00 18 41

00 23 40  1228+126     10 38 15  43.4 140.4 -1.9     -23.1    34      406   00 23 40
00 28 00  ---          10 42 36  43.8 141.7 -1.8     -22.4   260      414   00 23 41

 ---------- K-band GRT-only VLBI scans - segment 04Ke ----------

00 30 00  1228+126     10 44 36  44.0 142.3 -1.8     -22.1   113      414   00 30 00
00 34 00  ---          10 48 37  44.3 143.6 -1.7     -21.4   240      422   00 30 01

00 34 40  1228+126     10 49 17  44.4 143.8 -1.7     -21.3    34      422   00 34 40
00 38 00  ---          10 52 37  44.7 144.9 -1.6     -20.7   200      428   00 34 41

00 39 00  1236+077     10 53 38  39.5 144.8 -1.8     -20.4    26      428   00 39 00
00 41 00  ---          10 55 38  39.6 145.5 -1.7     -20.1   120      432   00 39 01

00 42 00  1228+126     10 56 38  45.0 146.2 -1.6     -20.0    26      432   00 42 00
00 45 20  ---          10 59 59  45.3 147.3 -1.5     -19.4   200      438   00 42 01

00 46 00  1228+126     11 00 39  45.4 147.5 -1.5     -19.3    34      438   00 46 00
00 50 00  ---          11 04 39  45.7 148.8 -1.4     -18.6   240      446   00 46 01

00 52 00  1228+126     11 06 40  45.8 149.5 -1.4     -18.2   113      446   00 52 00
00 56 00  ---          11 10 40  46.1 150.8 -1.3     -17.4   240      454   00 52 01

00 56 40  1228+126     11 11 21  46.2 151.1 -1.3     -17.3    34      454   00 56 40
01 00 00  ---          11 14 41  46.4 152.2 -1.3     -16.7   200      460   00 56 41

01 01 00  1236+077     11 15 41  41.2 151.7 -1.4     -16.7    26      460   01 01 00
01 03 00  ---          11 17 42  41.3 152.3 -1.4     -16.4   120      464   01 01 01

01 04 00  1228+126     11 18 42  46.7 153.6 -1.2     -15.9    26      464   01 04 00
01 07 20  ---          11 22 02  46.9 154.7 -1.2     -15.2   200      470   01 04 01

01 08 00  1228+126     11 22 42  47.0 154.9 -1.1     -15.1    34      470   01 08 00
01 13 00  ---          11 27 43  47.3 156.7 -1.1     -14.1   300      480   01 08 01

 ---------- Space segment 04: K-band VLBI scans ----------

01 15 00  1228+126     11 29 44  47.4 157.4 -1.0     -13.7   113      480   01 15 00
01 24 30  ---          11 39 15  47.9 160.7 -0.9     -11.7   570      498   01 15 01
```

Schedule for TORUN (Code Tr) Page 6

The nuclear structure in nearby AGN

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 5 Feb 2014 Day 36 ---										
01 25 00	1228+126	11 39 45	47.9	160.9	-0.9		-11.6	24	498	01 25 00
01 34 30	---	11 49 17	48.3	164.4	-0.7		-9.5	570	516	01 25 01
01 35 00	1228+126	11 49 47	48.4	164.5	-0.7		-9.4	24	516	01 35 00
01 45 00	---	11 59 48	48.7	168.2	-0.5		-7.2	600	536	01 35 01
---------- K-band GRT-only VLBI scans - segment 05Ka ----------										
01 47 00	1236+077	12 01 49	43.7	166.8	-0.6		-7.9	87	536	01 47 00
01 49 00	---	12 03 49	43.7	167.5	-0.6		-7.5	120	540	01 47 01
01 50 00	1228+126	12 04 49	48.9	170.0	-0.4		-6.1	27	540	01 50 00
01 58 00	---	12 12 51	49.0	173.0	-0.3		-4.3	480	555	01 50 01
01 58 40	1228+126	12 13 31	49.1	173.3	-0.3		-4.1	34	555	01 58 40
02 03 00	---	12 17 51	49.1	174.9	-0.2		-3.1	260	563	01 58 41
02 04 00	1236+077	12 18 52	44.1	172.6	-0.4		-4.4	27	563	02 04 00
02 06 00	---	12 20 52	44.2	173.3	-0.3		-4.0	120	567	02 04 01
02 07 00	1228+126	12 21 52	49.2	176.4	-0.2		-2.2	27	567	02 07 00
02 11 00	---	12 25 53	49.2	177.9	-0.1		-1.3	240	575	02 07 01
02 11 40	1228+126	12 26 33	49.2	178.1	-0.1		-1.2	34	575	02 11 40
02 20 00	---	12 34 54	49.2	181.3	0.1		0.8	500	591	02 11 41
02 22 00	1236+077	12 36 55	44.3	178.9	-0.1		-0.7	88	591	02 22 00
02 24 00	---	12 38 55	44.3	179.6	-0.0		-0.3	120	595	02 22 01
02 25 00	1228+126	12 39 55	49.2	183.1	0.1		1.9	28	595	02 25 00
02 34 00	---	12 48 57	49.1	186.5	0.3		4.0	540	612	02 25 01
02 34 40	1228+126	12 49 37	49.1	186.7	0.3		4.1	34	612	02 34 40
02 39 00	---	12 53 57	49.0	188.3	0.4		5.1	260	620	02 34 41
02 40 00	1236+077	12 54 58	44.2	185.1	0.2		3.1	28	620	02 40 00
02 42 00	---	12 56 58	44.2	185.8	0.3		3.5	120	624	02 40 01
02 43 00	1228+126	12 57 58	48.9	189.8	0.4		6.0	29	624	02 43 00
02 47 00	---	13 01 59	48.8	191.3	0.5		6.9	240	632	02 43 01
02 47 40	1228+126	13 02 39	48.7	191.6	0.5		7.1	34	632	02 47 40
02 58 00	---	13 13 00	48.4	195.3	0.7		9.4	620	652	02 47 41

```
Schedule for TORUN     (Code Tr )                                Page   7
               The nuclear structure in nearby AGN
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   5 Feb 2014   Day  36 ---

 ---------- Space segment 05: K-band VLBI scans ----------

03 00 00  1228+126     13 15 01  48.3 196.1  0.7       9.8   113      652   03 00 00
03 09 30  ---          13 24 32  47.9 199.5  0.9      11.8   570      670   03 00 01

03 10 00  1228+126     13 25 02  47.8 199.7  0.9      11.9    24      670   03 10 00
03 19 30  ---          13 34 34  47.3 203.0  1.1      13.9   570      688   03 10 01

03 20 00  1228+126     13 35 04  47.3 203.2  1.1      14.0    24      688   03 20 00
03 30 00  ---          13 45 06  46.7 206.7  1.2      16.0   600      707   03 20 01

 ---------- K-band GRT-only VLBI scans - segment 06Ka ----------

03 32 00  1236+077     13 47 06  42.3 202.7  1.1      13.5    90      707   03 32 00
03 34 00  ---          13 49 06  42.2 203.4  1.1      13.9   120      711   03 32 01

03 35 00  1226+023     13 50 07  36.2 205.2  1.3      14.8    24      711   03 35 00
03 45 00  ---          14 00 08  35.6 208.1  1.5      16.5   600      730   03 35 01

03 46 00  1228+126     14 01 08  45.5 212.1  1.5      19.0     9      730   03 46 00
03 50 00  ---          14 05 09  45.1 213.4  1.6      19.8   240      738   03 46 01

03 50 40  1228+126     14 05 49  45.1 213.6  1.6      19.9    34      738   03 50 40
03 57 30  ---          14 12 40  44.5 215.8  1.7      21.1   410      751   03 50 41

03 58 10  1228+126     14 13 20  44.4 216.0  1.7      21.2    34      751   03 58 10
04 05 00  ---          14 20 11  43.8 218.2  1.8      22.3   410      764   03 58 11

04 07 00  1236+077     14 22 12  39.8 213.8  1.7      19.7    92      764   04 07 00
04 09 00  ---          14 24 12  39.7 214.4  1.7      20.0   120      768   04 07 01

04 10 00  1226+023     14 25 12  33.6 215.4  1.9      20.3    23      768   04 10 00
04 20 00  ---          14 35 14  32.7 218.1  2.1      21.8   600      787   04 10 01

04 21 15  1228+126     14 36 29  42.2 223.2  2.1      24.9    25      787   04 21 15
04 25 00  ---          14 40 15  41.8 224.3  2.1      25.4   225      794   04 21 16

04 25 40  1228+126     14 40 55  41.8 224.5  2.2      25.5    34      794   04 25 40
04 34 00  ---          14 49 16  40.9 226.9  2.3      26.7   500      810   04 25 41

04 34 40  1228+126     14 49 56  40.8 227.1  2.3      26.8    34      810   04 34 40
04 43 00  ---          14 58 18  39.9 229.5  2.4      27.9   500      826   04 34 41
```

```
Schedule for TORUN     (Code Tr )                                Page   8
               The nuclear structure in nearby AGN
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   5 Feb 2014   Day  36 ---

 ---------- Space segment 06: K-band VLBI scans ----------

04 45 00  1228+126     15 00 18  39.6 230.1  2.5      28.1   113      826   04 45 00
04 54 30  ---          15 09 50  38.5 232.7  2.6      29.3   570      845   04 45 01

04 55 00  1228+126     15 10 20  38.5 232.8  2.6      29.3    24      845   04 55 00
05 04 30  ---          15 19 51  37.3 235.4  2.8      30.4   570      863   04 55 01

05 05 00  1228+126     15 20 21  37.2 235.5  2.8      30.4    24      863   05 05 00
05 15 00  ---          15 30 23  36.0 238.1  3.0      31.5   600      882   05 05 01

 ---------- K-band GRT-only VLBI scans - segment 07Ka ----------

05 17 00  1236+077     15 32 23  32.6 233.5  2.9      29.1    94      882   05 17 00
05 19 00  ---          15 34 24  32.3 234.0  2.9      29.3   120      886   05 17 01

05 20 00  1228+126     15 35 24  35.3 239.4  3.1      31.9    34      886   05 20 00
05 28 00  ---          15 43 25  34.3 241.4  3.2      32.7   480      901   05 20 01

05 28 40  1228+126     15 44 05  34.2 241.6  3.2      32.7    34      901   05 28 40
05 33 00  ---          15 48 26  33.6 242.7  3.3      33.1   260      910   05 28 41

05 34 00  1236+077     15 49 26  30.5 237.8  3.2      30.8    35      910   05 34 00
05 36 00  ---          15 51 26  30.2 238.2  3.2      31.0   120      913   05 34 01

05 37 00  1228+126     15 52 27  33.1 243.7  3.3      33.4    35      913   05 37 00
05 41 00  ---          15 56 27  32.5 244.6  3.4      33.7   240      921   05 37 01

05 41 40  1228+126     15 57 07  32.5 244.8  3.4      33.8    34      921   05 41 40
05 52 00  ---          16 07 29  31.0 247.2  3.6      34.5   620      941   05 41 41

05 54 00  1236+077     16 09 29  27.9 242.6  3.5      32.5    95      941   05 54 00
05 56 00  ---          16 11 30  27.6 243.1  3.5      32.7   120      945   05 54 01

05 57 00  1228+126     16 12 30  30.3 248.4  3.7      34.9    35      945   05 57 00
06 06 00  ---          16 21 31  29.1 250.5  3.8      35.4   540      962   05 57 01

06 06 40  1228+126     16 22 11  29.0 250.6  3.8      35.4    34      962   06 06 40
06 11 00  ---          16 26 32  28.4 251.6  3.9      35.7   260      970   06 06 41

06 12 00  1236+077     16 27 32  25.4 246.8  3.8      33.8    35      970   06 12 00
06 14 00  ---          16 29 33  25.1 247.2  3.8      33.9   120      974   06 12 01

06 15 00  1228+126     16 30 33  27.8 252.5  4.0      35.9    35      974   06 15 00
06 19 00  ---          16 34 33  27.2 253.4  4.0      36.1   240      982   06 15 01
```

```
Schedule for TORUN     (Code Tr )                                  Page   9
               The nuclear structure in nearby AGN
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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   5 Feb 2014   Day  36 ---

06 19 40  1228+126     16 35 14  27.1 253.6  4.1      36.1    34      982   06 19 40
06 29 30  ---          16 45 05  25.7 255.7  4.2      36.6   590     1001   06 19 41

 ---------- Space segment 07: K-band VLBI scans ----------

06 30 00  1228+126     16 45 35  25.6 255.8  4.2      36.6    24     1001   06 30 00
06 39 30  ---          16 55 07  24.2 257.9  4.4      36.9   570     1019   06 30 01

06 40 00  1228+126     16 55 37  24.1 258.0  4.4      37.0    24     1019   06 40 00
06 49 30  ---          17 05 09  22.7 260.0  4.6      37.3   570     1037   06 40 01

06 50 00  1228+126     17 05 39  22.7 260.1  4.6      37.3    24     1037   06 50 00
07 00 00  ---          17 15 40  21.2 262.2  4.7      37.5   600     1056   06 50 01

 ---------- K-band GRT-only VLBI scans - segment 08Ka ----------

07 02 00  1236+077     17 17 41  18.2 257.7  4.6      36.3    95     1056   07 02 00
07 04 00  ---          17 19 41  17.9 258.2  4.7      36.3   120     1060   07 02 01

07 05 00  1226+023     17 20 41  11.9 257.2  4.8      35.9    24     1060   07 05 00
07 15 00  ---          17 30 43  10.4 259.3  5.0      36.2   600     1080   07 05 01

07 16 00  1228+126     17 31 43  18.8 265.5  5.0      37.8    15     1080   07 16 00
07 25 10  ---          17 40 54  17.4 267.4  5.2      37.9   550     1097   07 16 01

07 25 50  1228+126     17 41 34  17.3 267.5  5.2      37.9    34     1097   07 25 50
07 35 00  ---          17 50 46  15.9 269.4  5.3      37.9   550     1115   07 25 51

07 37 00  1236+077     17 52 46  13.0 265.0  5.2      37.1    96     1115   07 37 00
07 39 00  ---          17 54 47  12.7 265.4  5.2      37.1   120     1119   07 37 01

07 40 00  1226+023     17 55 47   6.7 264.4  5.4      36.7    24     1119   07 40 00
07 50 00  ---          18 05 48   5.2 266.4  5.6      36.8   600     1138   07 40 01

07 51 00  1228+126     18 06 49  13.5 272.6  5.6      37.9    15     1138   07 51 00
08 02 00  ---          18 17 50  11.9 274.8  5.8      37.8   660     1159   07 51 01

 ---------- Space segment 08: K-band VLBI scans ----------

08 15 00  1228+126     18 30 53   9.9 277.3  6.0      37.6   773     1159   08 15 00
08 24 30  ---          18 40 24   8.5 279.2  6.1      37.4   570     1177   08 15 01

08 25 00  1228+126     18 40 54   8.4 279.3  6.2      37.3    24     1177   08 25 00
08 34 30  ---          18 50 26   7.0 281.2  6.3      37.1   570     1195   08 25 01

08 35 00  1228+126     18 50 56   6.9 281.3  6.3      37.1    24     1195   08 35 00
08 45 00  ---          19 00 57   5.5 283.2  6.5      36.7   600     1215   08 35 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 ./gs032c_freq_sess313rdbe.dat:
     tr1cm

   Setup group:   41         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:  14  Setup file default.  Used pcal sets:   1
   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:  14

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
    PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
    PCALFR1=  1000  1000 13000 13000     0     0     0     0
    PCALFR2=  1000  1000 13000 13000     0     0     0     0

   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)
J1239+0730	12 36 52.308755	* 12 39 24.588327	12 40 08.812805	0.10
* 1236+077	07 46 45.39997	* 07 30 17.18902	07 25 28.10329	0.11
* 1226+023	12 26 33.245835	* 12 29 06.699731	12 29 51.363058	0.00
J1229+0203	02 19 43.30547	* 02 03 08.59797	01 58 18.79035	0.00
* 1228+126	12 28 17.569280	* 12 30 49.423382	12 31 33.520344	0.00
J1230+1223	12 40 01.74883	* 12 23 28.04365	12 18 35.78136	0.00
VIR-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)
FAKERA	109.8
1236+077	129.1
1226+023	130.0
1228+126	132.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk07astr

RadioAstron Maser observations

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



Schedule for TORUN     (Code Tr )                                  Page   2
               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 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   5 Feb 2014   Day  36 ---

 ---------- This is a fringe finder/clock offset calibrator 45.5 deg. from NGC3079_H2O ----------

 Next scan frequencies:  22172.00  22172.00  22172.00  22172.00
 Next BBC frequencies:     672.00    672.00    672.00    672.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

18 50 00  1015+359     05 07 37  34.7  75.0 -5.2     -45.5     0        0   18 50 00
18 55 00  ---          05 12 38  35.4  75.9 -5.1     -45.8   300       10   18 50 01

 ---------- Please, make sure PCAL is OFF for NGC3079_H2O maser observations. ----------

19 00 00  NGC3079_H2O  05 17 39  50.2  56.7 -4.8     -62.7   232       10   19 00 00
19 29 30  ---          05 47 13  54.0  59.7 -4.3     -66.6  1770       66   19 00 01

19 30 00  NGC3079_H2O  05 47 43  54.1  59.7 -4.3     -66.6    24       66   19 30 00
20 00 00  ---          06 17 48  58.0  62.5 -3.8     -70.5  1800      124   19 30 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 ./rk07as_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

   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 pcal sets:   1
 LO sum=   22172.00  22172.00  22172.00  22172.00
 BBC fr=     672.00    672.00    672.00    672.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = OFF
  PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
  PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
  PCALFR1=     0     0     0     0     0     0     0     0
  PCALFR2=     0     0     0     0     0     0     0     0

 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)
* NGC3079_H2O	09 58 35.011191	* 10 01 57.802000	10 02 57.119313	0.00
	55 55 15.50111	* 55 40 47.26000	55 36 25.45277	0.00
* 1015+359	10 15 16.226760	* 10 18 10.988103	10 19 02.057889	0.00
J1018+3542	35 57 41.35603	* 35 42 39.44084	35 38 07.96859	0.00

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)
 NGC3079_H2O        139.2
 1015+359           155.8

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

rk07attr

RadioAstron Maser observations

PI: *Alexei Alakoz*


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


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

```
Schedule for TORUN     (Code Tr )                                    Page   2
               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 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   5 Feb 2014   Day  36 ---

 ---------- This is a fringe finder/clock offset calibrator 34.9 deg. from NGC4258_H2O ----------

 Next scan frequencies:  22204.00  22204.00  22204.00  22204.00
 Next BBC frequencies:     704.00    704.00    704.00    704.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

22 50 00  1219+044     09 08 16  26.9 122.8 -3.2     -30.4     0        0   22 50 00
22 55 00  ---          09 13 17  27.6 124.0 -3.2     -29.9   300       10   22 50 01

 ---------- Please, make sure PCAL is OFF for NGC4258_H2O maser observations. ----------

23 00 00  NGC4258_H2O  09 18 18  60.9  83.0 -3.0     -61.4   163       10   23 00 00
23 29 30  ---          09 47 53  65.3  88.3 -2.5     -62.1  1770       66   23 00 01

23 30 00  NGC4258_H2O  09 48 23  65.4  88.4 -2.5     -62.1    24       66   23 30 00
23 59 59  ---          10 18 28  69.9  94.7 -2.0     -61.8  1799      124   23 30 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 ./rk07at_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

   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:   4  Setup file default.  Used pcal sets:   1
 LO sum=   22204.00  22204.00  22204.00  22204.00
 BBC fr=     704.00    704.00    704.00    704.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = OFF
  PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
  PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
  PCALFR1=     0     0     0     0     0     0     0     0
  PCALFR2=     0     0     0     0     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* NGC4258_H2O       12 16 29.364915   * 12 18 57.504600     12 19 40.443041       0.00
                    47 34 53.16919    * 47 18 14.30300      47 13 13.79770        0.00

* 1219+044          12 19 49.255032   * 12 22 22.549622     12 23 07.202674       0.00
  J1222+0413        04 29 53.60821    * 04 13 15.77600      04 08 24.06055        0.00


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)
  NGC4258_H2O        131.1
  1219+044           133.1

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

rk01sytr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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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
-------------------------------------------------------------------------------------------

 --- Thu   6 Feb 2014   Day  37 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

02 00 00  1354-152     12 18 48  18.1 154.8 -1.7     -15.4     0         0   02 00 00
02 09 30  ---          12 28 19  18.7 157.2 -1.5     -14.0   570        18   02 00 01

02 10 00  1354-152     12 28 49  18.7 157.3 -1.5     -13.9    24        18   02 10 00
02 19 30  ---          12 38 21  19.3 159.7 -1.3     -12.5   570        36   02 10 01

02 20 00  1354-152     12 38 51  19.3 159.8 -1.3     -12.4    24        36   02 20 00
02 29 30  ---          12 48 22  19.8 162.2 -1.2     -11.0   570        55   02 20 01

02 30 00  1354-152     12 48 52  19.8 162.3 -1.2     -10.9    24        55   02 30 00
02 39 30  ---          12 58 24  20.2 164.7 -1.0      -9.5   570        73   02 30 01

02 40 00  1354-152     12 58 54  20.2 164.8 -1.0      -9.4    24        73   02 40 00
02 49 30  ---          13 08 26  20.6 167.2 -0.8      -7.9   570        91   02 40 01

02 50 00  1354-152     13 08 56  20.6 167.4 -0.8      -7.8    24        91   02 50 00
03 00 00  ---          13 18 57  20.9 169.9 -0.7      -6.3   600       110   02 50 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
   Matching groups in ./rk01sy_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1354-152          13 54 28.601586   * 13 57 11.244977     13 57 58.327079       0.00
  J1357-1527       -15 12 51.88927    *-15 27 28.78695     -15 31 35.48645        0.00


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)
  1354-152           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 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
     15.0 GHz         12. deg
     22.0 GHz          9. deg
```

rk01sztr

RadioAstron AGN survey

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


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
######################## 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   6 Feb 2014   Day  37 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 00 00  1508+572     05 21 35  23.3  18.7 -9.8     -20.7     0         0   19 00 00
19 14 30  ---          05 36 07  24.0  20.7 -9.6     -23.0   870        28   19 00 01

19 15 00  1508+572     05 36 38  24.1  20.8 -9.6     -23.1    24        28   19 15 00
19 25 00  ---          05 46 39  24.6  22.2 -9.4     -24.6   600        47   19 15 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

19 30 00  1508+572     05 51 40  24.9  22.9 -9.3     -25.4   294        47   19 30 00
19 44 30  ---          06 06 12  25.8  24.8 -9.1     -27.6   870        75   19 30 01

19 45 00  1508+572     06 06 42  25.8  24.9 -9.1     -27.6    24        75   19 45 00
20 00 00  ---          06 21 45  26.8  26.9 -8.8     -29.9   900       104   19 45 01


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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01sz_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)
```

```
  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=   4200.00   4200.00   4200.00   4200.00
  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 pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   5

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


======== Setup file: ra18cm2.set
  Matching groups in ./rk01sz_freq.dat:
    tr18cm          E-mail Borkowski 12Mar98, preferred alternative

  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=   2300.00   2300.00   2300.00   2300.00
  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 pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   6

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1508+572          15 08 45.204538   * 15 10 02.922371     15 10 24.535761       0.00
  J1510+5702        57 14 02.08966    * 57 02 43.37583      56 59 15.60945        0.00


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)
  1508+572           104.4

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

rk01tatr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: 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   7 Feb 2014   Day  38 ---

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1351-018     10 22 24  19.3 122.2 -3.5     -30.6     0         0   00 00 00
00 09 30  ---          10 31 56  20.5 124.3 -3.4     -29.7   570        18   00 00 01

00 10 00  1351-018     10 32 26  20.5 124.5 -3.4     -29.7    24        18   00 10 00
00 19 30  ---          10 41 58  21.7 126.7 -3.2     -28.8   570        36   00 10 01

00 20 00  1351-018     10 42 28  21.7 126.8 -3.2     -28.8    24        36   00 20 00
00 29 30  ---          10 51 59  22.9 129.1 -3.0     -27.8   570        55   00 20 01

00 30 00  1351-018     10 52 29  22.9 129.2 -3.0     -27.8    24        55   00 30 00
00 39 30  ---          11 02 01  24.0 131.5 -2.9     -26.8   570        73   00 30 01

00 40 00  1351-018     11 02 31  24.1 131.6 -2.9     -26.7    24        73   00 40 00
00 49 30  ---          11 12 02  25.1 134.0 -2.7     -25.6   570        91   00 40 01

00 50 00  1351-018     11 12 33  25.2 134.1 -2.7     -25.6    24        91   00 50 00
01 00 00  ---          11 22 34  26.2 136.6 -2.5     -24.4   600       110   00 50 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
   Matching groups in ./rk01ta_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1351-018          13 51 32.032818   * 13 54 06.895322     13 54 51.641548       0.00
  J1354-0206       -01 51 20.07716    *-02 06 03.19066     -02 10 16.62064        0.00


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)
  1351-018           110.4

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

rk01tbtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: L-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   7 Feb 2014   Day  38 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

03 00 00  1239+376     13 22 54  72.7 207.7  0.7      20.5     0         0   03 00 00
03 09 30  ---          13 32 25  72.0 213.5  0.8      24.6   570        18   03 00 01

03 10 00  1239+376     13 32 56  71.9 213.8  0.8      24.8    23        18   03 10 00
03 19 30  ---          13 42 27  71.1 219.1  1.0      28.4   570        36   03 10 01

03 20 00  1239+376     13 42 57  71.0 219.4  1.0      28.6    23        36   03 20 00
03 29 30  ---          13 52 29  70.1 224.3  1.2      31.8   570        55   03 20 01

03 30 00  1239+376     13 52 59  70.0 224.6  1.2      32.0    23        55   03 30 00
03 39 30  ---          14 02 30  69.0 229.1  1.3      34.8   570        73   03 30 01

03 40 00  1239+376     14 03 00  68.9 229.3  1.3      34.9    23        73   03 40 00
03 49 30  ---          14 12 32  67.8 233.5  1.5      37.3   570        91   03 40 01

03 50 00  1239+376     14 13 02  67.7 233.7  1.5      37.4    23        91   03 50 00
04 00 00  ---          14 23 04  66.5 237.7  1.7      39.6   600       110   03 50 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
   Matching groups in ./rk01tb_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1239+376          12 39 45.151329   * 12 42 09.812390     12 42 51.694601       0.00
  J1242+3720        37 36 31.63208    * 37 20 05.69271      37 15 10.44404        0.00


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)
  1239+376           130.8

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

rk01tctr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: L-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   7 Feb 2014   Day  38 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

19 00 00  0507+179     05 25 32  54.8 186.0  0.2       3.8     0         0   19 00 00
19 14 30  ---          05 40 04  54.5 192.0  0.5       7.5   870        28   19 00 01

19 15 00  0507+179     05 40 34  54.5 192.2  0.5       7.7    24        28   19 15 00
19 29 30  ---          05 55 06  53.9 198.0  0.7      11.3   870        56   19 15 01

19 30 00  0507+179     05 55 37  53.9 198.2  0.7      11.4    24        56   19 30 00
19 44 30  ---          06 10 09  53.1 203.9  1.0      14.8   870        84   19 30 01

19 45 00  0507+179     06 10 39  53.0 204.1  1.0      14.9    24        84   19 45 00
20 00 00  ---          06 25 41  52.0 209.7  1.2      18.2   900       112   19 45 01


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


 ======== Setup file: ra18cm2.set
   Matching groups in ./rk01tc_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0507+179          05 07 07.486545   * 05 10 02.369131     05 10 53.234175       0.00
  J0510+1800        17 56 58.64618    * 18 00 41.58163      18 01 34.83631        0.00


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)
  3C147              123.6
  0507+179           119.2

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

rk01tdtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
######################## 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
------------------------------------------------------------------------------------------

 --- Sat   8 Feb 2014   Day  39 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 00 00  1253-055     15 27 10  23.1 221.2  2.5      23.4     0         0   05 00 00
05 09 30  ---          15 36 42  22.1 223.6  2.7      24.6   570        18   05 00 01

05 10 00  1253-055     15 37 12  22.0 223.7  2.7      24.6    24        18   05 10 00
05 19 30  ---          15 46 43  21.0 226.0  2.8      25.7   570        36   05 10 01

05 20 00  1253-055     15 47 13  21.0 226.1  2.8      25.8    24        36   05 20 00
05 25 00  ---          15 52 14  20.4 227.3  2.9      26.3   300        46   05 20 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

05 30 00  1253-055     15 57 15  19.9 228.5  3.0      26.9   293        46   05 30 00
05 39 30  ---          16 06 47  18.8 230.7  3.2      27.9   570        64   05 30 01

05 40 00  1253-055     16 07 17  18.7 230.8  3.2      27.9    24        64   05 40 00
05 49 30  ---          16 16 48  17.6 233.0  3.3      28.8   570        83   05 40 01

05 50 00  1253-055     16 17 18  17.5 233.2  3.3      28.9    24        83   05 50 00
06 00 00  ---          16 27 20  16.3 235.4  3.5      29.8   600       102   05 50 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
   Matching groups in ./rk01td_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
   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 pcal sets:   1
   LO sum=   4836.00  4836.00  4836.00  4836.00
   BBC fr=    636.00   636.00   636.00   636.00
   Bandwd=     16.00    16.00    16.00    16.00
    Matching frequency sets:   3

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
    PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
    PCALFR1=  1000  1000 13000 13000     0     0     0     0
    PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


 ======== Setup file: ra18cm2.set
   Matching groups in ./rk01td_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
   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 pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   5

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 56 56.425454       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 52 02.30508        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           124.0

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

rk01tetr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


```
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
-------------------------------------------------------------------------------------------

 --- Sat   8 Feb 2014   Day  39 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  0642+449     09 30 08  62.5 269.1  2.7      57.9     0         0   23 00 00
23 14 30  ---          09 44 40  60.3 272.0  3.0      57.8   870        28   23 00 01

23 15 00  0642+449     09 45 10  60.2 272.1  3.0      57.8    24        28   23 15 00
23 29 30  ---          09 59 42  58.1 274.8  3.2      57.5   870        56   23 15 01

23 30 00  0642+449     10 00 13  58.0 274.9  3.2      57.5    24        56   23 30 00
23 44 30  ---          10 14 45  55.8 277.4  3.5      57.1   870        84   23 30 01

23 45 00  0642+449     10 15 15  55.7 277.5  3.5      57.1    24        84   23 45 00
23 59 59  ---          10 30 17  53.5 280.0  3.7      56.5   899       112   23 45 01


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


 ======== Setup file: ra18cm2.set
   Matching groups in ./rk01te_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0642+449          06 42 53.021453   * 06 46 32.026000     06 47 36.100839       0.00
  J0646+4451        44 54 30.82735    * 44 51 16.59010      44 50 14.02833        0.00


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)
  0642+449           134.4

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

rk07autr

RadioAstron Maser observations

PI: *Alexei Alakoz*

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


Schedule for TORUN     (Code Tr )                                  Page   2
               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 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   9 Feb 2014   Day  40 ---

 ---------- This is a fringe finder/clock offset calibrator 45.7 deg. from NGC3079_H2O ----------

 Next scan frequencies:  22172.00  22172.00  22172.00  22172.00
 Next BBC frequencies:     672.00    672.00    672.00    672.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

05 50 00  0954+658     16 21 15  44.8 -35.6  6.4      57.4     0         0   05 50 00
05 55 00  ---          16 26 16  44.3 -35.2  6.4      56.5   300        10   05 50 01

 ---------- Please, make sure PCAL is OFF for NGC3079_H2O maser observations. ----------

06 00 00  NGC3079_H2O  16 31 17  38.2 -45.5  6.5      49.3   263        10   06 00 00
06 29 30  ---          17 00 51  35.1 -42.0  7.0      45.3  1770        66   06 00 01

06 30 00  NGC3079_H2O  17 01 22  35.1 -41.9  7.0      45.2    24        66   06 30 00
07 00 00  ---          17 31 26  32.1 -38.2  7.5      41.1  1800       124   06 30 01


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


 ======== Setup file: ra1cm2.set
   Matching groups in ./rk07au_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

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

The following frequency sets based on these setups were used.

 Frequency Set:   7  Setup file default.  Used pcal sets:   1
 LO sum=   22172.00  22172.00  22172.00  22172.00
 BBC fr=     672.00    672.00    672.00    672.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   7

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = OFF
  PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
  PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
  PCALFR1=     0     0     0     0     0     0     0     0
  PCALFR2=     0     0     0     0     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* NGC3079_H2O       09 58 35.011191   * 10 01 57.802000     10 02 57.180917       0.00
                    55 55 15.50111    * 55 40 47.26000      55 36 26.05216        0.00

* 0954+658          09 54 57.847936   * 09 58 47.245116     09 59 54.522251       0.00
  J0958+6533        65 48 15.53882    * 65 33 54.81801      65 29 36.25069        0.00


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)
  NGC3079_H2O        138.6
  0954+658           129.0

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

rk01tftr

RadioAstron AGN survey

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```


```
Observing mode: C-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   9 Feb 2014   Day  40 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

17 00 00  1637+574     03 33 05  21.2  -9.4 10.9      10.4     0         0   17 00 00
17 14 30  ---          03 47 37  20.9  -7.3 11.2       8.1   870        28   17 00 01

17 15 00  1637+574     03 48 07  20.9  -7.2 11.2       8.1    24        28   17 15 00
17 29 30  ---          04 02 40  20.6  -5.2 11.4       5.7   870        56   17 15 01

17 30 00  1637+574     04 03 10  20.6  -5.1 11.4       5.7    24        56   17 30 00
17 44 30  ---          04 17 42  20.5  -3.0 11.7       3.3   870        84   17 30 01

17 45 00  1637+574     04 18 12  20.5  -2.9 11.7       3.2    24        84   17 45 00
18 00 00  ---          04 33 15  20.4  -0.8 11.9       0.8   900       112   17 45 01


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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01tf_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

 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)
* 1637+574	16 37 17.425182	* 16 38 13.456297	16 38 28.347659	0.00
J1638+5720	57 26 15.76127	* 57 20 23.97898	57 18 32.31534	0.00

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)
1637+574	93.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk01tgtr

RadioAstron AGN survey

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


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
#######################  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   9 Feb 2014   Day  40 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

20 00 00  0300+470     06 33 35  56.8 -78.4  3.5      60.2     0         0   20 00 00
20 14 30  ---          06 48 07  54.7 -76.2  3.7      59.4   870        28   20 00 01

20 15 00  0300+470     06 48 37  54.6 -76.2  3.7      59.3    24        28   20 15 00
20 25 00  ---          06 58 39  53.2 -74.7  3.9      58.7   600        47   20 15 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

20 30 00  0300+470     07 03 40  52.5 -73.9  4.0      58.4   293        47   20 30 00
20 44 30  ---          07 18 12  50.4 -71.8  4.2      57.3   870        75   20 30 01

20 45 00  0300+470     07 18 42  50.3 -71.8  4.2      57.3    24        75   20 45 00
21 00 00  ---          07 33 44  48.2 -69.6  4.5      56.1   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: ra6cm2.set
   Matching groups in ./rk01tg_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)
```

```
  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=   4200.00   4200.00   4200.00   4200.00
  Net SB=         L         L         U         U
  IF SB =         U         U         U         U
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         L         L         U         U
  IF    =         C         A         C         A

 The following frequency sets based on these setups were used.

  Frequency Set:   7  Setup file default.  Used pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   7

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


======== Setup file: ra18cm2.set
  Matching groups in ./rk01tg_freq.dat:
    tr18cm          E-mail Borkowski 12Mar98, preferred alternative

  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=   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U
  IF SB =         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         U         U         L         L
  IF    =         C         A         C         A
```

```
  The following frequency sets based on these setups were used.

   Frequency Set:   8  Setup file default.  Used pcal sets:   1
   LO sum=   1668.00  1668.00  1668.00  1668.00
   BBC fr=    632.00   632.00   632.00   632.00
   Bandwd=     16.00    16.00    16.00    16.00
    Matching frequency sets:   8

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
    PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
    PCALFR1=  1000  1000 13000 13000     0     0     0     0
    PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


 POSITIONS OF SOURCES USED IN RECORDING SCANS

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

 * 0300+470          03 00 10.111206   * 03 03 35.242224     03 04 34.533572       0.00
   J0303+4716        47 04 33.67712    * 47 16 16.27546      47 19 40.17799        0.00


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)
   0300+470            95.8

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

rk01thtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


```
Observing mode: C-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
-------------------------------------------------------------------------------------------

 --- Mon  10 Feb 2014   Day  41 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  0212+735     10 34 14  42.5 -18.2  8.3      42.6     0         0   00 00 00
00 09 30  ---          10 43 46  42.1 -17.5  8.4      40.7   570        18   00 00 01

00 10 00  0212+735     10 44 16  42.0 -17.5  8.4      40.6    25        18   00 10 00
00 19 30  ---          10 53 47  41.6 -16.8  8.6      38.8   570        36   00 10 01

00 20 00  0212+735     10 54 17  41.6 -16.8  8.6      38.7    25        36   00 20 00
00 29 30  ---          11 03 49  41.2 -16.1  8.7      36.9   570        55   00 20 01

00 30 00  0212+735     11 04 19  41.2 -16.1  8.8      36.8    25        55   00 30 00
00 39 30  ---          11 13 51  40.8 -15.3  8.9      35.0   570        73   00 30 01

00 40 00  0212+735     11 14 21  40.8 -15.3  8.9      34.9    25        73   00 40 00
00 49 30  ---          11 23 52  40.4 -14.6  9.1      33.0   570        91   00 40 01

00 50 00  0212+735     11 24 22  40.4 -14.5  9.1      32.9    25        91   00 50 00
01 00 00  ---          11 34 24  40.0 -13.8  9.3      31.0   600       110   00 50 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
   Matching groups in ./rk01th_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0212+735          02 12 49.921893   * 02 17 30.813373     02 18 52.730749       0.00
  J0217+7349        73 35 40.08547    * 73 49 32.62180      73 53 41.29537        0.00


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)
  0212+735            98.8

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

rk07avtr

RadioAstron Maser observations

PI: *Alexei Alakoz*


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


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


Schedule for TORUN     (Code Tr )                                   Page   2
               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 LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  10 Feb 2014   Day  41 ---

 ---------- This is a fringe finder/clock offset calibrator 35.8 deg. from NGC4258_H2O ----------

 Next scan frequencies:  22204.00  22204.00  22204.00  22204.00
 Next BBC frequencies:     704.00    704.00    704.00    704.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

04 50 00  1150+497     15 25 02  57.6 -74.7  3.5      63.0     0        0   04 50 00
04 55 00  ---          15 30 02  56.8 -74.1  3.6      62.6   300       10   04 50 01

 ---------- Please, make sure PCAL is OFF for NGC4258_H2O maser observations. ----------

05 00 00  NGC4258_H2O  15 35 03  58.8 279.3  3.3      60.8  -424       10   05 00 00
05 29 30  ---          16 04 38  54.4 283.8  3.7      59.2  1346       66   05 00 01

05 30 00  NGC4258_H2O  16 05 08  54.4 283.9  3.8      59.1    24       66   05 30 00
06 00 00  ---          16 35 13  50.0 288.3  4.3      57.1  1800      124   05 30 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 ./rk07av_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

   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=  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 pcal sets:   1
 LO sum=   22204.00  22204.00  22204.00  22204.00
 BBC fr=     704.00    704.00    704.00    704.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   6

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = OFF
  PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
  PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
  PCALFR1=     0     0     0     0     0     0     0     0
  PCALFR2=     0     0     0     0     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* NGC4258_H2O       12 16 29.364915   * 12 18 57.504600     12 19 40.580581       0.00
                    47 34 53.16919    * 47 18 14.30300      47 13 14.05818        0.00

* 1150+497          11 50 47.999856   * 11 53 24.466639     11 54 10.059931       0.00
  J1153+4931        49 47 50.09409    * 49 31 08.83012      49 26 07.83539        0.00


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)
  NGC4258_H2O        132.7
  1150+497           134.9

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

rk02axtr

RadioAstron Pulsar observations

PI: *Yuri Kovalev*

```
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Observing mode: L-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 LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  10 Feb 2014   Day  41 ---

 ---------- 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:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 08 00  B1508+55     09 46 02  45.4  52.9 -5.4     -57.7     0        0   Stopped
23 09 00  ---          09 47 02  45.5  53.0 -5.4     -57.8    60        0

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

23 10 00  B1508+55     09 48 02  45.7  53.1 -5.4     -57.9    54        0   23 10 00
23 29 30  ---          10 07 36  48.0  55.2 -5.0     -60.4  1170       37   23 10 01

23 30 00  B1508+55     10 08 06  48.1  55.2 -5.0     -60.5    24       37   23 30 00
23 49 30  ---          10 27 39  50.5  57.3 -4.7     -63.0  1170       75   23 30 01

 --- Start: Mon  10 Feb 2014   Day  41 -- Stop: Tue  11 Feb 2014   Day  42 ---

23 50 00  B1508+55     10 28 09  50.6  57.3 -4.7     -63.1    24       75   23 50 00
00 10 00  ---          10 48 12  53.2  59.3 -4.4     -65.6  1200      113   23 50 01


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
   Matching groups in ./rk02ax_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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:

   Disk used to record data.
```

```
  Setup not used for recording data.

  1st LO=   2300.00   2300.00   2300.00   2300.00
  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 pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   4

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = OFF
   PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
   PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
   PCALFR1=     0     0     0     0     0     0     0     0
   PCALFR2=     0     0     0     0     0     0     0     0


======== Setup file: ra18cm2.set
  Matching groups in ./rk02ax_freq.dat:
    tr18cm          E-mail Borkowski 12Mar98, preferred alternative

  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=   2300.00   2300.00   2300.00   2300.00
  Net SB=         L         L         U         U
  IF SB =         L         L         L         L
  Pol.  =       RCP       LCP       RCP       LCP
  BBC   =         1         2         1         2
  BBC SB=         U         U         L         L
  IF    =         C         A         C         A
```

```
 The following frequency sets based on these setups were used.

  Frequency Set:   9  Setup file default.  Used pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   9

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = OFF
   PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
   PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
   PCALFR1=     0     0     0     0     0     0     0     0
   PCALFR2=     0     0     0     0     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* B1508+55          15 08 03.470019   * 15 09 25.629800     15 09 48.740685       0.00
  J1509+5531        55 42 53.22567    * 55 31 32.39400      55 28 03.89908        0.00


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)
  B1508+55           105.6

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

rk01titr

RadioAstron AGN survey

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


```
Observing mode: C-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  11 Feb 2014   Day  42 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1803+784     14 38 50  59.3  17.6 -3.4    -115.1     0         0   04 00 00
04 09 30  ---          14 48 22  59.8  17.1 -3.2    -117.8   570        18   04 00 01

04 10 00  1803+784     14 48 52  59.8  17.1 -3.2    -117.9    25        18   04 10 00
04 19 30  ---          14 58 23  60.2  16.6 -3.0    -120.7   570        36   04 10 01

04 20 00  1803+784     14 58 53  60.2  16.6 -3.0    -120.8    25        36   04 20 00
04 29 30  ---          15 08 25  60.6  16.1 -2.9    -123.6   570        55   04 20 01

04 30 00  1803+784     15 08 55  60.7  16.1 -2.8    -123.7    25        55   04 30 00
04 39 30  ---          15 18 26  61.0  15.5 -2.7    -126.6   570        73   04 30 01

04 40 00  1803+784     15 18 57  61.1  15.5 -2.7    -126.7    25        73   04 40 00
04 49 30  ---          15 28 28  61.4  14.9 -2.5    -129.6   570        91   04 40 01

04 50 00  1803+784     15 28 58  61.5  14.8 -2.5    -129.7    25        91   04 50 00
05 00 00  ---          15 39 00  61.8  14.1 -2.3    -132.8   600       110   04 50 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
   Matching groups in ./rk01ti_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1803+784          18 03 39.193524   * 18 00 45.683902     17 59 51.640545       0.00
  J1800+7828        78 27 54.29744    * 78 28 04.01838      78 27 56.27299        0.00


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)
  3C286              124.3
  1803+784            97.2

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

rk01tjtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: C-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  11 Feb 2014   Day  42 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

20 00 00  1637+574     06 41 28  23.2  17.5-10.0     -19.5     0         0   20 00 00
20 14 30  ---          06 56 00  23.9  19.5 -9.7     -21.8   870        28   20 00 01

20 15 00  1637+574     06 56 30  23.9  19.6 -9.7     -21.9    24        28   20 15 00
20 29 30  ---          07 11 03  24.7  21.5 -9.5     -24.1   870        56   20 15 01

20 30 00  1637+574     07 11 33  24.7  21.6 -9.4     -24.2    24        56   20 30 00
20 44 30  ---          07 26 05  25.6  23.6 -9.2     -26.4   870        84   20 30 01

20 45 00  1637+574     07 26 35  25.6  23.6 -9.2     -26.5    24        84   20 45 00
21 00 00  ---          07 41 38  26.5  25.6 -8.9     -28.8   900       112   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: ra6cm2.set
   Matching groups in ./rk01tj_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1637+574          16 37 17.425182   * 16 38 13.456297     16 38 28.446475       0.00
  J1638+5720        57 26 15.76127    * 57 20 23.97898      57 18 31.94764        0.00


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)
  1637+574            94.1

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

rk01tktr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


```
Observing mode: C-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  11 Feb 2014   Day  42 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

22 20 00  1226+023     09 01 51  23.4 120.9 -3.5     -31.0     0         0   22 20 00
22 34 30  ---          09 16 23  25.2 124.3 -3.2     -29.7   870        28   22 20 01

22 35 00  1226+023     09 16 53  25.3 124.5 -3.2     -29.7    24        28   22 35 00
22 49 30  ---          09 31 26  27.0 128.0 -3.0     -28.3   870        56   22 35 01

22 50 00  1226+023     09 31 56  27.1 128.1 -3.0     -28.2    24        56   22 50 00
23 04 30  ---          09 46 28  28.8 131.8 -2.7     -26.6   870        84   22 50 01

23 05 00  1226+023     09 46 58  28.8 131.9 -2.7     -26.6    24        84   23 05 00
23 10 00  ---          09 51 59  29.4 133.2 -2.6     -26.0   300        93   23 05 01


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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01tk_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1226+023          12 26 33.245835   * 12 29 06.699731     12 29 51.549571       0.00
  J1229+0203        02 19 43.30547    * 02 03 08.59797      01 58 17.74781        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1226+023           136.9

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

rk01tltr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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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
-------------------------------------------------------------------------------------------

 --- Wed  12 Feb 2014   Day  43 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1354-152     11 42 17  15.4 146.1 -2.3     -20.3     0         0   01 00 00
01 09 30  ---          11 51 49  16.2 148.3 -2.1     -19.1   570        18   01 00 01

01 10 00  1354-152     11 52 19  16.2 148.5 -2.1     -19.0    24        18   01 10 00
01 19 30  ---          12 01 50  17.0 150.7 -1.9     -17.7   570        36   01 10 01

01 20 00  1354-152     12 02 20  17.0 150.9 -1.9     -17.7    24        36   01 20 00
01 29 30  ---          12 11 52  17.7 153.2 -1.8     -16.3   570        55   01 20 01

01 30 00  1354-152     12 12 22  17.7 153.3 -1.8     -16.3    24        55   01 30 00
01 39 30  ---          12 21 53  18.3 155.6 -1.6     -14.9   570        73   01 30 01

01 40 00  1354-152     12 22 24  18.4 155.7 -1.6     -14.8    24        73   01 40 00
01 49 30  ---          12 31 55  18.9 158.1 -1.4     -13.5   570        91   01 40 01

01 50 00  1354-152     12 32 25  18.9 158.2 -1.4     -13.4    24        91   01 50 00
02 00 00  ---          12 42 27  19.5 160.7 -1.3     -11.9   600       110   01 50 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
   Matching groups in ./rk01tl_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1354-152          13 54 28.601586   * 13 57 11.244977     13 57 58.521748       0.00
  J1357-1527       -15 12 51.88927    *-15 27 28.78695     -15 31 36.58822        0.00


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)
  1354-152           110.4

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

rk01tmtr

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
-------------------------------------------------------------------------------------------

 --- Wed  12 Feb 2014   Day  43 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1228+126     14 42 47  41.6 225.0  2.2      25.8     0         0   04 00 00
04 09 30  ---          14 52 18  40.5 227.8  2.3      27.1   570        18   04 00 01

04 10 00  1228+126     14 52 48  40.5 227.9  2.4      27.2    24        18   04 10 00
04 19 30  ---          15 02 20  39.4 230.6  2.5      28.4   570        36   04 10 01

04 20 00  1228+126     15 02 50  39.3 230.8  2.5      28.4    24        36   04 20 00
04 29 30  ---          15 12 21  38.2 233.4  2.7      29.6   570        55   04 20 01

04 30 00  1228+126     15 12 51  38.2 233.5  2.7      29.6    24        55   04 30 00
04 39 30  ---          15 22 23  37.0 236.1  2.8      30.7   570        73   04 30 01

04 40 00  1228+126     15 22 53  36.9 236.2  2.9      30.7    24        73   04 40 00
04 49 30  ---          15 32 25  35.7 238.7  3.0      31.7   570        91   04 40 01

04 50 00  1228+126     15 32 55  35.7 238.8  3.0      31.7    24        91   04 50 00
05 00 00  ---          15 42 56  34.3 241.3  3.2      32.6   600       110   04 50 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
   Matching groups in ./rk01tm_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1228+126          12 28 17.569280   * 12 30 49.423382     12 31 33.715830       0.00
  J1230+1223        12 40 01.74883    * 12 23 28.04365      12 18 35.04915        0.00


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)
  1228+126           138.9

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

rk01tntr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
######################## 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
------------------------------------------------------------------------------------------

 --- Wed  12 Feb 2014   Day  43 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

21 00 00  1637+574     07 45 34  26.8  26.2 -8.9     -29.4     0         0   21 00 00
21 14 30  ---          08 00 06  27.8  28.1 -8.6     -31.5   870        28   21 00 01

21 15 00  1637+574     08 00 37  27.8  28.1 -8.6     -31.6    24        28   21 15 00
21 25 00  ---          08 10 38  28.6  29.4 -8.5     -33.1   600        47   21 15 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

21 30 00  1637+574     08 15 39  28.9  30.1 -8.4     -33.9   294        47   21 30 00
21 44 30  ---          08 30 11  30.1  31.9 -8.1     -36.0   870        75   21 30 01

21 45 00  1637+574     08 30 42  30.1  32.0 -8.1     -36.1    24        75   21 45 00
22 00 00  ---          08 45 44  31.3  33.9 -7.9     -38.3   900       104   21 45 01


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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01tn_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)
```

```
  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=   4200.00   4200.00   4200.00   4200.00
  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 pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   5

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


======== Setup file: ra18cm2.set
  Matching groups in ./rk01tn_freq.dat:
    tr18cm          E-mail Borkowski 12Mar98, preferred alternative

  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=   2300.00   2300.00   2300.00   2300.00
  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 pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   6

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1637+574          16 37 17.425182   * 16 38 13.456297     16 38 28.495101       0.00
  J1638+5720        57 26 15.76127    * 57 20 23.97898      57 18 31.76596        0.00


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)
  1637+574            94.4

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

rk01totr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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```


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
######################## Observing mode: K&C-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  13 Feb 2014   Day  44 ---

 ---------- 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

00 00 00  1502+106     10 46 04  23.4 104.3 -4.3     -36.3     0         0   00 00 00
00 14 30  ---          11 00 36  25.5 107.5 -4.1     -35.6   870        28   00 00 01

00 15 00  1502+106     11 01 06  25.5 107.6 -4.1     -35.6    24        28   00 15 00
00 25 00  ---          11 11 08  27.0 109.8 -3.9     -35.1   600        47   00 15 01

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00

00 30 00  1502+106     11 16 09  27.7 111.0 -3.8     -34.8   293        47   00 30 00
00 44 30  ---          11 30 41  29.7 114.3 -3.6     -33.8   870        75   00 30 01

00 45 00  1502+106     11 31 11  29.8 114.4 -3.6     -33.8    24        75   00 45 00
01 00 00  ---          11 46 14  31.8 118.0 -3.3     -32.6   900       104   00 45 01


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


 ======== Setup file: ra1cm2.set
   Matching groups in ./rk01to_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)
```

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

  Disk used to record data.

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

 The following frequency sets based on these setups were used.

  Frequency Set:   6  Setup file default.  Used pcal sets:   1
  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

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


======== Setup file: ra6cm2.set
  Matching groups in ./rk01to_freq.dat:
    tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

  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=   4200.00   4200.00   4200.00   4200.00
  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:   8  Setup file default.  Used pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   8

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1502+106          15 02 00.157714   * 15 04 24.979783     15 05 06.549036       0.00
  J1504+1029        10 41 17.73982    * 10 29 39.19840      10 26 15.83734        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1502+106           102.3

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

rk07awtr

RadioAstron Maser observations

PI: *Alexei Alakoz*

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

Observing mode: K-band, dual-pol


Schedule for TORUN     (Code Tr )                                   Page   2
               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 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  13 Feb 2014   Day  44 ---

 ---------- This is a fringe finder/clock offset calibrator 16.1 deg. from IRAS1519 ----------

 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

02 50 00  1514+197     13 36 32  51.1 140.1 -1.7     -24.1     0         0   02 50 00
02 55 00  ---          13 41 32  51.6 141.8 -1.6     -23.2   300        10   02 50 01

 ---------- Please, make sure PCAL is OFF for IRAS1519 maser observations. ----------

03 00 00  IRAS1519     13 46 33  62.2 132.1 -1.6     -31.4   248        10   03 00 00
03 09 30  ---          13 56 05  63.3 136.0 -1.4     -29.2   570        28   03 00 01

03 10 00  IRAS1519     13 56 35  63.3 136.2 -1.4     -29.1    23        28   03 10 00
03 19 30  ---          14 06 06  64.3 140.3 -1.3     -26.7   570        46   03 10 01

03 20 00  IRAS1519     14 06 37  64.3 140.5 -1.3     -26.6    23        46   03 20 00
03 29 30  ---          14 16 08  65.2 144.8 -1.1     -23.9   570        64   03 20 01

03 30 00  IRAS1519     14 16 38  65.2 145.0 -1.1     -23.8    23        64   03 30 00
03 40 00  ---          14 26 40  66.0 149.8 -0.9     -20.7   600        84   03 30 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 ./rk07aw_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

   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:   5  Setup file default.  Used pcal sets:   1
 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

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = OFF
  PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
  PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
  PCALFR1=     0     0     0     0     0     0     0     0
  PCALFR2=     0     0     0     0     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

  IRAS15193+31      15 19 21.526559   * 15 21 23.956080     15 21 58.864429       0.00
* IRAS1519          31 32 45.29719    * 31 22 02.57300      31 18 49.60785        0.00

* 1514+197          15 14 40.985841   * 15 16 56.796164     15 17 35.652874       0.00
  J1516+1932        19 43 10.94234    * 19 32 12.99191      19 28 58.76854        0.00


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)
 IRAS1519           102.1
 1514+197           101.1

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

rk07axtr

RadioAstron Maser observations

PI: *Alexei Alakoz*


```
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```


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


Schedule for TORUN     (Code Tr )                                    Page   2
                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 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  13 Feb 2014   Day  44 ---

 ---------- This is a fringe finder/clock offset calibrator 34.9 deg. from NGC4258_H2O ----------

 Next scan frequencies:  22204.00  22204.00  22204.00  22204.00
 Next BBC frequencies:     704.00    704.00    704.00    704.00
 Next scan bandwidths:      16.00     16.00     16.00     16.00

06 50 00  1239+376     17 37 11  38.3 -76.5  4.9      47.2     0         0   06 50 00
06 55 00  ---          17 42 12  37.5 -75.6  5.0      47.0   300        10   06 50 01

 ---------- Please, make sure PCAL is OFF for NGC4258_H2O maser observations. ----------

07 00 00  NGC4258_H2O  17 47 13  40.1 -61.6  5.5      51.0   258        10   07 00 00
07 09 30  ---          17 56 44  38.9 -60.2  5.6      50.1   570        28   07 00 01

07 10 00  NGC4258_H2O  17 57 14  38.8 -60.2  5.6      50.1    24        28   07 10 00
07 19 30  ---          18 06 46  37.6 -58.8  5.8      49.2   570        46   07 10 01

07 20 00  NGC4258_H2O  18 07 16  37.5 -58.8  5.8      49.1    24        46   07 20 00
07 29 30  ---          18 16 48  36.3 -57.4  6.0      48.2   570        64   07 20 01

07 30 00  NGC4258_H2O  18 17 18  36.2 -57.4  6.0      48.1    24        64   07 30 00
07 39 30  ---          18 26 49  35.0 -56.0  6.1      47.1   570        83   07 30 01

07 40 00  NGC4258_H2O  18 27 19  35.0 -55.9  6.1      47.1    24        83   07 40 00
07 49 30  ---          18 36 51  33.8 -54.6  6.3      46.1   570       101   07 40 01

07 50 00  NGC4258_H2O  18 37 21  33.7 -54.5  6.3      46.1    24       101   07 50 00
08 00 00  ---          18 47 23  32.5 -53.1  6.5      45.0   600       120   07 50 01


SETUP FILE INFORMATION:

 ======== Setup file: ra1cm2.set
   Matching groups in ./rk07ax_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

   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:   4  Setup file default.  Used pcal sets:   1
 LO sum=   22204.00  22204.00  22204.00  22204.00
 BBC fr=     704.00    704.00    704.00    704.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   4

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = OFF
  PCALXB1=   S1    S2    S3    S4    OFF   OFF   OFF   OFF
  PCALXB2=   M1    M2    M3    M4    OFF   OFF   OFF   OFF
  PCALFR1=     0     0     0     0     0     0     0     0
  PCALFR2=     0     0     0     0     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* NGC4258_H2O       12 16 29.364915   * 12 18 57.504600     12 19 40.683717       0.00
                    47 34 53.16919    * 47 18 14.30300      47 13 14.29093        0.00

* 1239+376          12 39 45.151329   * 12 42 09.812390     12 42 51.888964       0.00
  J1242+3720        37 36 31.63208    * 37 20 05.69271      37 15 10.48619        0.00


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)
  NGC4258_H2O        133.6
  1239+376           134.2

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

rk01tptr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
#######################  Observing mode: K&C-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  14 Feb 2014   Day  45 ---

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

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

23 00 00  1413+135     09 53 47  25.1 101.6 -4.4     -37.2     0         0   23 00 00
23 09 30  ---          10 03 18  26.5 103.7 -4.2     -36.8   570        18   23 00 01

23 10 00  1413+135     10 03 49  26.5 103.8 -4.2     -36.8    24        18   23 10 00
23 19 30  ---          10 13 20  27.9 105.9 -4.1     -36.4   570        36   23 10 01

23 20 00  1413+135     10 13 50  28.0 106.0 -4.0     -36.4    24        36   23 20 00
23 25 00  ---          10 18 51  28.7 107.1 -4.0     -36.1   300        46   23 20 01

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00

23 30 00  1413+135     10 23 52  29.4 108.2 -3.9     -35.9   293        46   23 30 00
23 39 30  ---          10 33 23  30.8 110.4 -3.7     -35.3   570        64   23 30 01

23 40 00  1413+135     10 33 54  30.9 110.5 -3.7     -35.3    24        64   23 40 00
23 49 30  ---          10 43 25  32.2 112.7 -3.6     -34.7   570        83   23 40 01

23 50 00  1413+135     10 43 55  32.3 112.9 -3.5     -34.6    24        83   23 50 00
23 59 59  ---          10 53 57  33.6 115.3 -3.4     -33.9   599       102   23 50 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 ./rk01tp_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

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

   Disk used to record data.

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

  The following frequency sets based on these setups were used.

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

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
    PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
    PCALFR1=  1000  1000 13000 13000     0     0     0     0
    PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01tp_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
   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:   8  Setup file default.  Used pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   8

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1413+135          14 13 33.910857   * 14 15 58.817509     14 16 40.701273       0.00
  J1415+1320        13 34 17.40450    * 13 20 23.71274      13 16 19.15087        0.00


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)
  1413+135           116.2

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

rk01tqtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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```


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
#######################  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
-----------------------------------------------------------------------------------------

 --- Sat  15 Feb 2014   Day  46 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

03 00 00  1219+044     13 54 26  37.6 209.2  1.5      17.1     0         0   03 00 00
03 09 30  ---          14 03 58  36.8 212.1  1.7      18.6   570        18   03 00 01

03 10 00  1219+044     14 04 28  36.8 212.2  1.7      18.7    24        18   03 10 00
03 19 30  ---          14 14 00  36.0 215.0  1.8      20.2   570        36   03 10 01

03 20 00  1219+044     14 14 30  36.0 215.1  1.9      20.3    24        36   03 20 00
03 25 00  ---          14 19 30  35.5 216.6  1.9      21.0   300        46   03 20 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

03 30 00  1219+044     14 24 31  35.1 218.0  2.0      21.8   293        46   03 30 00
03 39 30  ---          14 34 03  34.2 220.7  2.2      23.1   570        64   03 30 01

03 40 00  1219+044     14 34 33  34.1 220.8  2.2      23.2    24        64   03 40 00
03 49 30  ---          14 44 04  33.2 223.4  2.3      24.4   570        83   03 40 01

03 50 00  1219+044     14 44 35  33.1 223.6  2.4      24.5    24        83   03 50 00
04 00 00  ---          14 54 36  32.0 226.2  2.5      25.8   600       102   03 50 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
   Matching groups in ./rk01tq_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
   Net SB=         L         L         U         U
   IF SB =         U         U         U         U
   Pol.  =       RCP       LCP       RCP       LCP
   BBC   =         1         2         1         2
   BBC SB=         L         L         U         U
   IF    =         C         A         C         A

  The following frequency sets based on these setups were used.

   Frequency Set:   7  Setup file default.  Used pcal sets:   1
   LO sum=   4836.00  4836.00  4836.00  4836.00
   BBC fr=    636.00   636.00   636.00   636.00
   Bandwd=     16.00    16.00    16.00    16.00
    Matching frequency sets:   7

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
    PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
    PCALFR1=  1000  1000 13000 13000     0     0     0     0
    PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


 ======== Setup file: ra18cm2.set
   Matching groups in ./rk01tq_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
   Net SB=         L         L         U         U
   IF SB =         L         L         L         L
   Pol.  =       RCP       LCP       RCP       LCP
   BBC   =         1         2         1         2
   BBC SB=         U         U         L         L
   IF    =         C         A         C         A
```

```
 The following frequency sets based on these setups were used.

  Frequency Set:   9  Setup file default.  Used pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   9

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1219+044          12 19 49.255032   * 12 22 22.549622     12 23 07.425065       0.00
  J1222+0413        04 29 53.60821    * 04 13 15.77600      04 08 22.88830        0.00


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)
  3C286              127.0
  1219+044           142.3

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

rk01trtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
######################## 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
------------------------------------------------------------------------------------------

 --- Sat  15 Feb 2014   Day  46 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  1413+135     09 57 43  25.7 102.4 -4.3     -37.0     0         0   23 00 00
23 09 30  ---          10 07 15  27.0 104.5 -4.2     -36.7   570        18   23 00 01

23 10 00  1413+135     10 07 45  27.1 104.6 -4.1     -36.7    24        18   23 10 00
23 19 30  ---          10 17 17  28.5 106.7 -4.0     -36.2   570        36   23 10 01

23 20 00  1413+135     10 17 47  28.6 106.8 -4.0     -36.2    24        36   23 20 00
23 25 00  ---          10 22 48  29.3 108.0 -3.9     -35.9   300        46   23 20 01

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

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00

23 30 00  1413+135     10 27 48  30.0 109.1 -3.8     -35.7   293        46   23 30 00
23 39 30  ---          10 37 20  31.3 111.3 -3.7     -35.1   570        64   23 30 01

23 40 00  1413+135     10 37 50  31.4 111.4 -3.6     -35.1    24        64   23 40 00
23 49 30  ---          10 47 22  32.7 113.7 -3.5     -34.4   570        83   23 40 01

23 50 00  1413+135     10 47 52  32.8 113.8 -3.5     -34.4    24        83   23 50 00
23 59 59  ---          10 57 53  34.2 116.2 -3.3     -33.6   599       102   23 50 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
   Matching groups in ./rk01tr_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
   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 pcal sets:   1
   LO sum=   4836.00  4836.00  4836.00  4836.00
   BBC fr=    636.00   636.00   636.00   636.00
   Bandwd=     16.00    16.00    16.00    16.00
    Matching frequency sets:   4

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
    PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
    PCALFR1=  1000  1000 13000 13000     0     0     0     0
    PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


 ======== Setup file: ra18cm2.set
   Matching groups in ./rk01tr_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
   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 pcal sets:   1
  LO sum=   1668.00  1668.00  1668.00  1668.00
  BBC fr=    632.00   632.00   632.00   632.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   6

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1413+135          14 13 33.910857   * 14 15 58.817509     14 16 40.726286       0.00
  J1415+1320        13 34 17.40450    * 13 20 23.71274      13 16 19.07034        0.00


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)
  1413+135           117.1

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

rk01tttr

RadioAstron AGN survey

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


```
Observing mode: C-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  16 Feb 2014   Day  47 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

16 00 00  0340+362     03 00 31  71.6 150.9 -0.7     -21.3     0         0   16 00 00
16 14 30  ---          03 15 03  72.5 160.0 -0.5     -14.8   870        28   16 00 01

16 15 00  0340+362     03 15 34  72.6 160.3 -0.5     -14.6    23        28   16 15 00
16 29 30  ---          03 30 06  73.1 170.0 -0.2      -7.4   870        56   16 15 01

16 30 00  0340+362     03 30 36  73.1 170.4 -0.2      -7.2    23        56   16 30 00
16 44 30  ---          03 45 08  73.3 180.5  0.0       0.4   870        84   16 30 01

16 45 00  0340+362     03 45 38  73.3 180.9  0.0       0.6    23        84   16 45 00
17 00 00  ---          04 00 41  73.1 191.3  0.3       8.4   900       112   16 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
   Matching groups in ./rk01tt_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0340+362          03 40 14.791324   * 03 43 28.952413     03 44 24.983499       0.00
  J0343+3622        36 12 44.44799    * 36 22 12.42969      36 24 52.91389        0.00


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)
  3C147              115.9
  0340+362            94.1

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

rk01tutr

RadioAstron AGN survey

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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


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


Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron 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  16 Feb 2014   Day  47 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  0743-006     10 01 40  29.2 219.5  2.3      22.5     0         0   23 00 00
23 09 30  ---          10 11 12  28.3 222.0  2.4      23.7   570        18   23 00 01

23 10 00  0743-006     10 11 42  28.2 222.2  2.4      23.8    24        18   23 10 00
23 19 30  ---          10 21 13  27.3 224.6  2.6      25.0   570        36   23 10 01

23 20 00  0743-006     10 21 43  27.2 224.8  2.6      25.0    24        36   23 20 00
23 29 30  ---          10 31 15  26.2 227.2  2.7      26.1   570        55   23 20 01

23 30 00  0743-006     10 31 45  26.1 227.3  2.8      26.2    24        55   23 30 00
23 39 30  ---          10 41 17  25.1 229.6  2.9      27.2   570        73   23 30 01

23 40 00  0743-006     10 41 47  25.0 229.8  2.9      27.3    24        73   23 40 00
23 49 30  ---          10 51 18  23.9 232.1  3.1      28.3   570        91   23 40 01

23 50 00  0743-006     10 51 48  23.8 232.2  3.1      28.3    24        91   23 50 00
23 59 59  ---          11 01 50  22.6 234.6  3.3      29.3   599       110   23 50 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
   Matching groups in ./rk01tu_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0743-006          07 43 21.047495   * 07 45 54.082322     07 46 39.090238       0.00
  J0745-0044       -00 36 55.80448    *-00 44 17.54000     -00 46 39.86988        0.00


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)
  0743-006           144.1

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

rk01tvtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: C-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
-------------------------------------------------------------------------------------------

 --- Mon  17 Feb 2014   Day  48 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

03 00 00  1219+044     14 02 19  37.0 211.6  1.7      18.4     0         0   03 00 00
03 09 30  ---          14 11 51  36.2 214.4  1.8      19.9   570        18   03 00 01

03 10 00  1219+044     14 12 21  36.1 214.5  1.8      19.9    24        18   03 10 00
03 19 30  ---          14 21 53  35.3 217.3  2.0      21.4   570        36   03 10 01

03 20 00  1219+044     14 22 23  35.3 217.4  2.0      21.4    24        36   03 20 00
03 29 30  ---          14 31 54  34.4 220.1  2.1      22.8   570        55   03 20 01

03 30 00  1219+044     14 32 24  34.3 220.2  2.2      22.9    24        55   03 30 00
03 39 30  ---          14 41 56  33.4 222.8  2.3      24.2   570        73   03 30 01

03 40 00  1219+044     14 42 26  33.3 223.0  2.3      24.2    24        73   03 40 00
03 49 30  ---          14 51 58  32.3 225.5  2.5      25.4   570        91   03 40 01

03 50 00  1219+044     14 52 28  32.3 225.7  2.5      25.5    24        91   03 50 00
04 00 00  ---          15 02 29  31.2 228.3  2.7      26.7   600       110   03 50 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
   Matching groups in ./rk01tv_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1219+044          12 19 49.255032   * 12 22 22.549622     12 23 07.457234       0.00
  J1222+0413        04 29 53.60821    * 04 13 15.77600      04 08 22.74182        0.00


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)
  1219+044           144.3

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

rk01twtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: L-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  18 Feb 2014   Day  49 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  1334-127     11 05 46  16.2 141.2 -2.5     -22.7     0         0   00 00 00
00 09 30  ---          11 15 18  17.1 143.4 -2.4     -21.6   570        18   00 00 01

00 10 00  1334-127     11 15 48  17.2 143.5 -2.4     -21.5    24        18   00 10 00
00 19 30  ---          11 25 20  18.0 145.8 -2.2     -20.3   570        36   00 10 01

00 20 00  1334-127     11 25 50  18.0 145.9 -2.2     -20.2    24        36   00 20 00
00 29 30  ---          11 35 21  18.8 148.2 -2.1     -18.9   570        55   00 20 01

00 30 00  1334-127     11 35 51  18.8 148.3 -2.0     -18.9    24        55   00 30 00
00 39 30  ---          11 45 23  19.6 150.7 -1.9     -17.6   570        73   00 30 01

00 40 00  1334-127     11 45 53  19.6 150.8 -1.9     -17.5    24        73   00 40 00
00 49 30  ---          11 55 25  20.3 153.2 -1.7     -16.2   570        91   00 40 01

00 50 00  1334-127     11 55 55  20.3 153.3 -1.7     -16.1    24        91   00 50 00
01 00 00  ---          12 05 56  21.0 155.8 -1.5     -14.6   600       110   00 50 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
   Matching groups in ./rk01tw_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   6

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1334-127          13 34 59.803872   * 13 37 39.782777     13 38 26.512501       0.00
  J1337-1257       -12 42 09.74318    *-12 57 24.69345     -13 01 46.12735        0.00


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)
  1334-127           121.7

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

eh027ctr

e-EVN: eh027c, rsl03, rp023b

PI: *Hada, Lobanov, Perez-Torres*


```
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Phone:    +31 521 596 536             EMAIL:    zparagi@jive.nl
Fax:      +31 521 596 539             Phone during observation: +31 521 596 530
```


```
Observing mode: realtime e-vlbi



Schedule for TORUN     (Code Tr )                                   Page   2
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

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

09 00 00  3C454.3      20 07 15  40.8 122.2 -2.8     -31.9     0        0   09 00 00
09 15 00  ---          20 22 18  42.6 126.4 -2.5     -30.2   900      115   09 00 01

09 15 40  3C454.3      20 22 58  42.7 126.6 -2.5     -30.1    34      115   09 15 40
09 30 00  ---          20 37 20  44.4 130.7 -2.3     -28.3   860      225   09 15 41

09 30 40  3C454.3      20 38 00  44.5 130.9 -2.3     -28.2    34      225   09 30 40
09 45 00  ---          20 52 23  46.0 135.3 -2.0     -26.1   860      335   09 30 41

09 45 40  3C454.3      20 53 03  46.1 135.5 -2.0     -26.0    34      335   09 45 40
10 00 00  ---          21 07 25  47.6 140.1 -1.8     -23.7   860      445   09 45 41

10 00 40  3C454.3      21 08 05  47.6 140.3 -1.8     -23.5    34      445   10 00 40
10 15 00  ---          21 22 27  48.9 145.1 -1.5     -21.0   860      556   10 00 41

10 15 40  3C454.3      21 23 08  49.0 145.3 -1.5     -20.8    34      556   10 15 40
10 30 00  ---          21 37 30  50.1 150.3 -1.3     -18.0   860      666   10 15 41

10 30 40  3C454.3      21 38 10  50.2 150.6 -1.3     -17.9    34      666   10 30 40
10 45 00  ---          21 52 32  51.2 155.8 -1.0     -14.9   860      776   10 30 41

10 45 40  3C454.3      21 53 13  51.2 156.0 -1.0     -14.7    34      776   10 45 40
11 00 00  ---          22 07 35  52.0 161.5 -0.8     -11.5   860      886   10 45 41

11 03 00  0234+285     22 10 35  36.2  88.8 -4.5     -43.3    20      886   11 03 00
11 15 00  ---          22 22 37  38.0  91.2 -4.3     -43.3   720      978   11 03 01
```

```
Schedule for TORUN     (Code Tr )                                Page   3
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

11 15 40  0234+285     22 23 17  38.1  91.4 -4.3     -43.3    34      978   11 15 40
11 30 00  ---          22 37 40  40.3  94.3 -4.0     -43.1   860     1088   11 15 41

11 30 40  0234+285     22 38 20  40.4  94.5 -4.0     -43.1    34     1088   11 30 40
11 45 00  ---          22 52 42  42.6  97.5 -3.8     -42.8   860     1198   11 30 41

11 45 40  0234+285     22 53 22  42.6  97.7 -3.8     -42.8    34     1198   11 45 40
12 00 00  ---          23 07 45  44.8 100.9 -3.5     -42.3   860     1308   11 45 41

12 00 40  0234+285     23 08 25  44.9 101.0 -3.5     -42.3    34     1308   12 00 40
12 15 00  ---          23 22 47  47.0 104.4 -3.3     -41.6   860     1418   12 00 41

12 15 40  0234+285     23 23 27  47.1 104.6 -3.3     -41.6    34     1418   12 15 40
12 30 00  ---          23 37 50  49.1 108.1 -3.0     -40.7   860     1528   12 15 41

12 30 40  0234+285     23 38 30  49.2 108.3 -3.0     -40.6    34     1528   12 30 40
12 45 00  ---          23 52 52  51.3 112.1 -2.8     -39.5   860     1638   12 30 41

12 45 40  0234+285     23 53 32  51.4 112.2 -2.8     -39.4    34     1638   12 45 40
13 00 00  ---          00 07 55  53.3 116.3 -2.5     -37.9   860     1748   12 45 41

13 00 40  0234+285     00 08 35  53.4 116.5 -2.5     -37.9    34     1748   13 00 40
13 15 00  ---          00 22 57  55.3 120.8 -2.3     -36.1   860     1859   13 00 41

13 15 40  0234+285     00 23 37  55.4 121.0 -2.3     -36.0    34     1859   13 15 40
13 30 00  ---          00 38 00  57.2 125.6 -2.0     -33.9   860     1969   13 15 41

13 34 10  J0518+2054   00 42 10  29.0  93.3 -4.6     -39.9   129     1969   13 34 10
13 37 20  =0515+208    00 45 21  29.5  94.0 -4.6     -39.9   190     1993   13 34 11

13 38 10  J0521+2112   00 46 11  29.3  93.2 -4.6     -40.0    36     1993   13 38 10
13 40 00  =0518+211    00 48 01  29.6  93.6 -4.6     -40.0   110     2007   13 38 11

13 40 50  053352       00 48 51  28.4  90.7 -4.8     -40.4    30     2007   13 40 50
13 47 20  ---          00 55 22  29.4  92.0 -4.7     -40.3   390     2057   13 40 51

13 48 10  J0521+2112   00 56 13  30.8  95.2 -4.4     -39.9    29     2057   13 48 10
13 50 00  =0518+211    00 58 03  31.1  95.6 -4.4     -39.9   110     2071   13 48 11

13 50 50  053428       00 58 53  30.1  92.4 -4.6     -40.4    29     2071   13 50 50
13 57 20  ---          01 05 24  31.0  93.7 -4.5     -40.3   390     2121   13 50 51

13 58 10  J0521+2112   01 06 14  32.3  97.4 -4.3     -39.7    28     2121   13 58 10
14 00 00  =0518+211    01 08 04  32.5  97.7 -4.2     -39.7   110     2135   13 58 11

14 00 50  053512       01 08 55  31.4  94.4 -4.5     -40.3    28     2135   14 00 50
14 07 20  ---          01 15 26  32.4  95.7 -4.3     -40.2   390     2185   14 00 51
```

Schedule for TORUN (Code Tr) Page 4

e-EVN: eh027c, rsl03, rp023b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 18 Feb 2014 Day 49 ---										
14 08 10	J0521+2112	01 16 16	33.8	99.5	-4.1		-39.4	28	2185	14 08 10
14 10 00	=0518+211	01 18 06	34.0	99.9	-4.1		-39.4	110	2199	14 08 11
14 10 50	053443	01 18 56	33.1	96.5	-4.3		-40.2	28	2199	14 10 50
14 17 20	---	01 25 27	34.0	97.9	-4.2		-40.0	390	2249	14 10 51
14 18 10	J0521+2112	01 26 17	35.2	101.7	-3.9		-39.1	28	2249	14 18 10
14 20 00	=0518+211	01 28 08	35.5	102.1	-3.9		-39.0	110	2263	14 18 11
14 20 50	053559	01 28 58	34.2	98.6	-4.1		-39.8	28	2263	14 20 50
14 27 20	---	01 35 29	35.1	100.0	-4.0		-39.6	390	2313	14 20 51
14 28 10	J0521+2112	01 36 19	36.7	103.9	-3.8		-38.7	27	2313	14 28 10
14 30 00	=0518+211	01 38 09	37.0	104.4	-3.7		-38.6	110	2327	14 28 11
14 30 50	053632	01 39 00	35.6	100.6	-4.0		-39.6	27	2327	14 30 50
14 37 20	---	01 45 31	36.5	102.0	-3.9		-39.3	390	2377	14 30 51
14 38 10	J0521+2112	01 46 21	38.2	106.2	-3.6		-38.2	27	2377	14 38 10
14 40 00	=0518+211	01 48 11	38.4	106.7	-3.6		-38.1	110	2391	14 38 11
14 40 50	053155	01 49 01	37.7	103.9	-3.7		-39.0	30	2391	14 40 50
14 47 20	---	01 55 32	38.7	105.3	-3.6		-38.7	390	2441	14 40 51
14 48 10	J0521+2112	01 56 22	39.6	108.6	-3.4		-37.6	29	2441	14 48 10
14 50 00	=0518+211	01 58 13	39.9	109.1	-3.4		-37.5	110	2455	14 48 11
14 50 50	053131	01 59 03	39.1	106.4	-3.6		-38.4	30	2455	14 50 50
14 57 20	---	02 05 34	40.1	107.9	-3.4		-38.0	390	2505	14 50 51
14 58 10	J0521+2112	02 06 24	41.0	111.1	-3.3		-37.0	30	2505	14 58 10
15 00 00	=0518+211	02 08 14	41.3	111.5	-3.2		-36.8	110	2519	14 58 11
15 00 50	053815	02 09 04	39.4	107.3	-3.5		-38.1	26	2519	15 00 50
15 07 20	---	02 15 36	40.4	108.9	-3.4		-37.7	390	2569	15 00 51
15 08 10	J0521+2112	02 16 26	42.4	113.6	-3.1		-36.2	26	2569	15 08 10
15 10 00	=0518+211	02 18 16	42.7	114.0	-3.1		-36.0	110	2583	15 08 11
15 10 50	052830	02 19 06	42.1	112.3	-3.2		-36.7	33	2583	15 10 50
15 17 20	---	02 25 37	43.0	113.9	-3.1		-36.2	390	2633	15 10 51
15 18 10	J0521+2112	02 26 27	43.8	116.2	-2.9		-35.3	32	2633	15 18 10
15 20 00	=0518+211	02 28 18	44.0	116.7	-2.9		-35.2	110	2647	15 18 11
15 20 50	052817	02 29 08	44.2	114.2	-3.0		-36.3	31	2647	15 20 50
15 27 20	---	02 35 39	45.0	116.0	-2.9		-35.7	390	2697	15 20 51

Schedule for TORUN (Code Tr) Page 5

e-EVN: eh027c, rsl03, rp023b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 18 Feb 2014 Day 49 ---										
15 28 10	J0521+2112	02 36 29	45.1	118.9	-2.8		-34.3	30	2697	15 28 10
15 30 00	=0518+211	02 38 19	45.4	119.4	-2.7		-34.2	110	2711	15 28 11
15 31 00	J0518+2054	02 39 19	45.7	120.9	-2.7		-33.5	45	2711	15 31 00
15 35 00	=0515+208	02 43 20	46.2	122.0	-2.6		-33.0	240	2742	15 31 01
15 36 00	J0521+2112	02 44 20	46.1	121.0	-2.6		-33.5	45	2742	15 36 00
15 40 00	=0518+211	02 48 21	46.6	122.2	-2.6		-33.0	240	2772	15 36 01
15 40 50	053352	02 49 11	45.8	118.4	-2.8		-34.7	27	2772	15 40 50
15 47 20	---	02 55 42	46.7	120.2	-2.7		-34.0	390	2822	15 40 51
15 48 10	J0521+2112	02 56 32	47.7	124.5	-2.4		-32.1	27	2822	15 48 10
15 50 00	=0518+211	02 58 23	47.9	125.1	-2.4		-31.8	110	2836	15 48 11
15 50 50	053428	02 59 13	47.3	120.8	-2.6		-33.9	26	2836	15 50 50
15 57 20	---	03 05 44	48.1	122.7	-2.5		-33.1	390	2886	15 50 51
15 58 10	J0521+2112	03 06 34	48.9	127.5	-2.3		-30.7	26	2886	15 58 10
16 00 00	=0518+211	03 08 24	49.1	128.1	-2.2		-30.5	110	2900	15 58 11
16 00 50	053512	03 09 14	48.4	123.5	-2.4		-32.7	26	2900	16 00 50
16 07 20	---	03 15 45	49.2	125.5	-2.3		-31.9	390	2950	16 00 51
16 08 10	J0521+2112	03 16 36	50.1	130.6	-2.1		-29.3	25	2950	16 08 10
16 10 00	=0518+211	03 18 26	50.3	131.2	-2.1		-29.0	110	2964	16 08 11
16 10 50	053443	03 19 16	49.8	126.6	-2.3		-31.4	25	2964	16 10 50
16 17 20	---	03 25 47	50.5	128.6	-2.2		-30.5	390	3014	16 10 51
16 18 10	J0521+2112	03 26 37	51.2	133.9	-1.9		-27.7	25	3014	16 18 10
16 20 00	=0518+211	03 28 27	51.4	134.5	-1.9		-27.4	110	3028	16 18 11
16 20 50	053559	03 29 18	50.6	129.5	-2.1		-30.0	25	3028	16 20 50
16 27 20	---	03 35 49	51.3	131.6	-2.0		-29.0	390	3078	16 20 51
16 28 10	J0521+2112	03 36 39	52.2	137.2	-1.8		-25.9	24	3078	16 28 10
16 30 00	=0518+211	03 38 29	52.4	137.9	-1.7		-25.6	110	3092	16 28 11
16 30 50	053632	03 39 19	51.7	132.6	-2.0		-28.5	24	3092	16 30 50
16 37 20	---	03 45 50	52.4	134.7	-1.9		-27.4	390	3142	16 30 51
16 38 10	J0521+2112	03 46 40	53.2	140.7	-1.6		-24.1	23	3142	16 38 10
16 40 00	=0518+211	03 48 31	53.4	141.4	-1.6		-23.7	110	3156	16 38 11
16 40 50	053155	03 49 21	53.2	137.5	-1.7		-26.0	27	3156	16 40 50
16 47 20	---	03 55 52	53.9	139.8	-1.6		-24.7	390	3206	16 40 51

Schedule for TORUN (Code Tr) Page 6

e-EVN: eh027c, rsl03, rp023b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 18 Feb 2014 Day 49 ---										
16 48 10	J0521+2112	03 56 42	54.1	144.4	-1.4		-22.0	26	3206	16 48 10
16 50 00	=0518+211	03 58 32	54.3	145.0	-1.4		-21.7	110	3220	16 48 11
16 50 50	053131	03 59 23	54.1	141.3	-1.6		-23.9	27	3220	16 50 50
16 57 20	---	04 05 54	54.7	143.7	-1.4		-22.5	390	3270	16 50 51
16 58 10	J0521+2112	04 06 44	55.0	148.1	-1.3		-19.9	27	3270	16 58 10
17 00 00	=0518+211	04 08 34	55.1	148.8	-1.2		-19.5	110	3284	16 58 11
17 00 50	053815	04 09 24	54.2	142.7	-1.5		-23.1	22	3284	17 00 50
17 07 20	---	04 15 55	54.8	145.1	-1.4		-21.7	390	3334	17 00 51
17 08 10	J0521+2112	04 16 45	55.7	152.0	-1.1		-17.6	21	3334	17 08 10
17 10 00	=0518+211	04 18 36	55.8	152.7	-1.1		-17.2	110	3348	17 08 11
17 10 50	052830	04 19 26	55.7	150.2	-1.2		-18.7	30	3348	17 10 50
17 17 20	---	04 25 57	56.2	152.8	-1.1		-17.2	390	3398	17 10 51
17 18 10	J0521+2112	04 26 47	56.4	156.0	-0.9		-15.2	30	3398	17 18 10
17 20 00	=0518+211	04 28 37	56.5	156.8	-0.9		-14.7	110	3412	17 18 11
17 20 50	052817	04 29 27	57.2	153.9	-1.0		-16.6	29	3412	17 20 50
17 27 20	---	04 35 59	57.6	156.6	-0.9		-14.9	390	3462	17 20 51
17 28 10	J0521+2112	04 36 49	56.9	160.2	-0.8		-12.6	29	3462	17 28 10
17 30 00	=0518+211	04 38 39	57.0	160.9	-0.7		-12.2	110	3476	17 28 11
17 33 00	DA193	04 41 39	71.6	128.7	-1.2		-37.6	99	3476	17 33 00
17 40 00	---	04 48 41	72.4	132.2	-1.1		-35.4	420	3530	17 33 01
17 45 00	J0958+6533	04 53 41	51.8	40.7	-5.1		-70.7	102	3530	17 45 00
17 50 00	=0954+658	04 58 42	52.3	41.0	-5.0		-71.6	300	3569	17 45 01
17 51 00	M81	04 59 42	53.6	35.5	-5.0		-76.9	34	3569	17 51 00
18 00 00	---	05 08 44	54.4	35.8	-4.8		-78.8	540	3638	17 51 01
18 00 00	SN2014J	05 08 44	54.5	34.8	-4.8		-79.6	-14	3638	No stop
18 04 00	---	05 12 45	54.8	34.9	-4.7		-80.4	226	3668	18 00 01
18 04 00	M81	05 12 45	54.7	36.0	-4.7		-79.6	-14	3668	No stop
18 05 00	---	05 13 45	54.8	36.0	-4.7		-79.8	46	3676	18 04 01
18 05 00	SN2014J	05 13 45	54.9	34.9	-4.7		-80.6	-14	3676	No stop
18 09 00	---	05 17 45	55.3	35.0	-4.7		-81.5	226	3707	18 05 01
18 09 30	M81	05 18 15	55.2	36.1	-4.6		-80.8	16	3707	18 09 30
18 10 00	---	05 18 46	55.3	36.1	-4.6		-80.9	30	3711	18 09 31

```
Schedule for TORUN     (Code Tr )                                Page   7
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

18 10 00  SN2014J      05 18 46  55.4  35.1 -4.6     -81.7   -14     3711   No stop
18 14 00  ---          05 22 46  55.7  35.1 -4.6     -82.6   226     3741   18 10 01

18 14 00  M81          05 22 46  55.6  36.2 -4.6     -81.7   -14     3741   No stop
18 15 00  ---          05 23 46  55.7  36.2 -4.5     -82.0    46     3749   18 14 01

18 15 00  SN2014J      05 23 46  55.8  35.2 -4.6     -82.8   -14     3749   No stop
18 19 00  ---          05 27 47  56.1  35.2 -4.5     -83.7   226     3780   18 15 01

18 19 00  M81          05 27 47  56.1  36.3 -4.5     -82.8   -14     3780   No stop
18 20 00  ---          05 28 47  56.2  36.3 -4.5     -83.0    46     3788   18 19 01

18 20 00  SN2014J      05 28 47  56.2  35.2 -4.5     -83.9   -14     3788   No stop
18 24 00  ---          05 32 48  56.6  35.3 -4.4     -84.8   226     3818   18 20 01

18 24 00  M81          05 32 48  56.5  36.4 -4.4     -83.9   -14     3818   No stop
18 25 00  ---          05 33 48  56.6  36.4 -4.4     -84.1    46     3826   18 24 01

18 25 00  SN2014J      05 33 48  56.7  35.3 -4.4     -85.0   -14     3826   No stop
18 29 00  ---          05 37 49  57.0  35.4 -4.3     -85.9   226     3857   18 25 01

18 29 30  M81          05 38 19  57.0  36.5 -4.3     -85.1    16     3857   18 29 30
18 30 00  ---          05 38 49  57.1  36.5 -4.3     -85.2    30     3860   18 29 31

18 30 00  SN2014J      05 38 49  57.1  35.4 -4.3     -86.1   -14     3860   No stop
18 34 00  ---          05 42 49  57.4  35.4 -4.2     -87.0   226     3891   18 30 01

18 34 00  M81          05 42 49  57.4  36.6 -4.2     -86.1   -15     3891   No stop
18 35 00  ---          05 43 50  57.5  36.6 -4.2     -86.4    45     3899   18 34 01

18 35 00  SN2014J      05 43 50  57.5  35.4 -4.2     -87.3   -15     3899   No stop
18 39 00  ---          05 47 50  57.9  35.5 -4.2     -88.2   225     3930   18 35 01

18 39 00  M81          05 47 50  57.9  36.6 -4.1     -87.3   -15     3930   No stop
18 40 00  ---          05 48 50  58.0  36.6 -4.1     -87.5    45     3937   18 39 01

18 40 00  SN2014J      05 48 50  58.0  35.5 -4.1     -88.4   -15     3937   No stop
18 44 00  ---          05 52 51  58.3  35.5 -4.1     -89.3   225     3968   18 40 01

18 44 00  M81          05 52 51  58.3  36.6 -4.1     -88.4   -15     3968   No stop
18 45 00  ---          05 53 51  58.4  36.6 -4.0     -88.6    45     3976   18 44 01

18 45 00  SN2014J      05 53 51  58.4  35.5 -4.1     -89.6   -15     3976   No stop
18 49 00  ---          05 57 52  58.7  35.5 -4.0     -90.5   225     4006   18 45 01
```

```
Schedule for TORUN     (Code Tr )                                Page   8
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

18 49 30  M81          05 58 22  58.8  36.7 -4.0     -89.7    15     4006   18 49 30
18 50 00  ---          05 58 52  58.9  36.7 -4.0     -89.8    30     4010   18 49 31

18 50 00  SN2014J      05 58 52  58.8  35.5 -4.0     -90.8   -15     4010   No stop
18 54 00  ---          06 02 53  59.2  35.5 -3.9     -91.7   225     4041   18 50 01

18 54 00  M81          06 02 53  59.2  36.6 -3.9     -90.7   -15     4041   No stop
18 55 00  ---          06 03 53  59.3  36.6 -3.9     -91.0    45     4049   18 54 01

18 55 00  SN2014J      06 03 53  59.3  35.5 -3.9     -92.0   -15     4049   No stop
18 59 00  ---          06 07 54  59.6  35.4 -3.8     -92.9   225     4079   18 55 01

18 59 00  M81          06 07 54  59.7  36.6 -3.8     -91.9   -15     4079   No stop
19 00 00  ---          06 08 54  59.8  36.6 -3.8     -92.2    45     4087   18 59 01

19 00 00  SN2014J      06 08 54  59.7  35.4 -3.8     -93.2   -15     4087   No stop
19 04 00  ---          06 12 54  60.1  35.4 -3.7     -94.1   225     4118   19 00 01

19 04 00  M81          06 12 54  60.1  36.6 -3.7     -93.1   -15     4118   No stop
19 05 00  ---          06 13 55  60.2  36.6 -3.7     -93.4    45     4125   19 04 01

19 05 00  SN2014J      06 13 55  60.1  35.4 -3.7     -94.4   -15     4125   No stop
19 09 00  ---          06 17 55  60.5  35.3 -3.7     -95.4   225     4156   19 05 01

19 09 30  M81          06 18 25  60.6  36.5 -3.6     -94.5    15     4156   19 09 30
19 10 00  ---          06 18 55  60.6  36.5 -3.6     -94.6    30     4160   19 09 31

19 10 00  SN2014J      06 18 55  60.6  35.3 -3.6     -95.6   -15     4160   No stop
19 14 00  ---          06 22 56  60.9  35.2 -3.6     -96.6   225     4191   19 10 01

19 14 00  M81          06 22 56  61.0  36.4 -3.6     -95.6   -15     4191   No stop
19 15 00  ---          06 23 56  61.1  36.4 -3.5     -95.8    45     4198   19 14 01

19 15 00  SN2014J      06 23 56  61.0  35.2 -3.5     -96.9   -15     4198   No stop
19 19 00  ---          06 27 57  61.4  35.1 -3.5     -97.9   225     4229   19 15 01

19 19 00  M81          06 27 57  61.5  36.3 -3.5     -96.8   -15     4229   No stop
19 20 00  ---          06 28 57  61.5  36.3 -3.5     -97.1    45     4237   19 19 01

19 21 00  J0958+6533   06 29 57  61.6  43.7 -3.5     -90.1    30     4237   19 21 00
19 25 00  =0954+658    06 33 58  62.0  43.7 -3.4     -91.0   240     4268   19 21 01

19 26 00  M81          06 34 58  62.1  36.2 -3.4     -98.6    30     4268   19 26 00
19 30 00  ---          06 38 59  62.4  36.0 -3.3     -99.7   240     4298   19 26 01
```

```
Schedule for TORUN     (Code Tr )                                  Page   9
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

19 30 00  SN2014J      06 38 59  62.3  34.8 -3.3    -100.8   -15     4298   No stop
19 34 00  ---          06 42 59  62.7  34.6 -3.2    -101.9   225     4329   19 30 01

19 34 00  M81          06 42 59  62.8  35.9 -3.2    -100.7   -15     4329   No stop
19 35 00  ---          06 43 59  62.9  35.9 -3.2    -101.0    45     4337   19 34 01

19 35 00  SN2014J      06 43 59  62.7  34.6 -3.2    -102.1   -15     4337   No stop
19 39 00  ---          06 48 00  63.1  34.4 -3.1    -103.2   225     4367   19 35 01

19 39 30  M81          06 48 30  63.3  35.7 -3.1    -102.2    15     4367   19 39 30
19 40 00  ---          06 49 00  63.3  35.7 -3.1    -102.4    30     4371   19 39 31

19 40 00  SN2014J      06 49 00  63.2  34.4 -3.1    -103.5   -15     4371   No stop
19 44 00  ---          06 53 01  63.5  34.2 -3.1    -104.6   225     4402   19 40 01

19 44 00  M81          06 53 01  63.7  35.5 -3.1    -103.5   -15     4402   No stop
19 45 00  ---          06 54 01  63.7  35.4 -3.0    -103.7    45     4410   19 44 01

19 45 00  SN2014J      06 54 01  63.6  34.1 -3.0    -104.9   -15     4410   No stop
19 49 00  ---          06 58 02  63.9  33.9 -3.0    -106.0   225     4440   19 45 01

19 49 00  M81          06 58 02  64.1  35.2 -3.0    -104.8   -15     4440   No stop
19 50 00  ---          06 59 02  64.2  35.2 -3.0    -105.1    45     4448   19 49 01

19 50 00  SN2014J      06 59 02  64.0  33.9 -3.0    -106.3   -15     4448   No stop
19 54 00  ---          07 03 03  64.3  33.6 -2.9    -107.4   225     4479   19 50 01

19 54 00  M81          07 03 03  64.5  35.0 -2.9    -106.3   -15     4479   No stop
19 55 00  ---          07 04 03  64.6  34.9 -2.9    -106.6    45     4486   19 54 01

19 55 00  SN2014J      07 04 03  64.4  33.6 -2.9    -107.7   -15     4486   No stop
19 59 00  ---          07 08 03  64.8  33.3 -2.8    -108.9   225     4517   19 55 01

19 59 30  M81          07 08 34  65.0  34.6 -2.8    -107.9    15     4517   19 59 30
20 00 00  ---          07 09 04  65.0  34.6 -2.8    -108.0    30     4521   19 59 31

20 00 00  SN2014J      07 09 04  64.8  33.2 -2.8    -109.2   -15     4521   No stop
20 04 00  ---          07 13 04  65.2  33.0 -2.7    -110.4   225     4552   20 00 01

20 04 00  M81          07 13 04  65.4  34.3 -2.7    -109.2   -15     4552   No stop
20 05 00  ---          07 14 04  65.5  34.2 -2.7    -109.5    45     4559   20 04 01

20 05 00  SN2014J      07 14 04  65.2  32.9 -2.7    -110.7   -15     4559   No stop
20 09 00  ---          07 18 05  65.6  32.6 -2.6    -111.9   225     4590   20 05 01
```

```
Schedule for TORUN     (Code Tr )                                Page  10
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

20 09 00  M81          07 18 05  65.8  33.9 -2.6    -110.7   -15     4590   No stop
20 10 00  ---          07 19 05  65.9  33.9 -2.6    -111.0    45     4598   20 09 01

20 10 00  SN2014J      07 19 05  65.7  32.5 -2.6    -112.2   -16     4598   No stop
20 14 00  ---          07 23 06  66.0  32.2 -2.6    -113.5   224     4628   20 10 01

20 14 00  M81          07 23 06  66.2  33.5 -2.6    -112.2   -15     4628   No stop
20 15 00  ---          07 24 06  66.3  33.5 -2.5    -112.6    45     4636   20 14 01

20 15 00  SN2014J      07 24 06  66.1  32.1 -2.5    -113.8   -16     4636   No stop
20 19 00  ---          07 28 07  66.4  31.7 -2.5    -115.0   224     4667   20 15 01

20 19 30  M81          07 28 37  66.7  33.1 -2.5    -114.0    15     4667   20 19 30
20 20 00  ---          07 29 07  66.7  33.0 -2.5    -114.1    30     4671   20 19 31

20 20 00  SN2014J      07 29 07  66.5  31.6 -2.5    -115.4   -16     4671   No stop
20 24 00  ---          07 33 08  66.8  31.2 -2.4    -116.7   224     4701   20 20 01

20 24 00  M81          07 33 08  67.0  32.6 -2.4    -115.4   -15     4701   No stop
20 25 00  ---          07 34 08  67.1  32.5 -2.4    -115.8    45     4709   20 24 01

20 25 00  SN2014J      07 34 08  66.8  31.1 -2.4    -117.0   -16     4709   No stop
20 29 00  ---          07 38 08  67.2  30.7 -2.3    -118.3   224     4740   20 25 01

20 29 00  M81          07 38 08  67.5  32.1 -2.3    -117.1   -15     4740   No stop
20 30 00  ---          07 39 09  67.5  32.0 -2.3    -117.4    45     4748   20 29 01

20 30 00  SN2014J      07 39 09  67.2  30.6 -2.3    -118.6   -16     4748   No stop
20 34 00  ---          07 43 09  67.5  30.2 -2.2    -120.0   224     4778   20 30 01

20 34 00  M81          07 43 09  67.8  31.6 -2.2    -118.8   -15     4778   No stop
20 35 00  ---          07 44 09  67.9  31.4 -2.2    -119.1    45     4786   20 34 01

20 35 00  SN2014J      07 44 09  67.6  30.1 -2.2    -120.3   -16     4786   No stop
20 39 00  ---          07 48 10  67.9  29.6 -2.1    -121.7   224     4817   20 35 01

20 39 30  M81          07 48 40  68.3  30.9 -2.1    -120.6    15     4817   20 39 30
20 40 00  ---          07 49 10  68.3  30.8 -2.1    -120.8    30     4820   20 39 31

20 40 00  SN2014J      07 49 10  68.0  29.5 -2.1    -122.1   -16     4820   No stop
20 44 00  ---          07 53 11  68.3  29.0 -2.1    -123.5   224     4851   20 40 01

20 44 00  M81          07 53 11  68.6  30.3 -2.1    -122.2   -15     4851   No stop
20 45 00  ---          07 54 11  68.7  30.2 -2.0    -122.6    45     4859   20 44 01
```

```
Schedule for TORUN     (Code Tr )                                  Page  11
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

20 45 00  SN2014J      07 54 11  68.4  28.8 -2.0    -123.8   -16     4859   No stop
20 49 00  ---          07 58 12  68.6  28.3 -2.0    -125.3   224     4890   20 45 01

20 49 00  M81          07 58 12  69.0  29.6 -2.0    -124.0   -15     4890   No stop
20 50 00  ---          07 59 12  69.1  29.5 -2.0    -124.4    45     4897   20 49 01

20 50 00  SN2014J      07 59 12  68.7  28.1 -2.0    -125.6   -16     4897   No stop
20 54 00  ---          08 03 12  69.0  27.6 -1.9    -127.1   224     4928   20 50 01

20 54 00  M81          08 03 12  69.4  28.9 -1.9    -125.9   -15     4928   No stop
20 55 00  ---          08 04 13  69.4  28.8 -1.9    -126.3    45     4936   20 54 01

20 56 00  J0958+6533   08 05 13  71.1  37.9 -1.9    -117.1    27     4936   20 56 00
21 00 00  =0954+658    08 09 13  71.5  37.3 -1.8    -118.6   240     4966   20 56 01

21 10 00  M87          08 19 15  25.9 104.5 -4.2     -36.5   411     4966   21 10 00
21 25 00  ---          08 34 18  28.0 107.9 -4.0     -35.8   900     5082   21 10 01

21 25 30  M87          08 34 48  28.1 108.0 -3.9     -35.8    24     5082   21 25 30
21 40 00  ---          08 49 20  30.2 111.3 -3.7     -34.9   870     5193   21 25 31

21 40 30  M87          08 49 50  30.2 111.4 -3.7     -34.9    24     5193   21 40 30
21 55 00  ---          09 04 22  32.2 114.8 -3.5     -33.9   870     5304   21 40 31

21 55 30  M87          09 04 53  32.3 114.9 -3.4     -33.9    24     5304   21 55 30
22 10 00  ---          09 19 25  34.2 118.5 -3.2     -32.7   870     5416   21 55 31

22 10 30  M87          09 19 55  34.3 118.6 -3.2     -32.7    24     5416   22 10 30
22 25 00  ---          09 34 27  36.2 122.3 -3.0     -31.3   870     5527   22 10 31

22 25 30  M87          09 34 57  36.3 122.4 -2.9     -31.2    24     5527   22 25 30
22 40 00  ---          09 49 30  38.1 126.3 -2.7     -29.7   870     5638   22 25 31

22 40 30  M87          09 50 00  38.1 126.4 -2.7     -29.6    24     5638   22 40 30
22 55 00  ---          10 04 32  39.8 130.4 -2.5     -27.9   870     5750   22 40 31

22 55 30  M87          10 05 02  39.9 130.6 -2.4     -27.8    24     5750   22 55 30
23 10 00  ---          10 19 35  41.5 134.7 -2.2     -25.9   870     5861   22 55 31

23 10 30  M87          10 20 05  41.5 134.9 -2.2     -25.8    24     5861   23 10 30
23 25 00  ---          10 34 37  43.0 139.2 -1.9     -23.7   870     5972   23 10 31

23 25 30  M87          10 35 07  43.1 139.4 -1.9     -23.6    24     5972   23 25 30
23 40 00  ---          10 49 40  44.4 143.9 -1.7     -21.2   870     6084   23 25 31
```

```
Schedule for TORUN     (Code Tr )                                  Page  12
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  18 Feb 2014   Day  49 ---

23 40 30  M87          10 50 10  44.5 144.1 -1.7     -21.1    24     6084   23 40 30
23 55 00  ---          11 04 42  45.7 148.8 -1.4     -18.5   870     6195   23 40 31

 --- Start: Tue  18 Feb 2014   Day  49 -- Stop: Wed  19 Feb 2014   Day  50 ---

23 55 30  M87          11 05 12  45.7 149.0 -1.4     -18.5    24     6195   23 55 30
00 10 00  ---          11 19 45  46.8 153.9 -1.2     -15.7   870     6307   23 55 31

00 10 30  M87          11 20 15  46.8 154.1 -1.2     -15.6    24     6307   00 10 30
00 25 00  ---          11 34 47  47.7 159.2 -0.9     -12.6   870     6418   00 10 31

00 25 30  M87          11 35 17  47.7 159.3 -0.9     -12.5    24     6418   00 25 30
00 40 00  ---          11 49 50  48.4 164.6 -0.7      -9.4   870     6529   00 25 31

00 40 30  M87          11 50 20  48.4 164.7 -0.7      -9.3    24     6529   00 40 30
00 55 00  ---          12 04 52  48.9 170.1 -0.4      -6.1   870     6641   00 40 31

00 55 30  M87          12 05 22  48.9 170.2 -0.4      -6.0    24     6641   00 55 30
01 10 00  ---          12 19 55  49.1 175.6 -0.2      -2.7   870     6752   00 55 31

01 15 00  J0958+6533   12 24 55  68.2 318.7  2.4     107.1    -1     6752   01 15 00
01 20 00  =0954+658    12 29 56  67.7 318.3  2.5     105.6   299     6790   01 15 01

01 21 00  M81          12 30 56  66.2 326.4  2.6     112.1    29     6790   01 21 00
01 25 00  ---          12 34 57  65.8 326.1  2.6     110.9   240     6821   01 21 01

01 25 00  SN2014J      12 34 57  65.6 327.5  2.6     112.2   -15     6821   No stop
01 29 00  ---          12 38 58  65.3 327.2  2.7     110.9   225     6852   01 25 01

01 29 00  M81          12 38 58  65.5 325.8  2.7     109.6   -16     6852   No stop
01 30 00  ---          12 39 58  65.4 325.7  2.7     109.3    44     6860   01 29 01

01 30 00  SN2014J      12 39 58  65.2 327.1  2.7     110.6   -15     6860   No stop
01 34 00  ---          12 43 58  64.9 326.8  2.8     109.4   225     6890   01 30 01

01 34 30  M81          12 44 29  65.0 325.4  2.8     108.0    14     6890   01 34 30
01 35 00  ---          12 44 59  65.0 325.4  2.8     107.9    30     6894   01 34 31

01 35 00  SN2014J      12 44 59  64.8 326.7  2.8     109.1   -15     6894   No stop
01 39 00  ---          12 48 59  64.5 326.5  2.9     108.0   225     6925   01 35 01

01 39 00  M81          12 48 59  64.7 325.1  2.9     106.7   -15     6925   No stop
01 40 00  ---          12 49 59  64.6 325.1  2.9     106.4    45     6932   01 39 01
```

```
Schedule for TORUN     (Code Tr )                                  Page  13
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

01 40 00  SN2014J      12 49 59  64.4 326.4  2.9     107.7   -15     6932   No stop
01 44 00  ---          12 54 00  64.1 326.2  3.0     106.5   225     6963   01 40 01

01 44 00  M81          12 54 00  64.2 324.8  3.0     105.3   -15     6963   No stop
01 45 00  ---          12 55 00  64.1 324.8  3.0     105.0    45     6971   01 44 01

01 45 00  SN2014J      12 55 00  64.0 326.1  3.0     106.2   -15     6971   No stop
01 49 00  ---          12 59 01  63.7 325.9  3.0     105.1   225     7002   01 45 01

01 49 00  M81          12 59 01  63.8 324.6  3.0     103.9   -15     7002   No stop
01 50 00  ---          13 00 01  63.7 324.5  3.1     103.6    45     7009   01 49 01

01 50 00  SN2014J      13 00 01  63.6 325.9  3.1     104.8   -15     7009   No stop
01 54 00  ---          13 04 02  63.2 325.7  3.1     103.7   225     7040   01 50 01

01 54 30  M81          13 04 32  63.3 324.3  3.1     102.4    15     7040   01 54 30
01 55 00  ---          13 05 02  63.3 324.3  3.1     102.2    30     7044   01 54 31

01 55 00  SN2014J      13 05 02  63.1 325.6  3.1     103.4   -15     7044   No stop
01 59 00  ---          13 09 03  62.8 325.5  3.2     102.3   225     7075   01 55 01

01 59 00  M81          13 09 03  62.9 324.1  3.2     101.1   -15     7075   No stop
02 00 00  ---          13 10 03  62.8 324.1  3.2     100.9    45     7082   01 59 01

02 00 00  SN2014J      13 10 03  62.7 325.4  3.2     102.1   -15     7082   No stop
02 04 00  ---          13 14 03  62.4 325.3  3.3     101.0   225     7113   02 00 01

02 04 00  M81          13 14 03  62.5 324.0  3.3      99.8   -15     7113   No stop
02 05 00  ---          13 15 04  62.4 323.9  3.3      99.5    45     7121   02 04 01

02 05 00  SN2014J      13 15 04  62.3 325.2  3.3     100.7   -15     7121   No stop
02 09 00  ---          13 19 04  61.9 325.1  3.4      99.7   225     7151   02 05 01

02 09 00  M81          13 19 04  62.0 323.8  3.4      98.5   -15     7151   No stop
02 10 00  ---          13 20 04  61.9 323.8  3.4      98.2    45     7159   02 09 01

02 10 00  SN2014J      13 20 04  61.9 325.1  3.4      99.4   -15     7159   No stop
02 14 00  ---          13 24 05  61.5 325.0  3.5      98.4   225     7190   02 10 01

02 14 30  M81          13 24 35  61.5 323.7  3.5      97.1    15     7190   02 14 30
02 15 00  ---          13 25 05  61.5 323.7  3.5      97.0    30     7194   02 14 31

02 15 00  SN2014J      13 25 05  61.4 324.9  3.5      98.1   -15     7194   No stop
02 19 00  ---          13 29 06  61.1 324.8  3.5      97.1   225     7224   02 15 01
```

Schedule for TORUN (Code Tr) Page 14

e-EVN: eh027c, rsl03, rp023b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 19 Feb 2014 Day 50 ---										
02 19 00	M81	13 29 06	61.1	323.6	3.5		96.0	-15	7224	No stop
02 20 00	---	13 30 06	61.0	323.6	3.6		95.7	45	7232	02 19 01
02 20 00	SN2014J	13 30 06	61.0	324.8	3.6		96.8	-15	7232	No stop
02 24 00	---	13 34 07	60.6	324.7	3.6		95.8	225	7263	02 20 01
02 24 00	M81	13 34 07	60.7	323.5	3.6		94.7	-15	7263	No stop
02 25 00	---	13 35 07	60.6	323.5	3.6		94.5	45	7270	02 24 01
02 25 00	SN2014J	13 35 07	60.6	324.7	3.6		95.6	-15	7270	No stop
02 29 00	---	13 39 07	60.2	324.7	3.7		94.6	225	7301	02 25 01
02 29 00	M81	13 39 07	60.2	323.4	3.7		93.5	-15	7301	No stop
02 30 00	---	13 40 08	60.2	323.4	3.7		93.2	45	7309	02 29 01
02 30 00	SN2014J	13 40 08	60.1	324.6	3.7		94.3	-15	7309	No stop
02 34 00	---	13 44 08	59.8	324.6	3.8		93.4	225	7340	02 30 01
02 34 30	M81	13 44 38	59.7	323.4	3.8		92.2	15	7340	02 34 30
02 35 00	---	13 45 08	59.7	323.4	3.8		92.0	30	7343	02 34 31
02 35 00	SN2014J	13 45 08	59.7	324.6	3.8		93.1	-15	7343	No stop
02 39 00	---	13 49 09	59.3	324.6	3.9		92.1	225	7374	02 35 01
02 39 00	M81	13 49 09	59.3	323.4	3.9		91.1	-15	7374	No stop
02 40 00	---	13 50 09	59.3	323.4	3.9		90.8	45	7382	02 39 01
02 40 00	SN2014J	13 50 09	59.3	324.5	3.9		91.9	-15	7382	No stop
02 44 00	---	13 54 10	58.9	324.5	4.0		91.0	225	7412	02 40 01
02 44 00	M81	13 54 10	58.9	323.3	4.0		89.9	-15	7412	No stop
02 45 00	---	13 55 10	58.8	323.3	4.0		89.7	45	7420	02 44 01
02 45 00	SN2014J	13 55 10	58.8	324.5	4.0		90.7	-15	7420	No stop
02 49 00	---	13 59 11	58.5	324.5	4.0		89.8	225	7451	02 45 01
02 49 00	M81	13 59 11	58.4	323.4	4.0		88.7	-15	7451	No stop
02 50 00	---	14 00 11	58.4	323.4	4.1		88.5	45	7459	02 49 01
02 50 00	SN2014J	14 00 11	58.4	324.5	4.1		89.5	-15	7459	No stop
02 54 00	---	14 04 12	58.0	324.5	4.1		88.6	225	7489	02 50 01
02 54 30	M81	14 04 42	58.0	323.4	4.1		87.5	15	7489	02 54 30
02 55 00	---	14 05 12	57.9	323.4	4.1		87.4	30	7493	02 54 31

```
Schedule for TORUN     (Code Tr )                                Page  15
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

02 55 00  SN2014J      14 05 12  57.9 324.5  4.1      88.4   -15     7493   No stop
02 59 00  ---          14 09 12  57.6 324.6  4.2      87.5   225     7524   02 55 01

02 59 00  M81          14 09 12  57.5 323.4  4.2      86.5   -15     7524   No stop
03 00 00  ---          14 10 13  57.5 323.4  4.2      86.2    45     7532   02 59 01

03 00 00  SN2014J      14 10 13  57.5 324.6  4.2      87.2   -15     7532   No stop
03 04 00  ---          14 14 13  57.2 324.6  4.3      86.3   225     7562   03 00 01

03 04 00  M81          14 14 13  57.1 323.5  4.3      85.3   -14     7562   No stop
03 05 00  ---          14 15 13  57.0 323.5  4.3      85.1    46     7570   03 04 01

03 05 00  SN2014J      14 15 13  57.1 324.6  4.3      86.1   -14     7570   No stop
03 09 00  ---          14 19 14  56.7 324.7  4.4      85.2   226     7601   03 05 01

03 09 00  M81          14 19 14  56.7 323.6  4.4      84.2   -14     7601   No stop
03 10 00  ---          14 20 14  56.6 323.6  4.4      84.0    46     7608   03 09 01

03 10 00  SN2014J      14 20 14  56.6 324.7  4.4      85.0   -14     7608   No stop
03 14 00  ---          14 24 15  56.3 324.7  4.5      84.1   226     7639   03 10 01

03 14 30  M81          14 24 45  56.2 323.7  4.5      83.0    16     7639   03 14 30
03 15 00  ---          14 25 15  56.1 323.7  4.5      82.9    30     7643   03 14 31

03 15 00  SN2014J      14 25 15  56.2 324.8  4.5      83.9   -14     7643   No stop
03 19 00  ---          14 29 16  55.9 324.8  4.5      83.0   226     7674   03 15 01

03 19 00  M81          14 29 16  55.8 323.8  4.5      82.1   -14     7674   No stop
03 20 00  ---          14 30 16  55.7 323.8  4.6      81.8    46     7681   03 19 01

03 20 00  SN2014J      14 30 16  55.8 324.8  4.6      82.8   -14     7681   No stop
03 24 00  ---          14 34 17  55.4 324.9  4.6      81.9   226     7712   03 20 01

03 24 00  M81          14 34 17  55.3 323.9  4.6      81.0   -14     7712   No stop
03 25 00  ---          14 35 17  55.2 323.9  4.6      80.8    46     7720   03 24 01

03 26 00  J0958+6533   14 36 17  54.7 317.8  4.6      76.3    33     7720   03 26 00
03 30 00  =0954+658    14 40 18  54.3 318.0  4.7      75.5   240     7750   03 26 01

03 31 00  M81          14 41 18  54.7 324.1  4.7      79.5    33     7750   03 31 00
03 35 00  ---          14 45 18  54.3 324.2  4.8      78.7   240     7781   03 31 01

03 35 00  SN2014J      14 45 18  54.5 325.2  4.8      79.5   -14     7781   No stop
03 39 00  ---          14 49 19  54.1 325.3  4.9      78.7   226     7812   03 35 01
```

```
Schedule for TORUN     (Code Tr )                                Page  16
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

03 39 00  M81          14 49 19  54.0 324.3  4.9      77.8   -14     7812   No stop
03 40 00  ---          14 50 19  53.9 324.3  4.9      77.6    46     7820   03 39 01

03 40 00  SN2014J      14 50 19  54.0 325.3  4.9      78.5   -14     7820   No stop
03 44 00  ---          14 54 20  53.7 325.5  5.0      77.6   226     7850   03 40 01

03 44 30  M81          14 54 50  53.5 324.5  5.0      76.7    16     7850   03 44 30
03 45 00  ---          14 55 20  53.5 324.5  5.0      76.6    30     7854   03 44 31

03 45 00  SN2014J      14 55 20  53.6 325.5  5.0      77.4   -14     7854   No stop
03 49 00  ---          14 59 21  53.3 325.6  5.0      76.6   226     7885   03 45 01

03 49 00  M81          14 59 21  53.1 324.6  5.0      75.8   -14     7885   No stop
03 50 00  ---          15 00 21  53.0 324.7  5.1      75.6    46     7892   03 49 01

03 50 00  SN2014J      15 00 21  53.2 325.7  5.1      76.4   -14     7892   No stop
03 54 00  ---          15 04 21  52.9 325.8  5.1      75.5   226     7923   03 50 01

03 54 00  M81          15 04 21  52.7 324.8  5.1      74.7   -14     7923   No stop
03 55 00  ---          15 05 22  52.6 324.9  5.1      74.5    46     7931   03 54 01

03 55 00  SN2014J      15 05 22  52.8 325.8  5.1      75.3   -14     7931   No stop
03 59 00  ---          15 09 22  52.4 326.0  5.2      74.5   226     7962   03 55 01

03 59 00  M81          15 09 22  52.2 325.0  5.2      73.7   -14     7962   No stop
04 00 00  ---          15 10 22  52.2 325.1  5.2      73.5    46     7969   03 59 01

04 00 00  SN2014J      15 10 22  52.3 326.0  5.2      74.3   -14     7969   No stop
04 04 00  ---          15 14 23  52.0 326.2  5.3      73.5   226     8000   04 00 01

04 04 30  M81          15 14 53  51.8 325.3  5.3      72.6    16     8000   04 04 30
04 05 00  ---          15 15 23  51.7 325.3  5.3      72.5    30     8004   04 04 31

04 05 00  SN2014J      15 15 23  51.9 326.2  5.3      73.3   -14     8004   No stop
04 09 00  ---          15 19 24  51.6 326.4  5.4      72.5   226     8035   04 05 01

04 09 00  M81          15 19 24  51.4 325.5  5.4      71.7   -14     8035   No stop
04 10 00  ---          15 20 24  51.3 325.5  5.4      71.5    46     8042   04 09 01

04 10 00  SN2014J      15 20 24  51.5 326.4  5.4      72.3   -14     8042   No stop
04 14 00  ---          15 24 25  51.2 326.6  5.5      71.5   226     8073   04 10 01

04 14 00  M81          15 24 25  51.0 325.7  5.5      70.7   -13     8073   No stop
04 15 00  ---          15 25 25  50.9 325.7  5.5      70.5    47     8081   04 14 01
```

```
Schedule for TORUN     (Code Tr )                                  Page  17
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

04 15 00  SN2014J      15 25 25  51.1 326.7  5.5      71.3   -14     8081   No stop
04 19 00  ---          15 29 26  50.8 326.8  5.5      70.5   226     8111   04 15 01

04 19 00  M81          15 29 26  50.5 325.9  5.5      69.8   -13     8111   No stop
04 20 00  ---          15 30 26  50.5 326.0  5.6      69.6    47     8119   04 19 01

04 20 00  SN2014J      15 30 26  50.7 326.9  5.6      70.3   -13     8119   No stop
04 24 00  ---          15 34 26  50.4 327.1  5.6      69.5   227     8150   04 20 01

04 24 30  M81          15 34 56  50.1 326.2  5.6      68.7    17     8150   04 24 30
04 25 00  ---          15 35 27  50.0 326.2  5.6      68.6    30     8154   04 24 31

04 25 00  SN2014J      15 35 27  50.3 327.1  5.6      69.3   -13     8154   No stop
04 29 00  ---          15 39 27  49.9 327.3  5.7      68.5   227     8184   04 25 01

04 29 00  M81          15 39 27  49.7 326.4  5.7      67.8   -13     8184   No stop
04 30 00  ---          15 40 27  49.6 326.5  5.7      67.6    47     8192   04 29 01

04 30 00  SN2014J      15 40 27  49.9 327.4  5.7      68.3   -13     8192   No stop
04 34 00  ---          15 44 28  49.5 327.6  5.8      67.5   227     8223   04 30 01

04 34 00  M81          15 44 28  49.3 326.7  5.8      66.8   -13     8223   No stop
04 35 00  ---          15 45 28  49.2 326.8  5.8      66.6    47     8230   04 34 01

04 35 00  SN2014J      15 45 28  49.5 327.6  5.8      67.3   -13     8230   No stop
04 39 00  ---          15 49 29  49.1 327.8  5.9      66.5   227     8261   04 35 01

04 39 00  M81          15 49 29  48.9 327.0  5.9      65.9   -13     8261   No stop
04 40 00  ---          15 50 29  48.8 327.0  5.9      65.7    47     8269   04 39 01

04 40 00  SN2014J      15 50 29  49.1 327.9  5.9      66.3   -13     8269   No stop
04 44 00  ---          15 54 30  48.7 328.1  6.0      65.6   227     8300   04 40 01

04 44 30  M81          15 55 00  48.4 327.3  6.0      64.8    17     8300   04 44 30
04 45 00  ---          15 55 30  48.4 327.3  6.0      64.7    30     8303   04 44 31

04 45 00  SN2014J      15 55 30  48.7 328.2  6.0      65.4   -13     8303   No stop
04 49 00  ---          15 59 30  48.3 328.4  6.0      64.6   227     8334   04 45 01

04 49 00  M81          15 59 30  48.1 327.6  6.0      64.0   -13     8334   No stop
04 50 00  ---          16 00 31  48.0 327.6  6.1      63.8    47     8342   04 49 01

04 50 00  SN2014J      16 00 31  48.3 328.4  6.1      64.4   -13     8342   No stop
04 54 00  ---          16 04 31  48.0 328.7  6.1      63.6   227     8372   04 50 01

04 54 00  M81          16 04 31  47.7 327.9  6.1      63.0   -13     8372   No stop
04 55 00  ---          16 05 31  47.6 327.9  6.1      62.8    47     8380   04 54 01
```

```
Schedule for TORUN     (Code Tr )                                  Page  18
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

04 55 00  SN2014J      16 05 31  47.9 328.7  6.1      63.5   -13     8380   No stop
04 59 00  ---          16 09 32  47.6 329.0  6.2      62.7   227     8411   04 55 01

04 59 00  M81          16 09 32  47.3 328.2  6.2      62.1   -13     8411   No stop
05 00 00  ---          16 10 32  47.2 328.2  6.2      61.9    47     8419   04 59 01

05 00 00  SN2014J      16 10 32  47.5 329.0  6.2      62.5   -13     8419   No stop
05 04 00  ---          16 14 33  47.2 329.3  6.3      61.7   227     8449   05 00 01

05 04 30  M81          16 15 03  46.8 328.5  6.3      61.0    17     8449   05 04 30
05 05 00  ---          16 15 33  46.8 328.5  6.3      60.9    30     8453   05 04 31

05 05 00  SN2014J      16 15 33  47.1 329.3  6.3      61.5   -13     8453   No stop
05 09 00  ---          16 19 34  46.8 329.6  6.4      60.8   227     8484   05 05 01

05 09 00  M81          16 19 34  46.5 328.8  6.4      60.2   -13     8484   No stop
05 10 00  ---          16 20 34  46.4 328.9  6.4      60.0    47     8492   05 09 01

05 10 00  SN2014J      16 20 34  46.7 329.6  6.4      60.6   -13     8492   No stop
05 14 00  ---          16 24 35  46.4 329.9  6.5      59.8   227     8522   05 10 01

05 14 00  M81          16 24 35  46.1 329.1  6.5      59.3   -13     8522   No stop
05 15 00  ---          16 25 35  46.0 329.2  6.5      59.1    47     8530   05 14 01

05 15 00  SN2014J      16 25 35  46.3 329.9  6.5      59.6   -13     8530   No stop
05 19 00  ---          16 29 35  46.0 330.2  6.5      58.9   227     8561   05 15 01

05 19 00  M81          16 29 35  45.7 329.5  6.5      58.3   -13     8561   No stop
05 20 00  ---          16 30 36  45.6 329.5  6.6      58.1    47     8568   05 19 01

05 20 00  SN2014J      16 30 36  46.0 330.3  6.6      58.7   -13     8568   No stop
05 24 00  ---          16 34 36  45.7 330.5  6.6      58.0   227     8599   05 20 01

05 24 30  M81          16 35 06  45.3 329.8  6.6      57.3    17     8599   05 24 30
05 25 00  ---          16 35 36  45.3 329.9  6.6      57.2    30     8603   05 24 31

05 25 00  SN2014J      16 35 36  45.6 330.6  6.6      57.8   -13     8603   No stop
05 29 00  ---          16 39 37  45.3 330.9  6.7      57.0   227     8634   05 25 01

05 29 00  M81          16 39 37  44.9 330.2  6.7      56.5   -12     8634   No stop
05 30 00  ---          16 40 37  44.9 330.2  6.7      56.3    48     8641   05 29 01

05 30 00  SN2014J      16 40 37  45.2 330.9  6.7      56.8   -13     8641   No stop
05 34 00  ---          16 44 38  44.9 331.2  6.8      56.1   227     8672   05 30 01

05 34 00  M81          16 44 38  44.6 330.5  6.8      55.6   -12     8672   No stop
05 35 00  ---          16 45 38  44.5 330.6  6.8      55.4    48     8680   05 34 01
```

```
Schedule for TORUN     (Code Tr )                                Page  19
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

05 35 00  SN2014J      16 45 38  44.9 331.3  6.8      55.9   -13     8680   No stop
05 39 00  ---          16 49 39  44.6 331.6  6.9      55.2   227     8710   05 35 01

05 39 00  M81          16 49 39  44.2 330.9  6.9      54.6   -12     8710   No stop
05 40 00  ---          16 50 39  44.1 330.9  6.9      54.5    48     8718   05 39 01

05 41 00  J0958+6533   16 51 39  42.2 326.9  6.9      52.2    37     8718   05 41 00
05 45 00  =0954+658    16 55 40  41.9 327.3  6.9      51.5   240     8749   05 41 01

05 50 00  M87          17 00 41  23.4 259.1  4.5      37.1   148     8749   05 50 00
06 05 00  ---          17 15 43  21.2 262.2  4.7      37.5   900     8864   05 50 01

06 05 30  M87          17 16 13  21.1 262.3  4.7      37.5    24     8864   06 05 30
06 20 00  ---          17 30 45  18.9 265.3  5.0      37.8   870     8975   06 05 31

06 20 30  M87          17 31 16  18.8 265.4  5.0      37.8    24     8975   06 20 30
06 35 00  ---          17 45 48  16.7 268.4  5.2      37.9   870     9087   06 20 31

06 35 30  M87          17 46 18  16.6 268.5  5.2      37.9    24     9087   06 35 30
06 50 00  ---          18 00 50  14.4 271.4  5.5      37.9   870     9198   06 35 31

06 50 30  M87          18 01 20  14.3 271.5  5.5      37.9    24     9198   06 50 30
07 05 00  ---          18 15 53  12.2 274.4  5.7      37.8   870     9309   06 50 31

07 05 30  M87          18 16 23  12.1 274.5  5.7      37.8    24     9309   07 05 30
07 20 00  ---          18 30 55   9.9 277.3  6.0      37.6   870     9421   07 05 31

07 20 30  M87          18 31 25   9.8 277.4  6.0      37.5    24     9421   07 20 30
07 35 00  ---          18 45 58   7.7 280.3  6.2      37.2   870     9532   07 20 31

07 35 30  M87          18 46 28   7.6 280.4  6.2      37.2    24     9532   07 35 30
07 50 00  ---          19 01 00   5.5 283.2  6.5      36.7   870     9644   07 35 31

07 54 00  J0958+6533   19 05 01  33.2 340.0  9.1      29.7   112     9644   07 54 00
07 59 00  =0954+658    19 10 02  32.9 340.5  9.2      28.9   300     9682   07 54 01

08 00 00  M81          19 11 02  35.8 343.0  9.2      29.3    35     9682   08 00 00
08 04 00  ---          19 15 03  35.6 343.4  9.3      28.6   240     9713   08 00 01

08 04 00  SN2014J      19 15 03  36.2 343.7  9.3      28.9   -13     9713   No stop
08 08 00  ---          19 19 03  36.0 344.1  9.4      28.2   227     9743   08 04 01

08 08 00  M81          19 19 03  35.5 343.8  9.4      27.9   -14     9743   No stop
08 09 00  ---          19 20 03  35.4 343.9  9.4      27.7    46     9751   08 08 01

08 09 00  SN2014J      19 20 03  36.0 344.2  9.4      28.0   -13     9751   No stop
08 13 00  ---          19 24 04  35.8 344.6  9.5      27.3   227     9782   08 09 01
```

```
Schedule for TORUN     (Code Tr )                                Page  20
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

08 13 30  M81          19 24 34  35.2 344.3  9.5      26.9    16     9782   08 13 30
08 14 00  ---          19 25 04  35.2 344.4  9.5      26.9    30     9786   08 13 31

08 14 00  SN2014J      19 25 04  35.8 344.7  9.5      27.1   -14     9786   No stop
08 18 00  ---          19 29 05  35.6 345.1  9.5      26.4   226     9816   08 14 01

08 18 00  M81          19 29 05  35.1 344.7  9.5      26.1   -14     9816   No stop
08 19 00  ---          19 30 05  35.0 344.8  9.6      26.0    46     9824   08 18 01

08 19 00  SN2014J      19 30 05  35.6 345.2  9.6      26.2   -14     9824   No stop
08 23 00  ---          19 34 06  35.4 345.5  9.6      25.5   226     9855   08 19 01

08 23 00  M81          19 34 06  34.9 345.2  9.6      25.3   -14     9855   No stop
08 24 00  ---          19 35 06  34.8 345.3  9.6      25.1    46     9862   08 23 01

08 24 00  SN2014J      19 35 06  35.4 345.6  9.6      25.3   -14     9862   No stop
08 28 00  ---          19 39 06  35.2 346.0  9.7      24.6   226     9893   08 24 01

08 28 00  M81          19 39 06  34.7 345.7  9.7      24.4   -14     9893   No stop
08 29 00  ---          19 40 07  34.6 345.8  9.7      24.2    46     9901   08 28 01

08 29 00  SN2014J      19 40 07  35.2 346.1  9.7      24.4   -14     9901   No stop
08 33 00  ---          19 44 07  35.1 346.5  9.8      23.7   226     9932   08 29 01

08 33 30  M81          19 44 37  34.5 346.3  9.8      23.4    16     9932   08 33 30
08 34 00  ---          19 45 07  34.5 346.3  9.8      23.3    30     9935   08 33 31

08 34 00  SN2014J      19 45 07  35.0 346.6  9.8      23.5   -14     9935   No stop
08 38 00  ---          19 49 08  34.9 347.0  9.9      22.8   226     9966   08 34 01

08 38 00  M81          19 49 08  34.3 346.7  9.9      22.6   -14     9966   No stop
08 39 00  ---          19 50 08  34.3 346.8  9.9      22.4    46     9974   08 38 01

08 39 00  SN2014J      19 50 08  34.9 347.1  9.9      22.6   -14     9974   No stop
08 43 00  ---          19 54 09  34.7 347.5 10.0      21.9   226    10004   08 39 01

08 43 00  M81          19 54 09  34.1 347.2 10.0      21.7   -14    10004   No stop
08 44 00  ---          19 55 09  34.1 347.3 10.0      21.5    46    10012   08 43 01

08 44 00  SN2014J      19 55 09  34.7 347.6 10.0      21.7   -14    10012   No stop
08 48 00  ---          19 59 10  34.6 348.0 10.0      21.0   226    10043   08 44 01

08 48 00  M81          19 59 10  34.0 347.7 10.0      20.8   -14    10043   No stop
08 49 00  ---          20 00 10  34.0 347.8 10.1      20.6    46    10051   08 48 01

08 49 00  SN2014J      20 00 10  34.5 348.1 10.1      20.8   -14    10051   No stop
08 53 00  ---          20 04 11  34.4 348.5 10.1      20.1   226    10081   08 49 01
```

```
Schedule for TORUN     (Code Tr )                                  Page  21
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

08 53 30  M81          20 04 41  33.8 348.3 10.1      19.8    16    10081   08 53 30
08 54 00  ---          20 05 11  33.8 348.4 10.1      19.8    30    10085   08 53 31

08 54 00  SN2014J      20 05 11  34.4 348.6 10.1      19.9   -14    10085   No stop
08 58 00  ---          20 09 11  34.3 349.0 10.2      19.2   226    10116   08 54 01

08 58 00  M81          20 09 11  33.7 348.8 10.2      19.0   -14    10116   No stop
08 59 00  ---          20 10 12  33.6 348.9 10.2      18.9    46    10124   08 58 01

08 59 00  SN2014J      20 10 12  34.2 349.1 10.2      19.0   -14    10124   No stop
09 03 00  ---          20 14 12  34.1 349.5 10.3      18.3   226    10154   08 59 01

09 03 00  M81          20 14 12  33.5 349.3 10.3      18.2   -14    10154   No stop
09 04 00  ---          20 15 12  33.5 349.4 10.3      18.0    46    10162   09 03 01

09 04 00  SN2014J      20 15 12  34.1 349.6 10.3      18.1   -14    10162   No stop
09 08 00  ---          20 19 13  34.0 350.0 10.4      17.4   226    10193   09 04 01

09 08 00  M81          20 19 13  33.4 349.8 10.4      17.3   -14    10193   No stop
09 09 00  ---          20 20 13  33.4 349.9 10.4      17.1    46    10200   09 08 01

09 09 00  SN2014J      20 20 13  34.0 350.1 10.4      17.2   -14    10200   No stop
09 13 00  ---          20 24 14  33.9 350.5 10.5      16.5   226    10231   09 09 01

09 13 30  M81          20 24 44  33.3 350.4 10.5      16.3    16    10231   09 13 30
09 14 00  ---          20 25 14  33.2 350.4 10.5      16.2    30    10235   09 13 31

09 14 00  SN2014J      20 25 14  33.8 350.6 10.5      16.4   -14    10235   No stop
09 18 00  ---          20 29 15  33.7 351.0 10.5      15.6   226    10266   09 14 01

09 18 00  M81          20 29 15  33.1 350.8 10.5      15.5   -14    10266   No stop
09 19 00  ---          20 30 15  33.1 350.9 10.6      15.3    46    10273   09 18 01

09 19 00  SN2014J      20 30 15  33.7 351.1 10.6      15.5   -14    10273   No stop
09 23 00  ---          20 34 15  33.6 351.5 10.6      14.7   226    10304   09 19 01

09 23 00  M81          20 34 15  33.0 351.3 10.6      14.6   -14    10304   No stop
09 24 00  ---          20 35 16  33.0 351.4 10.6      14.4    46    10312   09 23 01

09 24 00  SN2014J      20 35 16  33.6 351.6 10.6      14.6   -14    10312   No stop
09 28 00  ---          20 39 16  33.5 352.0 10.7      13.8   226    10342   09 24 01

09 28 00  M81          20 39 16  32.9 351.9 10.7      13.7   -14    10342   No stop
09 29 00  ---          20 40 16  32.9 352.0 10.7      13.5    46    10350   09 28 01

09 29 00  SN2014J      20 40 16  33.5 352.1 10.7      13.7   -14    10350   No stop
09 33 00  ---          20 44 17  33.4 352.5 10.8      13.0   226    10381   09 29 01
```

```
Schedule for TORUN     (Code Tr )                                  Page  22
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

09 33 30  M81          20 44 47  32.8 352.4 10.8      12.7    16    10381   09 33 30
09 34 00  ---          20 45 17  32.8 352.5 10.8      12.7    30    10385   09 33 31

09 34 00  SN2014J      20 45 17  33.4 352.6 10.8      12.8   -14    10385   No stop
09 38 00  ---          20 49 18  33.3 353.0 10.9      12.1   226    10415   09 34 01

09 38 00  M81          20 49 18  32.7 352.9 10.9      12.0   -14    10415   No stop
09 39 00  ---          20 50 18  32.7 353.0 10.9      11.8    46    10423   09 38 01

09 39 00  SN2014J      20 50 18  33.3 353.1 10.9      11.9   -14    10423   No stop
09 43 00  ---          20 54 19  33.2 353.5 11.0      11.2   226    10454   09 39 01

09 43 00  M81          20 54 19  32.6 353.4 11.0      11.1   -14    10454   No stop
09 44 00  ---          20 55 19  32.6 353.5 11.0      10.9    46    10461   09 43 01

09 44 00  SN2014J      20 55 19  33.2 353.6 11.0      11.0   -14    10461   No stop
09 48 00  ---          20 59 20  33.1 354.1 11.0      10.3   226    10492   09 44 01

09 48 00  M81          20 59 20  32.5 353.9 11.0      10.2   -14    10492   No stop
09 49 00  ---          21 00 20  32.5 354.1 11.1      10.0    46    10500   09 48 01

09 49 00  SN2014J      21 00 20  33.1 354.2 11.1      10.1   -14    10500   No stop
09 53 00  ---          21 04 20  33.1 354.6 11.1       9.4   226    10531   09 49 01

09 53 30  M81          21 04 51  32.5 354.5 11.1       9.2    16    10531   09 53 30
09 54 00  ---          21 05 21  32.5 354.6 11.1       9.1    30    10534   09 53 31

09 54 00  SN2014J      21 05 21  33.1 354.7 11.1       9.2   -14    10534   No stop
09 58 00  ---          21 09 21  33.0 355.1 11.2       8.5   226    10565   09 54 01

09 58 00  M81          21 09 21  32.4 355.0 11.2       8.4   -14    10565   No stop
09 59 00  ---          21 10 21  32.4 355.1 11.2       8.2    46    10573   09 58 01

09 59 00  SN2014J      21 10 21  33.0 355.2 11.2       8.3   -14    10573   No stop
10 03 00  ---          21 14 22  32.9 355.6 11.3       7.6   226    10604   09 59 01

10 03 00  M81          21 14 22  32.3 355.5 11.3       7.5   -14    10604   No stop
10 04 00  ---          21 15 22  32.3 355.6 11.3       7.3    46    10611   10 03 01

10 04 00  SN2014J      21 15 22  32.9 355.7 11.3       7.4   -14    10611   No stop
10 08 00  ---          21 19 23  32.9 356.1 11.4       6.7   226    10642   10 04 01

10 08 00  M81          21 19 23  32.3 356.1 11.4       6.6   -14    10642   No stop
10 09 00  ---          21 20 23  32.3 356.2 11.4       6.4    46    10650   10 08 01

10 09 00  SN2014J      21 20 23  32.9 356.2 11.4       6.5   -14    10650   No stop
10 13 00  ---          21 24 24  32.8 356.6 11.5       5.8   226    10680   10 09 01
```

```
Schedule for TORUN     (Code Tr )                                  Page  23
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

10 13 30  M81          21 24 54  32.2 356.6 11.5       5.6    16    10680   10 13 30
10 14 00  ---          21 25 24  32.2 356.7 11.5       5.6    30    10684   10 13 31

10 14 00  SN2014J      21 25 24  32.8 356.7 11.5       5.6   -14    10684   No stop
10 18 00  ---          21 29 25  32.8 357.2 11.5       4.9   226    10715   10 14 01

10 18 00  M81          21 29 25  32.2 357.1 11.5       4.8   -14    10715   No stop
10 19 00  ---          21 30 25  32.2 357.2 11.6       4.7    46    10723   10 18 01

10 19 00  SN2014J      21 30 25  32.8 357.3 11.6       4.7   -14    10723   No stop
10 23 00  ---          21 34 25  32.8 357.7 11.6       4.0   226    10753   10 19 01

10 23 00  M81          21 34 25  32.2 357.6 11.6       4.0   -14    10753   No stop
10 24 00  ---          21 35 26  32.2 357.7 11.6       3.8    46    10761   10 23 01

10 25 00  J0958+6533   21 36 26  28.7 357.2 11.6       4.0    33    10761   10 25 00
10 29 00  =0954+658    21 40 26  28.6 357.7 11.7       3.3   240    10792   10 25 01

10 30 00  M81          21 41 27  32.1 358.4 11.7       2.7    33    10792   10 30 00
10 34 00  ---          21 45 27  32.1 358.8 11.8       2.0   240    10822   10 30 01

10 34 00  SN2014J      21 45 27  32.7 358.8 11.8       2.0   -14    10822   No stop
10 38 00  ---          21 49 28  32.7 359.2 11.9       1.3   226    10853   10 34 01

10 38 00  M81          21 49 28  32.1 359.2 11.9       1.3   -14    10853   No stop
10 39 00  ---          21 50 28  32.1 359.3 11.9       1.1    46    10861   10 38 01

10 39 00  SN2014J      21 50 28  32.7 359.3 11.9       1.2   -14    10861   No stop
10 43 00  ---          21 54 29  32.7 359.7 12.0       0.4   226    10892   10 39 01

10 43 30  M81          21 54 59  32.1 359.8 12.0       0.3    16    10892   10 43 30
10 44 00  ---          21 55 29  32.1 359.9 12.0       0.2    30    10895   10 43 31

10 44 00  SN2014J      21 55 29  32.7 359.9 12.0       0.3   -14    10895   No stop
10 48 00  ---          21 59 29  32.7 360.3-12.0      -0.5   226    10926   10 44 01

10 48 00  M81          21 59 29  32.1 360.3-12.0      -0.5   -14    10926   No stop
10 49 00  ---          22 00 30  32.1 360.4-11.9      -0.7    46    10934   10 48 01

10 49 00  SN2014J      22 00 30  32.7 360.4-11.9      -0.6   -14    10934   No stop
10 53 00  ---          22 04 30  32.7 360.8-11.9      -1.4   226    10964   10 49 01

10 53 00  M81          22 04 30  32.1 360.8-11.9      -1.4   -14    10964   No stop
10 54 00  ---          22 05 30  32.1 360.9-11.9      -1.6    46    10972   10 53 01

10 54 00  SN2014J      22 05 30  32.7 360.9-11.9      -1.5   -14    10972   No stop
10 58 00  ---          22 09 31  32.7 361.3-11.8      -2.2   226    11003   10 54 01
```

```
Schedule for TORUN     (Code Tr )                                Page  24
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

10 58 00  M81          22 09 31  32.1 361.3-11.8      -2.3   -14    11003   No stop
10 59 00  ---          22 10 31  32.1 361.5-11.8      -2.4    46    11011   10 58 01

10 59 00  SN2014J      22 10 31  32.7 361.4-11.8      -2.4   -14    11011   No stop
11 03 00  ---          22 14 32  32.7 361.8-11.7      -3.1   226    11041   10 59 01

11 03 30  M81          22 15 02  32.1 361.9-11.7      -3.2    16    11041   11 03 30
11 04 00  ---          22 15 32  32.1 362.0-11.7      -3.3    30    11045   11 03 31

11 04 00  SN2014J      22 15 32  32.7 361.9-11.7      -3.3   -14    11045   No stop
11 08 00  ---          22 19 33  32.8 362.3-11.6      -4.0   226    11076   11 04 01

11 08 00  M81          22 19 33  32.2 362.4-11.6      -4.0   -14    11076   No stop
11 09 00  ---          22 20 33  32.2 362.5-11.6      -4.2    46    11084   11 08 01

11 09 00  SN2014J      22 20 33  32.8 362.4-11.6      -4.2   -14    11084   No stop
11 13 00  ---          22 24 34  32.8 362.9-11.5      -4.9   226    11114   11 09 01

11 13 00  M81          22 24 34  32.2 362.9-11.5      -4.9   -14    11114   No stop
11 14 00  ---          22 25 34  32.2 363.0-11.5      -5.1    46    11122   11 13 01

11 14 00  SN2014J      22 25 34  32.8 363.0-11.5      -5.1   -14    11122   No stop
11 18 00  ---          22 29 34  32.8 363.4-11.5      -5.8   226    11153   11 14 01

11 18 00  M81          22 29 34  32.2 363.5-11.5      -5.8   -14    11153   No stop
11 19 00  ---          22 30 35  32.2 363.6-11.4      -6.0    46    11160   11 18 01

11 19 00  SN2014J      22 30 35  32.9 363.5-11.4      -6.0   -14    11160   No stop
11 23 00  ---          22 34 35  32.9 363.9-11.4      -6.7   226    11191   11 19 01

11 23 30  M81          22 35 05  32.3 364.0-11.4      -6.8    16    11191   11 23 30
11 24 00  ---          22 35 35  32.3 364.1-11.4      -6.9    30    11195   11 23 31

11 24 00  SN2014J      22 35 35  32.9 364.0-11.4      -6.9   -14    11195   No stop
11 28 00  ---          22 39 36  32.9 364.4-11.3      -7.6   226    11226   11 24 01

11 28 00  M81          22 39 36  32.3 364.5-11.3      -7.6   -14    11226   No stop
11 29 00  ---          22 40 36  32.4 364.6-11.3      -7.8    46    11233   11 28 01

11 29 00  SN2014J      22 40 36  33.0 364.5-11.3      -7.8   -14    11233   No stop
11 33 00  ---          22 44 37  33.0 364.9-11.2      -8.5   226    11264   11 29 01

11 33 00  M81          22 44 37  32.4 365.0-11.2      -8.5   -14    11264   No stop
11 34 00  ---          22 45 37  32.4 365.2-11.2      -8.7    46    11272   11 33 01

11 34 00  SN2014J      22 45 37  33.0 365.0-11.2      -8.7   -14    11272   No stop
11 38 00  ---          22 49 38  33.1 365.4-11.1      -9.4   226    11302   11 34 01
```

```
Schedule for TORUN     (Code Tr )                                Page  25
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

11 38 00  M81          22 49 38  32.5 365.6-11.1      -9.4   -14    11302   No stop
11 39 00  ---          22 50 38  32.5 365.7-11.1      -9.5    46    11310   11 38 01

11 39 00  SN2014J      22 50 38  33.1 365.5-11.1      -9.6   -14    11310   No stop
11 43 00  ---          22 54 38  33.1 366.0-11.0     -10.3   226    11341   11 39 01

11 43 30  M81          22 55 09  32.6 366.2-11.0     -10.3    16    11341   11 43 30
11 44 00  ---          22 55 39  32.6 366.2-11.0     -10.4    30    11345   11 43 31

11 44 00  SN2014J      22 55 39  33.2 366.1-11.0     -10.5   -14    11345   No stop
11 48 00  ---          22 59 39  33.2 366.5-11.0     -11.2   226    11375   11 44 01

11 48 00  M81          22 59 39  32.6 366.6-11.0     -11.1   -14    11375   No stop
11 49 00  ---          23 00 39  32.7 366.7-10.9     -11.3    46    11383   11 48 01

11 49 00  SN2014J      23 00 39  33.2 366.6-10.9     -11.4   -14    11383   No stop
11 53 00  ---          23 04 40  33.3 367.0-10.9     -12.1   226    11414   11 49 01

11 53 00  M81          23 04 40  32.7 367.1-10.9     -12.0   -14    11414   No stop
11 54 00  ---          23 05 40  32.7 367.3-10.9     -12.2    46    11421   11 53 01

11 54 00  SN2014J      23 05 40  33.3 367.1-10.9     -12.3   -14    11421   No stop
11 58 00  ---          23 09 41  33.4 367.5-10.8     -13.0   226    11452   11 54 01

11 58 00  M81          23 09 41  32.8 367.7-10.8     -12.9   -14    11452   No stop
11 59 00  ---          23 10 41  32.8 367.8-10.8     -13.1    46    11460   11 58 01

11 59 00  SN2014J      23 10 41  33.4 367.6-10.8     -13.2   -14    11460   No stop
12 03 00  ---          23 14 42  33.5 368.0-10.7     -13.9   226    11491   11 59 01

12 03 30  M81          23 15 12  32.9 368.2-10.7     -13.9    16    11491   12 03 30
12 04 00  ---          23 15 42  32.9 368.3-10.7     -14.0    30    11494   12 03 31

12 04 00  SN2014J      23 15 42  33.5 368.1-10.7     -14.1   -14    11494   No stop
12 08 00  ---          23 19 43  33.6 368.5-10.6     -14.8   226    11525   12 04 01

12 08 00  M81          23 19 43  33.0 368.7-10.6     -14.7   -14    11525   No stop
12 09 00  ---          23 20 43  33.1 368.8-10.6     -14.9    46    11533   12 08 01

12 09 00  SN2014J      23 20 43  33.6 368.6-10.6     -14.9   -14    11533   No stop
12 13 00  ---          23 24 43  33.7 369.0-10.5     -15.7   226    11564   12 09 01

12 13 00  M81          23 24 43  33.2 369.2-10.5     -15.6   -14    11564   No stop
12 14 00  ---          23 25 44  33.2 369.3-10.5     -15.8    46    11571   12 13 01

12 14 00  SN2014J      23 25 44  33.8 369.1-10.5     -15.8   -14    11571   No stop
12 18 00  ---          23 29 44  33.9 369.5-10.5     -16.6   226    11602   12 14 01
```

```
Schedule for TORUN     (Code Tr )                                Page  26
               e-EVN: eh027c, rsl03, rp023b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  19 Feb 2014   Day  50 ---

12 18 00  M81          23 29 44  33.3 369.7-10.5     -16.5   -14    11602   No stop
12 19 00  ---          23 30 44  33.3 369.8-10.4     -16.6    46    11610   12 18 01

12 19 00  SN2014J      23 30 44  33.9 369.6-10.4     -16.7   -14    11610   No stop
12 23 00  ---          23 34 45  34.0 370.0-10.4     -17.4   226    11640   12 19 01

12 23 30  M81          23 35 15  33.4 370.3-10.4     -17.4    16    11640   12 23 30
12 24 00  ---          23 35 45  33.4 370.4-10.4     -17.5    30    11644   12 23 31

12 24 00  SN2014J      23 35 45  34.0 370.1-10.4     -17.6   -14    11644   No stop
12 28 00  ---          23 39 46  34.1 370.5-10.3     -18.3   226    11675   12 24 01

12 28 00  M81          23 39 46  33.5 370.8-10.3     -18.2   -14    11675   No stop
12 29 00  ---          23 40 46  33.6 370.9-10.3     -18.4    46    11683   12 28 01

12 29 00  SN2014J      23 40 46  34.1 370.6-10.3     -18.5   -14    11683   No stop
12 33 00  ---          23 44 47  34.3 371.0-10.2     -19.2   226    11713   12 29 01

12 33 00  M81          23 44 47  33.7 371.3-10.2     -19.1   -14    11713   No stop
12 34 00  ---          23 45 47  33.7 371.4-10.2     -19.3    46    11721   12 33 01

12 34 00  SN2014J      23 45 47  34.3 371.1-10.2     -19.4   -14    11721   No stop
12 38 00  ---          23 49 48  34.4 371.5-10.1     -20.1   226    11752   12 34 01

12 38 00  M81          23 49 48  33.8 371.8-10.1     -20.0   -14    11752   No stop
12 39 00  ---          23 50 48  33.9 371.9-10.1     -20.2    46    11759   12 38 01

12 39 00  SN2014J      23 50 48  34.4 371.6-10.1     -20.3   -14    11759   No stop
12 43 00  ---          23 54 48  34.6 372.0-10.0     -21.0   226    11790   12 39 01

12 43 30  M81          23 55 18  34.0 372.3-10.0     -21.0    16    11790   12 43 30
12 44 00  ---          23 55 49  34.0 372.4-10.0     -21.1    30    11794   12 43 31

12 44 00  SN2014J      23 55 49  34.6 372.1-10.0     -21.2   -14    11794   No stop
12 48 00  ---          23 59 49  34.7 372.5-10.0     -21.9   226    11825   12 44 01

12 48 00  M81          23 59 49  34.2 372.8 -9.9     -21.8   -14    11825   No stop
12 49 00  ---          00 00 49  34.2 372.9 -9.9     -22.0    46    11832   12 48 01

12 49 00  SN2014J      00 00 49  34.8 372.6 -9.9     -22.1   -14    11832   No stop
12 53 00  ---          00 04 50  34.9 373.0 -9.9     -22.8   226    11863   12 49 01

12 53 00  M81          00 04 50  34.3 373.3 -9.9     -22.7   -14    11863   No stop
12 54 00  ---          00 05 50  34.4 373.4 -9.8     -22.9    46    11871   12 53 01

12 55 00  J0958+6533   00 06 50  31.0 374.8 -9.9     -21.6    34    11871   12 55 00
12 59 00  =0954+658    00 10 51  31.2 375.2 -9.8     -22.3   240    11901   12 55 01
```

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


 ======== Setup file: sess114.L1024
   Matching groups in /aps3/sched11.0/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    2         Station: TORUN            Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2        Sample rate: 32.000
   Number of channels: 16    DBE type:                 Speedup factor:   0.50

   Disk used to record data.

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

  The following frequency sets based on these setups were used.

   Frequency Set:   6  Setup file default.  Used pcal sets:   1
   LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
             1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
   BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
              625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
   Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
               16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
    Matching frequency sets:   6

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = OFF
    PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
    PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
    PCALFR1=     0     0     0     0     0     0     0     0
    PCALFR2=     0     0     0     0     0     0     0     0

   Track assignments are:
    track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
    barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 053352	05 30 52.493523	* 05 33 52.990000	05 34 45.430062	0.00
	21 57 06.72791	* 21 59 07.20000	21 59 31.82952	0.00
* 053428	05 31 27.377842	* 05 34 28.230000	05 35 20.776016	0.00
	22 12 35.66518	* 22 14 33.60000	22 14 57.56989	0.00
* 053512	05 32 11.250987	* 05 35 12.060000	05 36 04.596301	0.00
	22 10 15.43887	* 22 12 10.20000	22 12 33.23298	0.00
* 053443	05 31 42.649529	* 05 34 43.560000	05 35 36.124010	0.00
	22 15 02.07252	* 22 16 58.90000	22 17 22.55973	0.00
* 053559	05 32 53.562385	* 05 35 54.160000	05 36 46.637445	0.00
	22 00 27.99432	* 22 02 19.70000	22 02 41.79234	0.00
* 053632	05 33 31.627582	* 05 36 32.240000	05 37 24.724235	0.00
	22 00 46.95174	* 22 02 35.90000	22 02 57.19053	0.00
* 053155	05 28 54.553664	* 05 31 55.130000	05 32 47.585596	0.00
	22 01 53.00375	* 22 04 02.00000	22 04 29.13837	0.00
* 053131	05 28 31.294514	* 05 31 31.630000	05 32 24.013852	0.00
	21 51 22.91413	* 21 53 33.60000	21 54 01.17640	0.00
* 053815	05 35 15.741994	* 05 38 15.890000	05 39 08.245680	0.00
	21 39 11.77896	* 21 40 53.20000	21 41 12.18723	0.00
* 052830	05 25 30.832406	* 05 28 30.660000	05 29 22.883825	0.00
	21 30 38.16908	* 21 33 01.90000	21 33 33.17040	0.00
* 052817	05 25 16.138650	* 05 28 17.020000	05 29 09.550105	0.00
	22 17 57.84914	* 22 20 22.60000	22 20 54.41452	0.00
* SN2014J	09 51 33.408895	* 09 55 42.217000	09 56 55.410314	0.00
	69 54 39.93207	* 69 40 26.56000	69 36 12.93229	0.00
J0237+2848	02 34 55.589591	* 02 37 52.405678	02 38 42.997591	0.11
* 0234+285	28 35 11.40773	* 28 48 08.98998	28 51 48.51791	0.10
* J0518+2054	05 15 05.041797	* 05 18 03.824512	05 18 55.701261	0.11
0515+208	20 51 43.76308	* 20 54 52.49738	20 55 36.68136	0.11
* J0521+2112	05 18 46.711010	* 05 21 45.965845	05 22 37.995448	0.40
0518+211	21 09 58.62250	* 21 12 51.45169	21 13 31.09537	0.60
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 31.780951	0.13
* DA193	39 48 21.94578	* 39 48 49.16493	39 48 51.75870	0.10
J0955+6903	09 51 27.310820	* 09 55 33.173064	09 56 45.489588	0.29
* M81	69 18 08.14417	* 69 03 55.06083	68 59 41.47615	0.10
* J0958+6533	09 54 57.847935	* 09 58 47.245115	09 59 54.670794	0.24
0954+658	65 48 15.53883	* 65 33 54.81802	65 29 38.66258	0.10

```
* M87              12 28 17.569280   * 12 30 49.423382     12 31 33.841027       0.10
  3C274            12 40 01.74884    * 12 23 28.04366      12 18 34.71458        0.10

  J2253+1608       22 51 29.519738   * 22 53 57.747937     22 54 39.116675       0.68
* 3C454.3          15 52 54.34810    * 16 08 53.56093      16 13 26.15601        0.72
```

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)
053352	113.9
053428	114.1
053512	114.2
053443	114.1
053559	114.4
053632	114.5
053155	113.5
053131	113.4
053815	114.9
052830	112.7
052817	112.7
SN2014J	121.8
0234+285	76.4
J0518+2054	110.2
J0521+2112	111.1
DA193	117.8
M81	122.4
J0958+6533	125.9
M87	145.2
3C454.3	29.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the longest VLBA baselines
at a solar distance of 60deg F^(-0.6) where F is in GHz.
For common VLBI bands, this is:

327 MHz	117. deg
610 MHz	81. deg
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
43.0 GHz	6. deg

rk01uatr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C-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  19 Feb 2014   Day  50 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

23 00 00  0743-006     10 13 30  28.1 222.6  2.4      24.0     0        0   23 00 00
23 14 30  ---          10 28 02  26.5 226.3  2.7      25.8   870       28   23 00 01

23 15 00  0743-006     10 28 32  26.5 226.5  2.7      25.8    24       28   23 15 00
23 29 30  ---          10 43 05  24.9 230.1  2.9      27.4   870       56   23 15 01

23 30 00  0743-006     10 43 35  24.8 230.2  2.9      27.5    24       56   23 30 00
23 44 30  ---          10 58 07  23.1 233.7  3.2      28.9   870       84   23 30 01

23 45 00  0743-006     10 58 37  23.0 233.8  3.2      29.0    24       84   23 45 00
23 50 00  ---          11 03 38  22.4 235.0  3.3      29.5   300       93   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
   Matching groups in ./rk01ua_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0743-006          07 43 21.047495   * 07 45 54.082322     07 46 39.054576       0.00
  J0745-0044       -00 36 55.80448    *-00 44 17.54000     -00 46 40.11163        0.00


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)
 3C147              113.0
 0743-006           141.7

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

rk01ubtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


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

Schedule for TORUN     (Code Tr )                                   Page   2
               RadioAstron 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  20 Feb 2014   Day  51 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1636+473     15 14 19  75.4 105.2 -1.4     -58.7     0         0   04 00 00
04 09 30  ---          15 23 51  76.8 108.7 -1.2     -56.9   570        18   04 00 01

04 10 00  1636+473     15 24 21  76.9 108.9 -1.2     -56.8    24        18   04 10 00
04 19 30  ---          15 33 52  78.2 113.2 -1.1     -54.4   570        36   04 10 01

04 20 00  1636+473     15 34 22  78.3 113.4 -1.1     -54.3    23        36   04 20 00
04 29 30  ---          15 43 54  79.6 118.5 -0.9     -51.0   570        55   04 20 01

04 30 00  1636+473     15 44 24  79.6 118.8 -0.9     -50.8    23        55   04 30 00
04 39 30  ---          15 53 55  80.8 125.1 -0.7     -46.4   570        73   04 30 01

04 40 00  1636+473     15 54 26  80.9 125.5 -0.7     -46.1    23        73   04 40 00
04 49 30  ---          16 03 57  82.0 133.5 -0.6     -40.0   570        91   04 40 01

04 50 00  1636+473     16 04 27  82.1 133.9 -0.6     -39.6    22        91   04 50 00
05 00 00  ---          16 14 29  83.0 144.7 -0.4     -30.8   600       110   04 50 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
   Matching groups in ./rk01ub_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   8  Setup file default.  Used pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   8

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1636+473          16 36 19.144415   * 16 37 45.130558     16 38 09.239153       0.00
  J1637+4717        47 23 28.57983    * 47 17 33.83103      47 15 41.32061        0.00


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            94.0

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

f14l1tr

Ftp test

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Notes: L-band ftp-test (512 Mbps, 2-bit sampling, 8 MHz filters) for session 1/2014

COVER LETTER:

This is the schedule for the L-band ftp fringe-test on 20 February 2014
involving 16 antennas: Eb Wb Jb1 On25 Mc Nt Tr Sv Zc Bd Ur Sh T6 Hh Sr (Md Td)

The ftp test uses a standard setup
and consists of long integrations on a strong source 0234+285.

Two ftp tests are scheduled:
12:04:30 UT (scan 2, 2 sec, 0234+285)
12:53:00 UT (scan 8, 2 sec, 0234+285)

Please make sure that the autoftp is set up correctly.

Good luck with the session and see you on Skype!

Dmitry
Skype account: oasis230987

```
Schedule for TORUN     (Code Tr )                                Page   2
               Ftp test
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  20 Feb 2014   Day  51 ---

 Next scan frequencies:  1634.49  1634.49  1634.49  1634.49  1650.49  1650.49  1650.49  1650.49
                         1666.49  1666.49  1666.49  1666.49  1682.49  1682.49  1682.49  1682.49
 Next BBC frequencies:    665.51   665.51   665.51   665.51   649.51   649.51   649.51   649.51
                          633.51   633.51   633.51   633.51   617.51   617.51   617.51   617.51
 Next scan bandwidths:      8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
                            8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00

12 00 00  0234+285     23 15 38  45.9 102.7 -3.4     -42.0     0         0   12 00 00
12 04 00  ---          23 19 39  46.5 103.7 -3.3     -41.8   240        15   12 00 01

12 04 30  0234+285     23 20 09  46.6 103.8 -3.3     -41.8    24        15   12 04 30
12 08 30  ---          23 24 09  47.2 104.7 -3.2     -41.5   240        31   12 04 31

12 10 30  0234+285     23 26 10  47.5 105.2 -3.2     -41.4   114        31   12 10 30
12 18 30  ---          23 34 11  48.6 107.2 -3.1     -40.9   480        62   12 10 31

12 19 00  0234+285     23 34 41  48.7 107.3 -3.1     -40.9    24        62   12 19 00
12 27 00  ---          23 42 42  49.8 109.4 -2.9     -40.3   480        93   12 19 01

12 27 30  0234+285     23 43 12  49.9 109.5 -2.9     -40.3    24        93   12 27 30
12 35 30  ---          23 51 14  51.0 111.6 -2.8     -39.6   480       124   12 27 31

12 36 00  0234+285     23 51 44  51.1 111.7 -2.8     -39.6    24       124   12 36 00
12 44 00  ---          23 59 45  52.2 113.9 -2.6     -38.8   480       155   12 36 01

12 44 30  0234+285     00 00 15  52.3 114.1 -2.6     -38.8    24       155   12 44 30
12 52 30  ---          00 08 16  53.4 116.4 -2.5     -37.9   480       186   12 44 31

12 53 00  0234+285     00 08 47  53.4 116.5 -2.5     -37.8    24       186   12 53 00
12 57 00  ---          00 12 47  54.0 117.7 -2.4     -37.4   240       201   12 53 01

12 59 00  0234+285     00 14 48  54.2 118.3 -2.4     -37.1   113       201   12 59 00
13 00 00  ---          00 15 48  54.4 118.6 -2.4     -37.0    60       205   12 59 01


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


 ======== Setup file: sess114.L512
   Matching groups in ./SH65.freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    4         Station: TORUN             Total bit rate:  512
   Format: MKIV1:2           Bits per sample: 2         Sample rate: 16.000
   Number of channels: 16    DBE type:                  Speedup factor:   1.00
```

```
 Disk used to record data.

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

The following frequency sets based on these setups were used.

 Frequency Set:   7  Setup file default.  Used pcal sets:   1
 LO sum=   1634.49  1634.49  1634.49  1634.49  1650.49  1650.49  1650.49  1650.49
           1666.49  1666.49  1666.49  1666.49  1682.49  1682.49  1682.49  1682.49
 BBC fr=    665.51   665.51   665.51   665.51   649.51   649.51   649.51   649.51
            633.51   633.51   633.51   633.51   617.51   617.51   617.51   617.51
 Bandwd=      8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
              8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
  Matching frequency sets:   7

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S5    S7    S9    S11   S13   S15
  PCALXB2=   S2    S4    S6    S8    S10   S12   S14   S16
  PCALFR1=   490   510   490   510   490   510   490   510
  PCALFR2=   490   510   490   510   490   510   490   510

 Track assignments are:
  track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
  barrel=roll_off


SOURCES USED IN RECORDING SCANS --                        Ftp test
    Catalog positions marked with *.
    Precession of date coordinates is based on stop time of first scan.
    Names used in schedule marked with *.
    Short names used in VLA and SNAP files marked with +.
    Observation date used in B1950/J2000 coordinate conversion (PRECDATE):  1979.900
    No adjustments are made for rates (DRA, DDEC).
    Scan hours are for recording scans only.
    Baseline hours are only counted for scans above horizon at both ends.

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

  J0237+2848        02 34 55.589591   * 02 37 52.405678     02 38 42.952292       0.11
* 0234+285          28 35 11.40773    * 28 48 08.98998      28 51 48.25714        0.10


 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)
  0234+285            74.9
```

em111tr

Morphological changes of the extended emission of HESS J0632+057

PI: *Benito Marcote*


```
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```


Observing mode: v18cm-1024-16-2

```
Schedule for TORUN     (Code Tr )                                    Page   2
               Morphological changes of the extended emission of HESS J0632+057
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  20 Feb 2014   Day  51 ---

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

14 00 00  0528+134     01 15 58  26.3 102.9 -4.3     -37.0     0        0   14 00 00
14 06 00  ---          01 21 59  27.2 104.3 -4.2     -36.8   360       46   14 00 01

14 06 00  J0619+0736   01 21 59  15.4  97.9 -5.0     -36.9   -58       46   No stop
14 07 30  =0616+076    01 23 29  15.6  98.2 -4.9     -36.8    32       58   14 06 01

14 07 30  J0632+057    01 23 29  12.1  96.5 -5.2     -36.8   -27       58   No stop
14 11 00  ---          01 26 59  12.6  97.2 -5.1     -36.8   183       84   14 07 31

14 11 00  J0619+0736   01 26 59  16.1  98.9 -4.9     -36.8   -27       84   No stop
14 12 30  =0616+076    01 28 30  16.3  99.2 -4.9     -36.7    63       96   14 11 01

14 13 15  J0632+057    01 29 15  12.9  97.7 -5.1     -36.7    18       96   14 13 15
14 16 45  ---          01 32 45  13.5  98.4 -5.0     -36.7   210      123   14 13 16

14 16 45  J0619+0736   01 32 45  17.0 100.1 -4.8     -36.6   -27      123   No stop
14 18 15  =0616+076    01 34 16  17.2 100.4 -4.8     -36.6    63      134   14 16 46

14 18 15  J0632+057    01 34 16  13.7  98.7 -5.0     -36.6   -27      134   No stop
14 21 45  ---          01 37 46  14.2  99.4 -4.9     -36.5   183      161   14 18 16

14 21 45  J0619+0736   01 37 46  17.7 101.2 -4.7     -36.5   -27      161   No stop
14 23 15  =0616+076    01 39 16  17.9 101.5 -4.7     -36.4    63      173   14 21 46

14 24 00  J0632+057    01 40 01  14.5  99.9 -4.9     -36.5    18      173   14 24 00
14 27 30  ---          01 43 32  15.1 100.6 -4.8     -36.4   210      200   14 24 01
```

Schedule for TORUN (Code Tr) Page 3

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
14 27 30	J0619+0736	01 43 32	18.5	102.4	-4.6		-36.3	-27	200	No stop
14 29 00	=0616+076	01 45 02	18.8	102.7	-4.6		-36.2	63	211	14 27 31
14 29 00	J0632+057	01 45 02	15.3	100.9	-4.8		-36.3	-27	211	No stop
14 32 30	---	01 48 33	15.8	101.7	-4.8		-36.2	183	238	14 29 01
14 32 30	J0619+0736	01 48 33	19.3	103.4	-4.5		-36.1	-27	238	No stop
14 34 00	=0616+076	01 50 03	19.5	103.8	-4.5		-36.0	63	250	14 32 31
14 34 45	J0632+057	01 50 48	16.1	102.1	-4.7		-36.2	18	250	14 34 45
14 38 15	---	01 54 19	16.6	102.9	-4.7		-36.0	210	276	14 34 46
14 38 15	J0619+0736	01 54 19	20.1	104.7	-4.4		-35.9	-27	276	No stop
14 39 45	=0616+076	01 55 49	20.3	105.0	-4.4		-35.8	63	288	14 38 16
14 39 45	J0632+057	01 55 49	16.9	103.2	-4.6		-36.0	-27	288	No stop
14 43 15	---	01 59 20	17.4	103.9	-4.6		-35.9	183	315	14 39 46
14 43 15	J0619+0736	01 59 20	20.8	105.7	-4.3		-35.7	-27	315	No stop
14 44 45	=0616+076	02 00 50	21.1	106.1	-4.3		-35.6	63	326	14 43 16
14 45 30	J0632+057	02 01 35	17.7	104.4	-4.5		-35.8	18	326	14 45 30
14 49 00	---	02 05 06	18.2	105.1	-4.5		-35.6	210	353	14 45 31
14 49 00	J0619+0736	02 05 06	21.7	107.0	-4.2		-35.4	-27	353	No stop
14 50 30	=0616+076	02 06 36	21.9	107.3	-4.2		-35.3	63	365	14 49 01
14 50 30	J0632+057	02 06 36	18.4	105.5	-4.5		-35.6	-27	365	No stop
14 54 00	---	02 10 06	18.9	106.2	-4.4		-35.4	183	392	14 50 31
14 54 00	J0619+0736	02 10 06	22.4	108.1	-4.2		-35.2	-27	392	No stop
14 55 30	=0616+076	02 11 37	22.6	108.4	-4.1		-35.1	63	403	14 54 01
14 56 15	J0632+057	02 12 22	19.3	106.7	-4.4		-35.3	18	403	14 56 15
14 59 45	---	02 15 52	19.8	107.5	-4.3		-35.2	210	430	14 56 16
14 59 45	J0619+0736	02 15 52	23.2	109.4	-4.1		-34.9	-27	430	No stop
15 01 15	=0616+076	02 17 23	23.4	109.7	-4.0		-34.8	63	442	14 59 46
15 01 15	J0632+057	02 17 23	20.0	107.8	-4.3		-35.1	-27	442	No stop
15 04 45	---	02 20 53	20.5	108.5	-4.2		-34.9	183	468	15 01 16
15 04 45	J0619+0736	02 20 53	23.9	110.5	-4.0		-34.6	-27	468	No stop
15 06 15	=0616+076	02 22 23	24.1	110.8	-4.0		-34.5	63	480	15 04 46
15 07 00	J0632+057	02 23 09	20.8	109.0	-4.2		-34.8	18	480	15 07 00
15 10 30	---	02 26 39	21.3	109.8	-4.1		-34.6	210	507	15 07 01

Schedule for TORUN (Code Tr) Page 4

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
15 10 30	J0619+0736	02 26 39	24.7	111.8	-3.9		-34.2	-27	507	No stop
15 12 00	=0616+076	02 28 09	24.9	112.1	-3.9		-34.1	63	518	15 10 31
15 12 00	J0632+057	02 28 09	21.5	110.1	-4.1		-34.5	-27	518	No stop
15 15 30	---	02 31 40	22.0	110.9	-4.0		-34.3	183	545	15 12 01
15 15 30	J0619+0736	02 31 40	25.4	112.9	-3.8		-33.9	-27	545	No stop
15 17 00	=0616+076	02 33 10	25.6	113.2	-3.8		-33.8	63	557	15 15 31
15 17 45	J0632+057	02 33 55	22.3	111.4	-4.0		-34.2	18	557	15 17 45
15 21 15	---	02 37 26	22.8	112.2	-3.9		-34.0	210	584	15 17 46
15 21 15	J0619+0736	02 37 26	26.2	114.2	-3.7		-33.5	-27	584	No stop
15 22 45	=0616+076	02 38 56	26.4	114.6	-3.7		-33.4	63	595	15 21 16
15 22 45	J0632+057	02 38 56	23.0	112.5	-3.9		-33.9	-26	595	No stop
15 26 15	---	02 42 27	23.5	113.3	-3.9		-33.7	184	622	15 22 46
15 26 15	J0619+0736	02 42 27	26.9	115.4	-3.6		-33.2	-27	622	No stop
15 27 45	=0616+076	02 43 57	27.1	115.7	-3.6		-33.1	63	634	15 26 16
15 28 30	J0632+057	02 44 42	23.8	113.8	-3.8		-33.5	19	634	15 28 30
15 32 00	---	02 48 13	24.3	114.6	-3.8		-33.3	210	660	15 28 31
15 32 00	J0619+0736	02 48 13	27.7	116.7	-3.5		-32.8	-27	660	No stop
15 33 30	=0616+076	02 49 43	27.9	117.1	-3.5		-32.6	63	672	15 32 01
15 33 30	J0632+057	02 49 43	24.5	115.0	-3.7		-33.2	-26	672	No stop
15 37 00	---	02 53 13	25.0	115.8	-3.7		-32.9	184	699	15 33 31
15 37 00	J0619+0736	02 53 13	28.3	117.9	-3.4		-32.4	-27	699	No stop
15 38 30	=0616+076	02 54 44	28.5	118.3	-3.4		-32.2	63	710	15 37 01
15 39 15	J0632+057	02 55 29	25.3	116.3	-3.6		-32.8	19	710	15 39 15
15 42 45	---	02 58 59	25.7	117.1	-3.6		-32.5	210	737	15 39 16
15 42 45	J0619+0736	02 58 59	29.1	119.3	-3.3		-31.9	-27	737	No stop
15 44 15	=0616+076	03 00 30	29.3	119.7	-3.3		-31.8	63	749	15 42 46
15 44 15	J0632+057	03 00 30	25.9	117.5	-3.6		-32.4	-26	749	No stop
15 47 45	---	03 04 00	26.4	118.3	-3.5		-32.1	184	776	15 44 16
15 47 45	J0619+0736	03 04 00	29.8	120.5	-3.3		-31.5	-27	776	No stop
15 49 15	=0616+076	03 05 31	30.0	120.9	-3.2		-31.3	63	787	15 47 46
15 50 00	J0632+057	03 06 16	26.7	118.8	-3.5		-31.9	19	787	15 50 00
15 53 30	---	03 09 46	27.2	119.7	-3.4		-31.6	210	814	15 50 01

```
Schedule for TORUN     (Code Tr )                                  Page   5
               Morphological changes of the extended emission of HESS J0632+057
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  20 Feb 2014   Day  51 ---

15 53 30  J0619+0736   03 09 46  30.5 121.9 -3.2     -30.9   -27      814   No stop
15 55 00  =0616+076    03 11 16  30.7 122.3 -3.1     -30.8    63      826   15 53 31

15 55 00  J0632+057    03 11 16  27.4 120.0 -3.4     -31.5   -26      826   No stop
15 58 30  ---          03 14 47  27.8 120.9 -3.3     -31.2   184      852   15 55 01

15 58 30  J0619+0736   03 14 47  31.1 123.2 -3.1     -30.5   -26      852   No stop
16 00 00  =0616+076    03 16 17  31.3 123.5 -3.1     -30.3    64      864   15 58 31

16 00 45  J0632+057    03 17 02  28.1 121.4 -3.3     -31.0    19      864   16 00 45
16 04 15  ---          03 20 33  28.6 122.2 -3.2     -30.7   210      891   16 00 46

16 04 15  J0619+0736   03 20 33  31.9 124.6 -3.0     -29.9   -26      891   No stop
16 05 45  =0616+076    03 22 03  32.0 125.0 -3.0     -29.8    64      902   16 04 16

16 05 45  J0632+057    03 22 03  28.7 122.6 -3.2     -30.6   -26      902   No stop
16 09 15  ---          03 25 34  29.2 123.5 -3.1     -30.2   184      929   16 05 46

16 09 15  J0619+0736   03 25 34  32.5 125.9 -2.9     -29.4   -26      929   No stop
16 10 45  =0616+076    03 27 04  32.6 126.3 -2.9     -29.2    64      941   16 09 16

16 11 30  J0632+057    03 27 49  29.5 124.0 -3.1     -30.0    19      941   16 11 30
16 15 00  ---          03 31 20  29.9 124.9 -3.0     -29.7   210      968   16 11 31

16 15 00  J0619+0736   03 31 20  33.2 127.4 -2.8     -28.8   -26      968   No stop
16 16 30  =0616+076    03 32 50  33.3 127.8 -2.8     -28.6    64      979   16 15 01

16 16 30  J0632+057    03 32 50  30.1 125.3 -3.0     -29.5   -26      979   No stop
16 20 00  ---          03 36 21  30.5 126.2 -3.0     -29.2   184     1006   16 16 31

16 20 00  J0619+0736   03 36 21  33.8 128.7 -2.7     -28.2   -26     1006   No stop
16 21 30  =0616+076    03 37 51  33.9 129.1 -2.7     -28.1    64     1018   16 20 01

16 22 15  J0632+057    03 38 36  30.8 126.7 -2.9     -28.9    19     1018   16 22 15
16 25 45  ---          03 42 06  31.2 127.6 -2.9     -28.6   210     1044   16 22 16

16 25 45  J0619+0736   03 42 06  34.4 130.2 -2.6     -27.6   -26     1044   No stop
16 27 15  =0616+076    03 43 37  34.6 130.6 -2.6     -27.4    64     1056   16 25 46

16 27 15  J0632+057    03 43 37  31.4 128.0 -2.8     -28.4   -26     1056   No stop
16 30 45  ---          03 47 07  31.8 128.9 -2.8     -28.0   184     1083   16 27 16

16 30 45  J0619+0736   03 47 07  35.0 131.6 -2.5     -27.0   -26     1083   No stop
16 32 15  =0616+076    03 48 38  35.2 132.0 -2.5     -26.8    64     1094   16 30 46

16 33 00  J0632+057    03 49 23  32.1 129.5 -2.7     -27.8    19     1094   16 33 00
16 36 30  ---          03 52 53  32.5 130.4 -2.7     -27.4   210     1121   16 33 01
```

Schedule for TORUN (Code Tr) Page 6

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
16 36 30	J0619+0736	03 52 53	35.6	133.1	-2.5		-26.2	-26	1121	No stop
16 38 00	=0616+076	03 54 24	35.8	133.5	-2.4		-26.1	64	1133	16 36 31
16 38 00	J0632+057	03 54 24	32.6	130.8	-2.7		-27.2	-26	1133	No stop
16 41 30	---	03 57 54	33.0	131.7	-2.6		-26.8	184	1160	16 38 01
16 41 30	J0619+0736	03 57 54	36.2	134.5	-2.4		-25.6	-26	1160	No stop
16 43 00	=0616+076	03 59 24	36.3	134.9	-2.3		-25.4	64	1171	16 41 31
16 43 45	J0632+057	04 00 09	33.3	132.3	-2.6		-26.5	19	1171	16 43 45
16 47 15	---	04 03 40	33.7	133.3	-2.5		-26.1	210	1198	16 43 46
16 47 15	J0619+0736	04 03 40	36.8	136.1	-2.3		-24.8	-26	1198	No stop
16 48 45	=0616+076	04 05 10	36.9	136.5	-2.2		-24.6	64	1210	16 47 16
16 48 45	J0632+057	04 05 10	33.8	133.7	-2.5		-25.9	-25	1210	No stop
16 52 15	---	04 08 41	34.2	134.6	-2.4		-25.4	185	1236	16 48 46
16 52 15	J0619+0736	04 08 41	37.3	137.5	-2.2		-24.2	-26	1236	No stop
16 53 45	=0616+076	04 10 11	37.5	137.9	-2.2		-23.9	64	1248	16 52 16
16 54 30	J0632+057	04 10 56	34.5	135.2	-2.4		-25.2	20	1248	16 54 30
16 58 00	---	04 14 27	34.8	136.2	-2.3		-24.7	210	1275	16 54 31
16 58 00	J0619+0736	04 14 27	37.9	139.2	-2.1		-23.3	-25	1275	No stop
16 59 30	=0616+076	04 15 57	38.0	139.6	-2.1		-23.1	65	1286	16 58 01
16 59 30	J0632+057	04 15 57	35.0	136.6	-2.3		-24.5	-25	1286	No stop
17 03 00	---	04 19 28	35.3	137.6	-2.2		-24.0	185	1313	16 59 31
17 03 00	J0619+0736	04 19 28	38.4	140.6	-2.0		-22.6	-25	1313	No stop
17 04 30	=0616+076	04 20 58	38.5	141.1	-2.0		-22.4	65	1325	17 03 01
17 05 15	J0632+057	04 21 43	35.6	138.2	-2.2		-23.7	20	1325	17 05 15
17 08 45	---	04 25 14	35.9	139.2	-2.1		-23.2	210	1352	17 05 16
17 08 45	J0619+0736	04 25 14	38.9	142.3	-1.9		-21.7	-25	1352	No stop
17 10 15	=0616+076	04 26 44	39.0	142.8	-1.9		-21.5	65	1363	17 08 46
17 10 15	J0632+057	04 26 44	36.1	139.6	-2.1		-23.0	-25	1363	No stop
17 13 45	---	04 30 14	36.4	140.6	-2.1		-22.5	185	1390	17 10 16
17 13 45	J0619+0736	04 30 14	39.4	143.8	-1.8		-21.0	-25	1390	No stop
17 15 15	=0616+076	04 31 45	39.5	144.3	-1.8		-20.7	65	1402	17 13 46
17 16 00	J0632+057	04 32 30	36.6	141.3	-2.0		-22.2	20	1402	17 16 00
17 19 30	---	04 36 00	36.9	142.3	-2.0		-21.7	210	1428	17 16 01

```
Schedule for TORUN     (Code Tr )                                  Page   7
               Morphological changes of the extended emission of HESS J0632+057
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  20 Feb 2014   Day  51 ---

17 19 30  J0619+0736   04 36 00  39.9 145.5 -1.7     -20.0   -25     1428   No stop
17 21 00  =0616+076    04 37 31  40.0 146.0 -1.7     -19.8    65     1440   17 19 31

17 21 00  J0632+057    04 37 31  37.1 142.7 -1.9     -21.4   -25     1440   No stop
17 24 30  ---          04 41 01  37.4 143.7 -1.9     -20.9   185     1467   17 21 01

17 24 30  J0619+0736   04 41 01  40.3 147.1 -1.6     -19.2   -25     1467   No stop
17 26 00  =0616+076    04 42 31  40.4 147.5 -1.6     -19.0    65     1478   17 24 31

17 26 45  J0632+057    04 43 17  37.6 144.4 -1.8     -20.6    20     1478   17 26 45
17 30 15  ---          04 46 47  37.9 145.4 -1.8     -20.0   210     1505   17 26 46

17 30 15  J0619+0736   04 46 47  40.7 148.9 -1.6     -18.3   -25     1505   No stop
17 31 45  =0616+076    04 48 17  40.8 149.3 -1.5     -18.0    65     1517   17 30 16

17 31 45  J0632+057    04 48 17  38.0 145.9 -1.8     -19.8   -24     1517   No stop
17 35 15  ---          04 51 48  38.3 146.9 -1.7     -19.2   186     1544   17 31 46

17 35 15  J0619+0736   04 51 48  41.1 150.4 -1.5     -17.4   -24     1544   No stop
17 36 45  =0616+076    04 53 18  41.2 150.9 -1.4     -17.1    66     1555   17 35 16

17 37 30  J0632+057    04 54 03  38.5 147.6 -1.7     -18.9    21     1555   17 37 30
17 41 00  ---          04 57 34  38.8 148.7 -1.6     -18.3   210     1582   17 37 31

17 41 00  J0619+0736   04 57 34  41.5 152.2 -1.4     -16.4   -24     1582   No stop
17 42 30  =0616+076    04 59 04  41.6 152.7 -1.3     -16.1    66     1594   17 41 01

17 42 30  J0632+057    04 59 04  38.9 149.1 -1.6     -18.0   -24     1594   No stop
17 46 00  ---          05 02 35  39.2 150.2 -1.5     -17.5   186     1620   17 42 31

17 46 00  J0619+0736   05 02 35  41.9 153.8 -1.3     -15.5   -24     1620   No stop
17 47 30  =0616+076    05 04 05  42.0 154.3 -1.3     -15.2    66     1632   17 46 01

17 48 15  J0632+057    05 04 50  39.3 150.9 -1.5     -17.1    21     1632   17 48 15
17 51 45  ---          05 08 21  39.6 152.0 -1.4     -16.5   210     1659   17 48 16

17 51 45  J0619+0736   05 08 21  42.2 155.7 -1.2     -14.4   -24     1659   No stop
17 53 15  =0616+076    05 09 51  42.3 156.2 -1.2     -14.2    66     1670   17 51 46

17 53 15  J0632+057    05 09 51  39.7 152.4 -1.4     -16.2   -24     1670   No stop
17 56 45  ---          05 13 21  39.9 153.5 -1.3     -15.6   186     1697   17 53 16

17 56 45  J0619+0736   05 13 21  42.5 157.3 -1.1     -13.5   -24     1697   No stop
17 58 15  =0616+076    05 14 52  42.6 157.8 -1.1     -13.2    66     1709   17 56 46
```

Schedule for TORUN (Code Tr) Page 8

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
17 59 00	J0632+057	05 15 37	40.1	154.2	-1.3		-15.2	21	1709	17 59 00
18 02 30	---	05 19 07	40.3	155.3	-1.2		-14.6	210	1736	17 59 01
18 02 30	J0619+0736	05 19 07	42.9	159.2	-1.0		-12.4	-24	1736	No stop
18 04 00	=0616+076	05 20 38	42.9	159.7	-1.0		-12.1	66	1747	18 02 31
18 04 00	J0632+057	05 20 38	40.4	155.8	-1.2		-14.3	-23	1747	No stop
18 07 30	---	05 24 08	40.6	156.9	-1.2		-13.7	187	1774	18 04 01
18 07 30	J0619+0736	05 24 08	43.1	160.9	-0.9		-11.4	-23	1774	No stop
18 09 00	=0616+076	05 25 38	43.2	161.4	-0.9		-11.1	67	1786	18 07 31
18 09 45	J0632+057	05 26 24	40.7	157.6	-1.1		-13.3	22	1786	18 09 45
18 13 15	---	05 29 54	40.9	158.8	-1.1		-12.6	210	1812	18 09 46
18 13 15	J0619+0736	05 29 54	43.4	162.8	-0.8		-10.3	-23	1812	No stop
18 14 45	=0616+076	05 31 24	43.4	163.3	-0.8		-10.0	67	1824	18 13 16
18 16 45	DA193	05 33 25	76.1	161.2	-0.4		-14.6	-17	1824	18 16 45
18 21 45	---	05 38 26	76.4	165.1	-0.3		-11.6	283	1862	18 16 46
18 23 15	J0632+057	05 39 56	41.4	162.0	-0.9		-10.7	-55	1862	18 23 15
18 26 45	---	05 43 26	41.6	163.2	-0.8		-10.1	155	1889	18 23 16
18 26 45	J0619+0736	05 43 26	43.9	167.4	-0.6		-7.6	-24	1889	No stop
18 28 15	=0616+076	05 44 57	44.0	167.9	-0.6		-7.3	66	1901	18 26 46
18 29 00	J0632+057	05 45 42	41.7	163.9	-0.8		-9.6	22	1901	18 29 00
18 32 30	---	05 49 12	41.8	165.1	-0.7		-9.0	210	1928	18 29 01
18 32 30	J0619+0736	05 49 12	44.1	169.4	-0.5		-6.4	-24	1928	No stop
18 34 00	=0616+076	05 50 43	44.1	169.9	-0.5		-6.1	66	1939	18 32 31
18 34 00	J0632+057	05 50 43	41.9	165.5	-0.7		-8.7	-23	1939	No stop
18 37 30	---	05 54 13	42.0	166.7	-0.7		-8.0	187	1966	18 34 01
18 37 30	J0619+0736	05 54 13	44.2	171.1	-0.4		-5.4	-24	1966	No stop
18 39 00	=0616+076	05 55 43	44.2	171.6	-0.4		-5.1	66	1978	18 37 31
18 39 45	J0632+057	05 56 29	42.1	167.5	-0.6		-7.5	21	1978	18 39 45
18 43 15	---	05 59 59	42.2	168.6	-0.6		-6.8	210	2004	18 39 46
18 43 15	J0619+0736	05 59 59	44.3	173.1	-0.3		-4.2	-24	2004	No stop
18 44 45	=0616+076	06 01 29	44.4	173.6	-0.3		-3.9	66	2016	18 43 16

Schedule for TORUN (Code Tr) Page 9

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
18 44 45	J0632+057	06 01 29	42.2	169.1	-0.5		-6.5	-24	2016	No stop
18 48 15	---	06 05 00	42.3	170.3	-0.5		-5.8	186	2043	18 44 46
18 48 15	J0619+0736	06 05 00	44.4	174.8	-0.2		-3.1	-24	2043	No stop
18 49 45	=0616+076	06 06 30	44.4	175.3	-0.2		-2.8	66	2054	18 48 16
18 50 30	J0632+057	06 07 15	42.4	171.1	-0.4		-5.4	21	2054	18 50 30
18 54 00	---	06 10 46	42.5	172.2	-0.4		-4.7	210	2081	18 50 31
18 54 00	J0619+0736	06 10 46	44.5	176.8	-0.2		-1.9	-24	2081	No stop
18 55 30	=0616+076	06 12 16	44.5	177.3	-0.1		-1.6	66	2093	18 54 01
18 55 30	J0632+057	06 12 16	42.5	172.7	-0.4		-4.4	-24	2093	No stop
18 59 00	---	06 15 47	42.5	173.9	-0.3		-3.7	186	2120	18 55 31
18 59 00	J0619+0736	06 15 47	44.5	178.5	-0.1		-0.9	-24	2120	No stop
19 00 30	=0616+076	06 17 17	44.5	179.1	-0.0		-0.6	66	2131	18 59 01
19 01 15	J0632+057	06 18 02	42.6	174.7	-0.3		-3.2	21	2131	19 01 15
19 04 45	---	06 21 33	42.6	175.9	-0.2		-2.5	210	2158	19 01 16
19 04 45	J0619+0736	06 21 33	44.5	180.6	0.0		0.3	-25	2158	No stop
19 06 15	=0616+076	06 23 03	44.5	181.1	0.1		0.7	65	2170	19 04 46
19 06 15	J0632+057	06 23 03	42.6	176.4	-0.2		-2.2	-24	2170	No stop
19 09 45	---	06 26 33	42.7	177.6	-0.1		-1.5	186	2196	19 06 16
19 09 45	J0619+0736	06 26 33	44.5	182.3	0.1		1.4	-25	2196	No stop
19 11 15	=0616+076	06 28 04	44.5	182.8	0.1		1.7	65	2208	19 09 46
19 12 00	J0632+057	06 28 49	42.7	178.3	-0.1		-1.0	21	2208	19 12 00
19 15 30	---	06 32 19	42.7	179.5	-0.0		-0.3	210	2235	19 12 01
19 15 30	J0619+0736	06 32 19	44.4	184.3	0.2		2.6	-25	2235	No stop
19 17 00	=0616+076	06 33 50	44.4	184.8	0.2		2.9	65	2246	19 15 31
19 17 00	J0632+057	06 33 50	42.7	180.0	0.0		0.0	-24	2246	No stop
19 20 30	---	06 37 20	42.7	181.2	0.1		0.7	186	2273	19 17 01
19 20 30	J0619+0736	06 37 20	44.4	186.0	0.3		3.6	-25	2273	No stop
19 22 00	=0616+076	06 38 50	44.3	186.6	0.3		4.0	65	2285	19 20 31
19 22 45	J0632+057	06 39 36	42.7	182.0	0.1		1.2	21	2285	19 22 45
19 26 15	---	06 43 06	42.7	183.2	0.2		1.9	210	2312	19 22 46

Schedule for TORUN (Code Tr) Page 10

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
19 26 15	J0619+0736	06 43 06	44.3	188.0	0.4		4.8	-25	2312	No stop
19 27 45	=0616+076	06 44 36	44.2	188.5	0.4		5.2	65	2323	19 26 16
19 27 45	J0632+057	06 44 36	42.6	183.7	0.2		2.2	-25	2323	No stop
19 31 15	---	06 48 07	42.6	184.9	0.2		2.9	185	2350	19 27 46
19 31 15	J0619+0736	06 48 07	44.1	189.7	0.5		5.9	-25	2350	No stop
19 32 45	=0616+076	06 49 37	44.1	190.3	0.5		6.2	65	2362	19 31 16
19 33 30	J0632+057	06 50 22	42.6	185.6	0.3		3.4	20	2362	19 33 30
19 37 00	---	06 53 53	42.5	186.8	0.3		4.1	210	2388	19 33 31
19 37 00	J0619+0736	06 53 53	44.0	191.7	0.6		7.1	-25	2388	No stop
19 38 30	=0616+076	06 55 23	43.9	192.2	0.6		7.4	65	2400	19 37 01
19 38 30	J0632+057	06 55 23	42.5	187.3	0.4		4.4	-25	2400	No stop
19 42 00	---	06 58 54	42.4	188.5	0.4		5.1	185	2427	19 38 31
19 42 00	J0619+0736	06 58 54	43.8	193.4	0.6		8.1	-25	2427	No stop
19 43 30	=0616+076	07 00 24	43.8	193.9	0.7		8.4	65	2438	19 42 01
19 44 15	J0632+057	07 01 09	42.4	189.2	0.5		5.6	20	2438	19 44 15
19 47 45	---	07 04 40	42.3	190.4	0.5		6.3	210	2465	19 44 16
19 47 45	J0619+0736	07 04 40	43.6	195.4	0.7		9.2	-25	2465	No stop
19 49 15	=0616+076	07 06 10	43.5	195.9	0.8		9.5	65	2477	19 47 46
19 49 15	J0632+057	07 06 10	42.2	190.9	0.5		6.6	-25	2477	No stop
19 52 45	---	07 09 41	42.1	192.1	0.6		7.3	185	2504	19 49 16
19 52 45	J0619+0736	07 09 41	43.4	197.1	0.8		10.2	-25	2504	No stop
19 54 15	=0616+076	07 11 11	43.3	197.6	0.9		10.5	65	2515	19 52 46
19 55 00	J0632+057	07 11 56	42.0	192.8	0.6		7.7	20	2515	19 55 00
19 58 30	---	07 15 26	41.9	194.0	0.7		8.4	210	2542	19 55 01
19 58 30	J0619+0736	07 15 26	43.1	199.0	0.9		11.4	-25	2542	No stop
20 00 00	=0616+076	07 16 57	43.1	199.5	0.9		11.7	65	2554	19 58 31
20 00 00	J0632+057	07 16 57	41.9	194.5	0.7		8.7	-25	2554	No stop
20 03 30	---	07 20 27	41.7	195.6	0.8		9.4	185	2580	20 00 01
20 03 30	J0619+0736	07 20 27	42.9	200.7	1.0		12.3	-25	2580	No stop
20 05 00	=0616+076	07 21 58	42.8	201.2	1.0		12.6	65	2592	20 03 31

Schedule for TORUN (Code Tr) Page 11

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
20 05 45	J0632+057	07 22 43	41.6	196.4	0.8		9.8	20	2592	20 05 45
20 09 15	---	07 26 13	41.5	197.5	0.9		10.5	210	2619	20 05 46
20 09 15	J0619+0736	07 26 13	42.6	202.6	1.1		13.4	-25	2619	No stop
20 10 45	=0616+076	07 27 43	42.5	203.1	1.1		13.7	65	2630	20 09 16
20 10 45	J0632+057	07 27 43	41.4	198.0	0.9		10.8	-25	2630	No stop
20 14 15	---	07 31 14	41.2	199.2	1.0		11.4	185	2657	20 10 46
20 14 15	J0619+0736	07 31 14	42.3	204.2	1.2		14.4	-25	2657	No stop
20 15 45	=0616+076	07 32 44	42.2	204.7	1.2		14.7	65	2669	20 14 16
20 16 30	J0632+057	07 33 29	41.1	199.9	1.0		11.9	20	2669	20 16 30
20 20 00	---	07 37 00	41.0	201.0	1.1		12.5	210	2696	20 16 31
20 20 00	J0619+0736	07 37 00	41.9	206.1	1.3		15.4	-25	2696	No stop
20 21 30	=0616+076	07 38 30	41.8	206.5	1.3		15.7	65	2707	20 20 01
20 21 30	J0632+057	07 38 30	40.9	201.5	1.1		12.8	-25	2707	No stop
20 25 00	---	07 42 01	40.7	202.6	1.1		13.4	185	2734	20 21 31
20 25 00	J0619+0736	07 42 01	41.5	207.7	1.4		16.3	-25	2734	No stop
20 26 30	=0616+076	07 43 31	41.4	208.1	1.4		16.6	65	2746	20 25 01
20 27 15	J0632+057	07 44 16	40.5	203.4	1.2		13.8	20	2746	20 27 15
20 30 45	---	07 47 47	40.3	204.5	1.2		14.5	210	2772	20 27 16
20 30 45	J0619+0736	07 47 47	41.1	209.5	1.5		17.3	-25	2772	No stop
20 32 15	=0616+076	07 49 17	41.0	209.9	1.5		17.6	65	2784	20 30 46
20 32 15	J0632+057	07 49 17	40.2	204.9	1.3		14.7	-25	2784	No stop
20 35 45	---	07 52 48	40.0	206.0	1.3		15.4	185	2811	20 32 16
20 35 45	J0619+0736	07 52 48	40.8	211.0	1.5		18.2	-25	2811	No stop
20 37 15	=0616+076	07 54 18	40.6	211.5	1.6		18.5	65	2822	20 35 46
20 38 00	J0632+057	07 55 03	39.9	206.7	1.4		15.8	20	2822	20 38 00
20 41 30	---	07 58 34	39.6	207.8	1.4		16.4	210	2849	20 38 01
20 41 30	J0619+0736	07 58 34	40.3	212.8	1.6		19.2	-25	2849	No stop
20 43 00	=0616+076	08 00 04	40.2	213.3	1.7		19.4	65	2861	20 41 31
20 43 00	J0632+057	08 00 04	39.5	208.3	1.4		16.6	-25	2861	No stop
20 46 30	---	08 03 34	39.3	209.4	1.5		17.2	185	2888	20 43 01

Schedule for TORUN (Code Tr) Page 12

Morphological changes of the extended emission of HESS J0632+057

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

--- Thu 20 Feb 2014 Day 51 ---

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
20 46 30	J0619+0736	08 03 34	39.9	214.4	1.7		20.0	-25	2888	No stop
20 48 00	=0616+076	08 05 05	39.8	214.8	1.8		20.2	65	2899	20 46 31
20 48 45	J0632+057	08 05 50	39.1	210.1	1.5		17.6	20	2899	20 48 45
20 52 15	---	08 09 20	38.8	211.1	1.6		18.2	210	2926	20 48 46
20 52 15	J0619+0736	08 09 20	39.4	216.1	1.8		20.9	-25	2926	No stop
20 53 45	=0616+076	08 10 51	39.2	216.5	1.8		21.1	65	2938	20 52 16
20 53 45	J0632+057	08 10 51	38.7	211.6	1.6		18.4	-25	2938	No stop
20 57 15	---	08 14 21	38.4	212.7	1.7		19.0	185	2964	20 53 46
20 57 15	J0619+0736	08 14 21	38.9	217.6	1.9		21.7	-25	2964	No stop
20 58 45	=0616+076	08 15 51	38.8	218.0	1.9		21.9	65	2976	20 57 16
20 59 30	J0632+057	08 16 36	38.2	213.3	1.7		19.4	20	2976	20 59 30
21 03 00	---	08 20 07	37.9	214.4	1.8		19.9	210	3003	20 59 31
21 03 00	J0619+0736	08 20 07	38.4	219.3	2.0		22.6	-25	3003	No stop
21 04 30	=0616+076	08 21 37	38.2	219.7	2.0		22.8	65	3014	21 03 01
21 04 30	J0632+057	08 21 37	37.8	214.8	1.8		20.2	-25	3014	No stop
21 08 00	---	08 25 08	37.5	215.9	1.9		20.7	185	3041	21 04 31
21 08 00	J0619+0736	08 25 08	37.9	220.7	2.1		23.3	-25	3041	No stop
21 09 30	=0616+076	08 26 38	37.8	221.2	2.1		23.5	65	3053	21 08 01
21 10 15	J0632+057	08 27 23	37.3	216.5	1.9		21.0	20	3053	21 10 15
21 13 45	---	08 30 54	37.0	217.5	2.0		21.6	210	3080	21 10 16
21 13 45	J0619+0736	08 30 54	37.3	222.4	2.2		24.1	-25	3080	No stop
21 15 15	=0616+076	08 32 24	37.2	222.8	2.2		24.3	65	3091	21 13 46
21 15 15	J0632+057	08 32 24	36.9	218.0	2.0		21.8	-24	3091	No stop
21 18 45	---	08 35 55	36.5	219.0	2.0		22.3	186	3118	21 15 16
21 18 45	J0619+0736	08 35 55	36.8	223.8	2.3		24.8	-25	3118	No stop
21 20 15	=0616+076	08 37 25	36.7	224.2	2.3		25.0	65	3130	21 18 46
21 21 00	J0632+057	08 38 10	36.3	219.6	2.1		22.6	21	3130	21 21 00
21 24 30	---	08 41 41	36.0	220.6	2.1		23.1	210	3156	21 21 01
21 24 30	J0619+0736	08 41 41	36.2	225.4	2.4		25.6	-25	3156	No stop
21 26 00	=0616+076	08 43 11	36.0	225.8	2.4		25.8	65	3168	21 24 31

Schedule for TORUN (Code Tr) Page 13

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
21 26 00	J0632+057	08 43 11	35.8	221.0	2.2		23.3	-24	3168	No stop
21 29 30	---	08 46 41	35.5	222.0	2.2		23.8	186	3195	21 26 01
21 29 30	J0619+0736	08 46 41	35.7	226.8	2.4		26.2	-25	3195	No stop
21 31 00	=0616+076	08 48 12	35.5	227.2	2.5		26.4	65	3206	21 29 31
21 31 45	J0632+057	08 48 57	35.2	222.7	2.3		24.1	21	3206	21 31 45
21 35 15	---	08 52 27	34.9	223.6	2.3		24.6	210	3233	21 31 46
21 35 15	J0619+0736	08 52 27	35.0	228.4	2.5		26.9	-25	3233	No stop
21 36 45	=0616+076	08 53 58	34.9	228.8	2.6		27.1	65	3245	21 35 16
21 36 45	J0632+057	08 53 58	34.7	224.0	2.3		24.8	-24	3245	No stop
21 40 15	---	08 57 28	34.4	225.0	2.4		25.3	186	3272	21 36 46
21 40 15	J0619+0736	08 57 28	34.5	229.7	2.6		27.5	-25	3272	No stop
21 41 45	=0616+076	08 58 58	34.3	230.1	2.7		27.7	65	3283	21 40 16
21 42 30	J0632+057	08 59 44	34.1	225.6	2.4		25.6	21	3283	21 42 30
21 46 00	---	09 03 14	33.7	226.6	2.5		26.0	210	3310	21 42 31
21 46 00	J0619+0736	09 03 14	33.8	231.2	2.7		28.2	-24	3310	No stop
21 47 30	=0616+076	09 04 44	33.6	231.6	2.7		28.4	66	3322	21 46 01
21 47 30	J0632+057	09 04 44	33.6	227.0	2.5		26.2	-24	3322	No stop
21 51 00	---	09 08 15	33.2	227.9	2.6		26.6	186	3348	21 47 31
21 51 00	J0619+0736	09 08 15	33.2	232.5	2.8		28.7	-24	3348	No stop
21 52 30	=0616+076	09 09 45	33.0	232.9	2.8		28.9	66	3360	21 51 01
21 53 15	J0632+057	09 10 30	32.9	228.5	2.6		26.9	21	3360	21 53 15
21 56 45	---	09 14 01	32.5	229.4	2.7		27.3	210	3387	21 53 16
21 56 45	J0619+0736	09 14 01	32.5	234.0	2.9		29.4	-24	3387	No stop
21 58 15	=0616+076	09 15 31	32.3	234.4	2.9		29.5	66	3398	21 56 46
21 58 15	J0632+057	09 15 31	32.4	229.8	2.7		27.5	-24	3398	No stop
22 01 45	---	09 19 02	32.0	230.7	2.8		27.9	186	3425	21 58 16
22 01 45	J0619+0736	09 19 02	31.9	235.3	3.0		29.9	-24	3425	No stop
22 03 15	=0616+076	09 20 32	31.7	235.7	3.0		30.0	66	3437	22 01 46
22 04 00	J0632+057	09 21 17	31.7	231.3	2.8		28.1	21	3437	22 04 00
22 07 30	---	09 24 48	31.3	232.2	2.9		28.5	210	3464	22 04 01

Schedule for TORUN (Code Tr) Page 14

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
22 07 30	J0619+0736	09 24 48	31.2	236.8	3.1		30.4	-24	3464	No stop
22 09 00	=0616+076	09 26 18	31.0	237.1	3.1		30.6	66	3475	22 07 31
22 09 00	J0632+057	09 26 18	31.1	232.6	2.9		28.7	-24	3475	No stop
22 12 30	---	09 29 48	30.7	233.5	2.9		29.0	186	3502	22 09 01
22 12 30	J0619+0736	09 29 48	30.5	238.0	3.2		30.9	-24	3502	No stop
22 14 00	=0616+076	09 31 19	30.4	238.4	3.2		31.1	66	3514	22 12 31
22 14 45	J0632+057	09 32 04	30.4	234.1	3.0		29.3	21	3514	22 14 45
22 18 15	---	09 35 34	30.0	234.9	3.0		29.6	210	3540	22 14 46
22 18 15	J0619+0736	09 35 34	29.8	239.4	3.3		31.4	-24	3540	No stop
22 19 45	=0616+076	09 37 05	29.6	239.8	3.3		31.6	66	3552	22 18 16
22 19 45	J0632+057	09 37 05	29.8	235.3	3.1		29.8	-24	3552	No stop
22 23 15	---	09 40 35	29.4	236.2	3.1		30.1	186	3579	22 19 46
22 23 15	J0619+0736	09 40 35	29.2	240.6	3.3		31.9	-24	3579	No stop
22 24 45	=0616+076	09 42 05	29.0	241.0	3.4		32.0	66	3590	22 23 16
22 25 30	J0632+057	09 42 51	29.1	236.7	3.2		30.3	21	3590	22 25 30
22 29 00	---	09 46 21	28.6	237.6	3.2		30.6	210	3617	22 25 31
22 29 00	J0619+0736	09 46 21	28.4	242.0	3.4		32.3	-24	3617	No stop
22 30 30	=0616+076	09 47 51	28.2	242.4	3.5		32.5	66	3629	22 29 01
22 30 30	J0632+057	09 47 51	28.4	238.0	3.2		30.8	-24	3629	No stop
22 34 00	---	09 51 22	28.0	238.8	3.3		31.1	186	3656	22 30 31
22 34 00	J0619+0736	09 51 22	27.7	243.2	3.5		32.7	-24	3656	No stop
22 35 30	=0616+076	09 52 52	27.5	243.5	3.5		32.8	66	3667	22 34 01
22 36 15	J0632+057	09 53 37	27.7	239.4	3.3		31.3	21	3667	22 36 15
22 39 45	---	09 57 08	27.2	240.2	3.4		31.6	210	3694	22 36 16
22 39 45	J0619+0736	09 57 08	26.9	244.5	3.6		33.2	-24	3694	No stop
22 41 15	=0616+076	09 58 38	26.7	244.9	3.6		33.3	66	3706	22 39 46
22 41 15	J0632+057	09 58 38	27.1	240.6	3.4		31.7	-23	3706	No stop
22 44 45	---	10 02 09	26.6	241.4	3.5		32.0	187	3732	22 41 16
22 44 45	J0619+0736	10 02 09	26.3	245.7	3.7		33.5	-24	3732	No stop
22 46 15	=0616+076	10 03 39	26.1	246.1	3.7		33.6	66	3744	22 44 46

Schedule for TORUN (Code Tr) Page 15

Morphological changes of the extended emission of HESS J0632+057

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 20 Feb 2014 Day 51 ---										
22 47 00	J0632+057	10 04 24	26.3	241.9	3.5		32.2	22	3744	22 47 00
22 50 30	---	10 07 55	25.8	242.7	3.6		32.4	210	3771	22 47 01
22 50 30	J0619+0736	10 07 55	25.5	247.0	3.8		33.9	-24	3771	No stop
22 52 00	=0616+076	10 09 25	25.3	247.4	3.8		34.0	66	3782	22 50 31
22 52 00	J0632+057	10 09 25	25.6	243.1	3.6		32.6	-23	3782	No stop
22 55 30	---	10 12 56	25.2	243.9	3.7		32.8	187	3809	22 52 01
22 55 30	J0619+0736	10 12 56	24.8	248.2	3.9		34.2	-24	3809	No stop
22 57 00	=0616+076	10 14 26	24.6	248.5	3.9		34.3	66	3821	22 55 31
22 57 45	J0632+057	10 15 11	24.9	244.4	3.7		33.0	22	3821	22 57 45
23 01 15	---	10 18 41	24.4	245.2	3.7		33.2	210	3848	22 57 46
23 01 15	J0619+0736	10 18 41	24.0	249.5	4.0		34.6	-24	3848	No stop
23 02 45	=0616+076	10 20 12	23.8	249.8	4.0		34.6	66	3859	23 01 16
23 02 45	J0632+057	10 20 12	24.2	245.6	3.8		33.3	-23	3859	No stop
23 06 15	---	10 23 42	23.7	246.4	3.8		33.6	187	3886	23 02 46
23 06 15	J0619+0736	10 23 42	23.3	250.6	4.1		34.8	-23	3886	No stop
23 07 45	=0616+076	10 25 13	23.0	250.9	4.1		34.9	67	3898	23 06 16
23 08 30	J0632+057	10 25 58	23.4	246.9	3.9		33.7	22	3898	23 08 30
23 12 00	---	10 29 28	22.9	247.7	3.9		33.9	210	3924	23 08 31
23 12 00	J0619+0736	10 29 28	22.4	251.8	4.2		35.1	-23	3924	No stop
23 13 30	=0616+076	10 30 58	22.2	252.2	4.2		35.2	67	3936	23 12 01
23 13 30	J0632+057	10 30 58	22.7	248.0	4.0		34.0	-23	3936	No stop
23 17 00	---	10 34 29	22.2	248.8	4.0		34.2	187	3963	23 13 31
23 17 00	J0619+0736	10 34 29	21.7	252.9	4.2		35.4	-23	3963	No stop
23 18 30	=0616+076	10 35 59	21.5	253.3	4.3		35.5	67	3974	23 17 01
23 19 15	J0632+057	10 36 44	21.9	249.3	4.0		34.4	22	3974	23 19 15
23 22 45	---	10 40 15	21.4	250.1	4.1		34.6	210	4001	23 19 16
23 22 45	J0619+0736	10 40 15	20.9	254.2	4.3		35.7	-23	4001	No stop
23 24 15	=0616+076	10 41 45	20.7	254.5	4.4		35.7	67	4013	23 22 46
23 24 15	J0632+057	10 41 45	21.2	250.4	4.1		34.6	-23	4013	No stop
23 27 45	---	10 45 16	20.7	251.2	4.2		34.8	187	4040	23 24 16

```
Schedule for TORUN     (Code Tr )                                  Page  16
               Morphological changes of the extended emission of HESS J0632+057
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  20 Feb 2014   Day  51 ---

23 27 45  J0619+0736   10 45 16  20.2 255.3  4.4      35.9   -23     4040   No stop
23 29 15  =0616+076    10 46 46  19.9 255.6  4.4      35.9    67     4051   23 27 46

23 30 00  J0632+057    10 47 31  20.3 251.6  4.2      34.9    22     4051   23 30 00
23 33 30  ---          10 51 02  19.8 252.4  4.3      35.1   210     4078   23 30 01

23 33 30  J0619+0736   10 51 02  19.3 256.5  4.5      36.1   -23     4078   No stop
23 35 00  =0616+076    10 52 32  19.1 256.8  4.5      36.1    67     4090   23 33 31

23 35 00  J0632+057    10 52 32  19.6 252.7  4.3      35.2   -23     4090   No stop
23 38 30  ---          10 56 03  19.1 253.5  4.4      35.4   187     4116   23 35 01

23 38 30  J0619+0736   10 56 03  18.6 257.5  4.6      36.3   -23     4116   No stop
23 40 00  =0616+076    10 57 33  18.4 257.9  4.6      36.3    67     4128   23 38 31

23 40 45  J0632+057    10 58 18  18.8 254.0  4.4      35.5    22     4128   23 40 45
23 44 15  ---          11 01 49  18.3 254.7  4.5      35.6   210     4155   23 40 46

23 44 15  J0619+0736   11 01 49  17.7 258.8  4.7      36.5   -23     4155   No stop
23 45 45  =0616+076    11 03 19  17.5 259.1  4.7      36.5    67     4166   23 44 16

23 45 45  J0632+057    11 03 19  18.1 255.0  4.5      35.7   -23     4166   No stop
23 50 15  ---          11 07 50  17.4 256.0  4.6      35.8   247     4201   23 45 46

23 50 15  J0619+0736   11 07 50  16.9 260.0  4.8      36.6   -23     4201   No stop
23 52 15  =0616+076    11 09 50  16.6 260.4  4.8      36.7    97     4216   23 50 16

23 53 15  DA193        11 10 50  37.1 289.2  5.2      47.6   -31     4216   23 53 15
23 58 15  ---          11 15 51  36.4 290.1  5.3      47.3   269     4255   23 53 16


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


 ======== Setup file: sess114.L1024
   Matching groups in /usr/local/bin/sched/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    2         Station: TORUN             Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2         Sample rate: 32.000
   Number of channels: 16    DBE type:                  Speedup factor:   0.50

   Disk used to record data.
```

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

The following frequency sets based on these setups were used.

```
  Frequency Set:   5  Setup file default.  Used with PCAL = off
  LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
            1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
  BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
             625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
  Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
              16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
   Matching frequency sets:   5

  Track assignments are:
   track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
   barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* J0632+057         06 30 18.769419   * 06 32 59.256200     06 33 46.094235       0.00
                    05 50 19.09285    * 05 48 01.16580      05 47 06.32954        0.00

  J0530+1331        05 28 06.759218   * 05 30 56.416749     05 31 45.644041       0.10
* 0528+134          13 29 42.28877    * 13 31 55.14944      13 32 20.63241        0.10

  J0555+3948        05 52 01.407174   * 05 55 30.805616     05 56 31.721899       0.13
* DA193             39 48 21.94578    * 39 48 49.16493      39 48 51.82160        0.10

* J0619+0736        06 16 27.314926   * 06 19 09.971063     06 19 57.377703       2.00
  0616+076          07 37 58.99742    * 07 36 41.22074      07 36 04.13185        1.09
```

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)
J0632+057	124.8
0528+134	110.7
DA193	116.1
J0619+0736	121.7

rk01udtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


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

Schedule for TORUN     (Code Tr )                                  Page   2
               RadioAstron 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  21 Feb 2014   Day  52 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1636+473     12 17 46  49.4  71.0 -4.3     -56.8     0         0   01 00 00
01 09 30  ---          12 27 18  50.7  72.3 -4.2     -57.5   570        18   01 00 01

01 10 00  1636+473     12 27 48  50.8  72.4 -4.2     -57.5    24        18   01 10 00
01 19 30  ---          12 37 19  52.2  73.8 -4.0     -58.2   570        36   01 10 01

01 20 00  1636+473     12 37 49  52.2  73.8 -4.0     -58.2    24        36   01 20 00
01 29 30  ---          12 47 21  53.6  75.2 -3.8     -58.8   570        55   01 20 01

01 30 00  1636+473     12 47 51  53.7  75.3 -3.8     -58.9    24        55   01 30 00
01 39 30  ---          12 57 22  55.1  76.7 -3.7     -59.5   570        73   01 30 01

01 40 00  1636+473     12 57 53  55.1  76.8 -3.7     -59.5    24        73   01 40 00
01 49 30  ---          13 07 24  56.5  78.3 -3.5     -60.0   570        91   01 40 01

01 50 00  1636+473     13 07 54  56.6  78.3 -3.5     -60.1    24        91   01 50 00
02 00 00  ---          13 17 56  58.1  79.9 -3.3     -60.6   600       110   01 50 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
   Matching groups in ./rk01ud_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1636+473          16 36 19.144415   * 16 37 45.130558     16 38 09.271207       0.00
  J1637+4717        47 23 28.57983    * 47 17 33.83103      47 15 41.26651        0.00


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            94.3

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

rk01uetr

RadioAstron AGN survey

PI: *Yuri Kovalev*

```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865

Observing mode: L-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  21 Feb 2014   Day  52 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 00 00  1502+036     16 18 25  38.1 203.3  1.2      13.7     0         0   05 00 00
05 09 30  ---          16 27 57  37.5 206.2  1.4      15.4   570        18   05 00 01

05 10 00  1502+036     16 28 27  37.5 206.3  1.4      15.5    24        18   05 10 00
05 19 30  ---          16 37 59  36.8 209.2  1.5      17.1   570        36   05 10 01

05 20 00  1502+036     16 38 29  36.8 209.3  1.5      17.1    24        36   05 20 00
05 29 30  ---          16 48 00  36.0 212.2  1.7      18.7   570        55   05 20 01

05 30 00  1502+036     16 48 30  36.0 212.3  1.7      18.7    24        55   05 30 00
05 39 30  ---          16 58 02  35.2 215.1  1.9      20.2   570        73   05 30 01

05 40 00  1502+036     16 58 32  35.1 215.2  1.9      20.3    24        73   05 40 00
05 49 30  ---          17 08 04  34.3 217.9  2.0      21.7   570        91   05 40 01

05 50 00  1502+036     17 08 34  34.2 218.0  2.0      21.8    24        91   05 50 00
06 00 00  ---          17 18 35  33.3 220.8  2.2      23.2   600       110   05 50 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
   Matching groups in ./rk01ue_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   5

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1502+036          15 02 35.669002   * 15 05 06.477156     15 05 50.023637       0.00
  J1505+0326        03 38 07.37337    * 03 26 30.81249      03 23 09.61258        0.00


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           108.3

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

ef025tr

Hot DOGs in the microwave

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Observing mode: 18 cm 1 Gb/s

Schedule for TORUN (Code Tr) Page 2
Hot DOGs in the microwave
UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

--- Fri 21 Feb 2014 Day 52 ---

Next scan frequencies:			1610.49	1610.49	1610.49	1610.49	1642.49	1642.49	1642.49	1642.49					
			1674.49	1674.49	1674.49	1674.49	1706.49	1706.49	1706.49	1706.49					
Next BBC frequencies:			689.51	689.51	689.51	689.51	657.51	657.51	657.51	657.51					
			625.51	625.51	625.51	625.51	593.51	593.51	593.51	593.51					
Next scan bandwidths:			16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00					
			16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00					
Start UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC					
Stop UT															
14 30 00	DA193	01 49 59	47.0	82.2	-4.1		-50.8	0	0	14 30 00					
14 45 00	---	02 05 02	49.2	84.9	-3.9		-51.1	900	115	14 30 01					
14 45 40	DA193	02 05 42	49.3	85.0	-3.8		-51.2	34	115	14 45 40					
15 00 00	---	02 20 04	51.5	87.7	-3.6		-51.4	860	225	14 45 41					
15 00 40	DA193	02 20 44	51.6	87.9	-3.6		-51.4	34	225	15 00 40					
15 15 00	---	02 35 06	53.7	90.7	-3.4		-51.4	860	335	15 00 41					
15 15 40	DA193	02 35 47	53.8	90.9	-3.3		-51.4	34	335	15 15 40					
15 30 00	---	02 50 09	56.0	93.9	-3.1		-51.3	860	445	15 15 41					
15 30 40	DA193	02 50 49	56.1	94.0	-3.1		-51.2	34	445	15 30 40					
15 45 00	---	03 05 11	58.2	97.2	-2.9		-50.9	860	556	15 30 41					
15 45 40	DA193	03 05 51	58.3	97.3	-2.8		-50.8	34	556	15 45 40					
16 00 00	---	03 20 14	60.5	100.8	-2.6		-50.2	860	666	15 45 41					
16 00 40	DA193	03 20 54	60.6	101.0	-2.6		-50.1	34	666	16 00 40					
16 15 00	---	03 35 16	62.7	104.7	-2.4		-49.1	860	776	16 00 41					
16 18 00	J0824+5552	03 38 17	50.0	56.2	-4.8		-62.7	68	776	16 18 00					
16 30 00	=0820+560	03 50 19	51.5	57.4	-4.6		-64.2	720	868	16 18 01					
16 30 40	J0824+5552	03 50 59	51.6	57.5	-4.6		-64.3	34	868	16 30 40					
16 34 00	=0820+560	03 54 19	52.0	57.8	-4.5		-64.8	200	893	16 30 41					
16 35 10	J0756+5151	03 55 30	54.1	66.9	-4.0		-63.3	37	893	16 35 10					
16 36 20	=0753+519	03 56 40	54.3	67.1	-4.0		-63.4	70	902	16 35 11					

```
Schedule for TORUN     (Code Tr )                                Page   3
               Hot DOGs in the microwave
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  21 Feb 2014   Day  52 ---

16 36 20  W0757+5113   03 56 40  54.0  68.0 -4.0     -62.6   -14      902   No stop
16 39 50  ---          04 00 10  54.4  68.4 -4.0     -63.0   196      929   16 36 21

16 39 50  J0756+5151   04 00 10  54.8  67.5 -4.0     -63.8   -13      929   No stop
16 41 20  =0753+519    04 01 41  55.0  67.7 -3.9     -63.9    77      941   16 39 51

16 41 20  W0757+5113   04 01 41  54.7  68.6 -3.9     -63.1   -14      941   No stop
16 44 50  ---          04 05 11  55.1  69.0 -3.9     -63.4   196      968   16 41 21

16 45 30  J0756+5151   04 05 51  55.6  68.1 -3.9     -64.3    26      968   16 45 30
16 46 40  =0753+519    04 07 01  55.7  68.3 -3.9     -64.5    70      977   16 45 31

16 46 40  W0757+5113   04 07 01  55.4  69.2 -3.9     -63.6   -14      977   No stop
16 50 10  ---          04 10 32  55.9  69.7 -3.8     -63.9   196     1004   16 46 41

16 50 10  J0756+5151   04 10 32  56.2  68.7 -3.8     -64.8   -14     1004   No stop
16 51 40  =0753+519    04 12 02  56.4  68.9 -3.8     -65.0    76     1015   16 50 11

16 51 40  W0757+5113   04 12 02  56.1  69.8 -3.8     -64.1   -14     1015   No stop
16 55 10  ---          04 15 33  56.6  70.3 -3.7     -64.4   196     1042   16 51 41

16 55 50  J0756+5151   04 16 13  57.0  69.4 -3.7     -65.4    26     1042   16 55 50
16 57 00  =0753+519    04 17 23  57.2  69.5 -3.7     -65.5    70     1051   16 55 51

16 57 00  W0757+5113   04 17 23  56.9  70.5 -3.7     -64.6   -14     1051   No stop
17 00 30  ---          04 20 54  57.4  70.9 -3.6     -64.9   196     1078   16 57 01

17 00 30  J0756+5151   04 20 54  57.7  69.9 -3.6     -65.8   -14     1078   No stop
17 02 00  =0753+519    04 22 24  57.9  70.1 -3.6     -66.0    76     1089   17 00 31

17 02 00  W0757+5113   04 22 24  57.6  71.1 -3.6     -65.0   -14     1089   No stop
17 05 30  ---          04 25 55  58.1  71.6 -3.5     -65.3   196     1116   17 02 01

17 06 10  J0756+5151   04 26 35  58.5  70.6 -3.5     -66.4    26     1116   17 06 10
17 07 20  =0753+519    04 27 45  58.7  70.7 -3.5     -66.5    70     1125   17 06 11

17 07 20  W0757+5113   04 27 45  58.3  71.8 -3.5     -65.5   -14     1125   No stop
17 10 50  ---          04 31 15  58.8  72.2 -3.5     -65.8   196     1152   17 07 21

17 10 50  J0756+5151   04 31 15  59.2  71.2 -3.4     -66.8   -14     1152   No stop
17 12 20  =0753+519    04 32 46  59.4  71.3 -3.4     -66.9    76     1164   17 10 51

17 12 20  W0757+5113   04 32 46  59.1  72.4 -3.4     -65.9   -14     1164   No stop
17 15 50  ---          04 36 16  59.6  72.8 -3.4     -66.3   196     1190   17 12 21

17 16 30  J0756+5151   04 36 56  60.0  71.8 -3.4     -67.3    26     1190   17 16 30
17 17 40  =0753+519    04 38 07  60.1  72.0 -3.3     -67.4    70     1199   17 16 31
```

Schedule for TORUN (Code Tr) Page 4

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
17 17 40	W0757+5113	04 38 07	59.8	73.1	-3.3		-66.4	-14	1199	No stop
17 21 10	---	04 41 37	60.3	73.5	-3.3		-66.7	196	1226	17 17 41
17 21 10	J0756+5151	04 41 37	60.6	72.4	-3.3		-67.8	-14	1226	No stop
17 22 40	=0753+519	04 43 07	60.8	72.6	-3.2		-67.9	76	1238	17 21 11
17 22 40	W0757+5113	04 43 07	60.5	73.7	-3.3		-66.8	-15	1238	No stop
17 26 10	---	04 46 38	61.0	74.1	-3.2		-67.1	195	1265	17 22 41
17 26 50	J0756+5151	04 47 18	61.4	73.1	-3.2		-68.3	25	1265	17 26 50
17 28 00	=0753+519	04 48 28	61.6	73.2	-3.2		-68.4	70	1274	17 26 51
17 28 00	W0757+5113	04 48 28	61.3	74.4	-3.2		-67.3	-15	1274	No stop
17 31 30	---	04 51 59	61.8	74.8	-3.1		-67.6	195	1300	17 28 01
17 31 30	J0756+5151	04 51 59	62.1	73.6	-3.1		-68.7	-15	1300	No stop
17 33 00	=0753+519	04 53 29	62.3	73.8	-3.1		-68.9	75	1312	17 31 31
17 33 00	W0757+5113	04 53 29	62.0	75.0	-3.1		-67.7	-15	1312	No stop
17 36 30	---	04 57 00	62.5	75.5	-3.0		-68.0	195	1339	17 33 01
17 37 10	J0756+5151	04 57 40	62.9	74.3	-3.0		-69.2	25	1339	17 37 10
17 38 20	=0753+519	04 58 50	63.1	74.5	-3.0		-69.3	70	1348	17 37 11
17 38 20	W0757+5113	04 58 50	62.8	75.7	-3.0		-68.2	-15	1348	No stop
17 41 50	---	05 02 21	63.3	76.1	-2.9		-68.4	195	1375	17 38 21
17 41 50	J0756+5151	05 02 21	63.6	74.9	-2.9		-69.6	-15	1375	No stop
17 43 20	=0753+519	05 03 51	63.8	75.1	-2.9		-69.8	75	1386	17 41 51
17 43 20	W0757+5113	05 03 51	63.5	76.3	-2.9		-68.6	-15	1386	No stop
17 46 50	---	05 07 21	64.1	76.8	-2.9		-68.8	195	1413	17 43 21
17 47 30	J0756+5151	05 08 01	64.4	75.6	-2.8		-70.1	25	1413	17 47 30
17 48 40	=0753+519	05 09 12	64.6	75.7	-2.8		-70.2	70	1422	17 47 31
17 48 40	W0757+5113	05 09 12	64.3	77.0	-2.8		-69.0	-15	1422	No stop
17 52 10	---	05 12 42	64.8	77.5	-2.8		-69.3	195	1449	17 48 41
17 52 10	J0756+5151	05 12 42	65.1	76.1	-2.8		-70.5	-15	1449	No stop
17 53 40	=0753+519	05 14 12	65.3	76.3	-2.7		-70.7	75	1460	17 52 11
17 53 40	W0757+5113	05 14 12	65.1	77.7	-2.7		-69.4	-15	1460	No stop
17 57 10	---	05 17 43	65.6	78.1	-2.7		-69.6	195	1487	17 53 41
17 57 50	J0756+5151	05 18 23	65.9	76.8	-2.7		-71.0	25	1487	17 57 50
17 59 00	=0753+519	05 19 33	66.1	77.0	-2.6		-71.1	70	1496	17 57 51

Schedule for TORUN (Code Tr) Page 5

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
17 59 00	W0757+5113	05 19 33	65.8	78.4	-2.6		-69.8	-16	1496	No stop
18 02 30	---	05 23 04	66.4	78.8	-2.6		-70.0	194	1523	17 59 01
18 02 30	J0756+5151	05 23 04	66.6	77.4	-2.6		-71.4	-16	1523	No stop
18 04 00	=0753+519	05 24 34	66.9	77.6	-2.6		-71.5	74	1535	18 02 31
18 04 00	W0757+5113	05 24 34	66.6	79.0	-2.6		-70.1	-16	1535	No stop
18 07 30	---	05 28 05	67.1	79.5	-2.5		-70.4	194	1562	18 04 01
18 08 10	J0756+5151	05 28 45	67.5	78.1	-2.5		-71.9	24	1562	18 08 10
18 09 20	=0753+519	05 29 55	67.6	78.3	-2.5		-72.0	70	1571	18 08 11
18 09 20	W0757+5113	05 29 55	67.4	79.8	-2.5		-70.5	-16	1571	No stop
18 12 50	---	05 33 26	67.9	80.2	-2.4		-70.8	194	1597	18 09 21
18 12 50	J0756+5151	05 33 26	68.2	78.7	-2.4		-72.3	-16	1597	No stop
18 14 20	=0753+519	05 34 56	68.4	78.9	-2.4		-72.4	74	1609	18 12 51
18 14 20	W0757+5113	05 34 56	68.1	80.5	-2.4		-70.9	-16	1609	No stop
18 17 50	---	05 38 26	68.6	80.9	-2.3		-71.1	194	1636	18 14 21
18 18 30	J0756+5151	05 39 07	69.0	79.4	-2.3		-72.7	24	1636	18 18 30
18 19 40	=0753+519	05 40 17	69.2	79.6	-2.3		-72.8	70	1645	18 18 31
18 19 40	W0757+5113	05 40 17	68.9	81.2	-2.3		-71.2	-16	1645	No stop
18 23 10	---	05 43 47	69.4	81.7	-2.2		-71.4	194	1672	18 19 41
18 23 10	J0756+5151	05 43 47	69.7	80.0	-2.2		-73.1	-16	1672	No stop
18 24 40	=0753+519	05 45 18	69.9	80.2	-2.2		-73.2	74	1683	18 23 11
18 24 40	W0757+5113	05 45 18	69.7	81.9	-2.2		-71.5	-17	1683	No stop
18 28 10	---	05 48 48	70.2	82.4	-2.2		-71.7	193	1710	18 24 41
18 28 50	J0756+5151	05 49 28	70.5	80.8	-2.1		-73.5	23	1710	18 28 50
18 30 00	=0753+519	05 50 38	70.7	80.9	-2.1		-73.6	70	1719	18 28 51
18 30 00	W0757+5113	05 50 38	70.4	82.7	-2.1		-71.8	-17	1719	No stop
18 33 30	---	05 54 09	71.0	83.2	-2.1		-72.0	193	1746	18 30 01
18 33 30	J0756+5151	05 54 09	71.2	81.4	-2.1		-73.8	-17	1746	No stop
18 35 00	=0753+519	05 55 39	71.4	81.6	-2.0		-73.9	73	1757	18 33 31
18 35 00	W0757+5113	05 55 39	71.2	83.4	-2.0		-72.1	-17	1757	No stop
18 38 30	---	05 59 10	71.7	83.9	-2.0		-72.3	193	1784	18 35 01
18 39 10	J0756+5151	05 59 50	72.1	82.2	-2.0		-74.2	23	1784	18 39 10
18 40 20	=0753+519	06 01 00	72.2	82.3	-2.0		-74.3	70	1793	18 39 11

Schedule for TORUN (Code Tr) Page 6

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
18 40 20	W0757+5113	06 01 00	72.0	84.2	-2.0		-72.4	-17	1793	No stop
18 43 50	---	06 04 31	72.5	84.8	-1.9		-72.5	193	1820	18 40 21
18 43 50	J0756+5151	06 04 31	72.8	82.8	-1.9		-74.5	-17	1820	No stop
18 45 20	=0753+519	06 06 01	73.0	83.0	-1.9		-74.6	73	1832	18 43 51
18 45 20	W0757+5113	06 06 01	72.7	85.0	-1.9		-72.6	-18	1832	No stop
18 48 50	---	06 09 32	73.3	85.6	-1.8		-72.8	192	1859	18 45 21
18 49 30	J0756+5151	06 10 12	73.6	83.6	-1.8		-74.8	22	1859	18 49 30
18 50 40	=0753+519	06 11 22	73.8	83.8	-1.8		-74.9	70	1868	18 49 31
18 50 40	W0757+5113	06 11 22	73.5	85.9	-1.8		-72.8	-18	1868	No stop
18 54 10	---	06 14 52	74.1	86.4	-1.7		-73.0	192	1894	18 50 41
18 54 10	J0756+5151	06 14 52	74.3	84.3	-1.7		-75.1	-18	1894	No stop
18 55 40	=0753+519	06 16 23	74.5	84.5	-1.7		-75.2	72	1906	18 54 11
18 55 40	W0757+5113	06 16 23	74.3	86.7	-1.7		-73.0	-18	1906	No stop
18 59 10	---	06 19 53	74.8	87.3	-1.6		-73.1	192	1933	18 55 41
18 59 50	J0756+5151	06 20 33	75.2	85.1	-1.6		-75.4	22	1933	18 59 50
19 01 00	=0753+519	06 21 44	75.3	85.3	-1.6		-75.5	70	1942	18 59 51
19 01 00	W0757+5113	06 21 44	75.1	87.6	-1.6		-73.2	-19	1942	No stop
19 04 30	---	06 25 14	75.6	88.3	-1.6		-73.2	191	1969	19 01 01
19 04 30	J0756+5151	06 25 14	75.9	85.9	-1.5		-75.6	-19	1969	No stop
19 06 00	=0753+519	06 26 44	76.1	86.1	-1.5		-75.7	71	1980	19 04 31
19 06 00	W0757+5113	06 26 44	75.8	88.5	-1.5		-73.3	-19	1980	No stop
19 09 30	---	06 30 15	76.4	89.2	-1.5		-73.3	191	2007	19 06 01
19 10 10	J0756+5151	06 30 55	76.7	86.8	-1.5		-75.9	21	2007	19 10 10
19 11 20	=0753+519	06 32 05	76.9	87.0	-1.4		-75.9	70	2016	19 10 11
19 11 20	W0757+5113	06 32 05	76.7	89.5	-1.4		-73.3	-19	2016	No stop
19 14 50	---	06 35 36	77.2	90.2	-1.4		-73.3	191	2043	19 11 21
19 14 50	J0756+5151	06 35 36	77.4	87.6	-1.4		-76.0	-20	2043	No stop
19 16 20	=0753+519	06 37 06	77.6	87.8	-1.4		-76.1	70	2054	19 14 51
19 16 20	W0757+5113	06 37 06	77.4	90.5	-1.4		-73.3	-20	2054	No stop
19 19 50	---	06 40 37	77.9	91.3	-1.3		-73.3	190	2081	19 16 21

Schedule for TORUN (Code Tr) Page 7

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
19 20 30	J0756+5151	06 41 17	78.3	88.6	-1.3		-76.1	20	2081	19 20 30
19 21 40	=0753+519	06 42 27	78.4	88.8	-1.3		-76.2	70	2090	19 20 31
19 21 40	W0757+5113	06 42 27	78.2	91.7	-1.3		-73.2	-20	2090	No stop
19 25 10	---	06 45 58	78.7	92.5	-1.2		-73.1	190	2117	19 21 41
19 25 10	J0756+5151	06 45 58	79.0	89.4	-1.2		-76.2	-20	2117	No stop
19 26 40	=0753+519	06 47 28	79.2	89.7	-1.2		-76.2	70	2129	19 25 11
19 26 40	W0757+5113	06 47 28	79.0	92.8	-1.2		-73.1	-21	2129	No stop
19 30 10	---	06 50 58	79.5	93.7	-1.1		-72.9	189	2156	19 26 41
19 30 50	J0756+5151	06 51 38	79.8	90.6	-1.1		-76.2	19	2156	19 30 50
19 32 00	=0753+519	06 52 49	80.0	90.8	-1.1		-76.2	70	2164	19 30 51
19 32 00	W0757+5113	06 52 49	79.8	94.2	-1.1		-72.8	-22	2164	No stop
19 35 30	---	06 56 19	80.3	95.1	-1.0		-72.6	188	2191	19 32 01
19 35 30	J0756+5151	06 56 19	80.5	91.6	-1.0		-76.1	-22	2191	No stop
19 37 00	=0753+519	06 57 49	80.7	91.9	-1.0		-76.1	68	2203	19 35 31
19 37 00	W0757+5113	06 57 49	80.5	95.5	-1.0		-72.5	-22	2203	No stop
19 40 30	---	07 01 20	81.0	96.6	-1.0		-72.1	188	2230	19 37 01
19 41 10	J0756+5151	07 02 00	81.4	92.9	-0.9		-75.9	18	2230	19 41 10
19 42 20	=0753+519	07 03 10	81.5	93.2	-0.9		-75.9	70	2239	19 41 11
19 42 20	W0757+5113	07 03 10	81.3	97.2	-0.9		-71.9	-23	2239	No stop
19 45 50	---	07 06 41	81.8	98.3	-0.9		-71.4	187	2266	19 42 21
19 45 50	J0756+5151	07 06 41	82.1	94.2	-0.9		-75.6	-23	2266	No stop
19 47 20	=0753+519	07 08 11	82.3	94.6	-0.8		-75.5	67	2277	19 45 51
19 47 20	W0757+5113	07 08 11	82.1	98.9	-0.8		-71.2	-24	2277	No stop
19 50 50	---	07 11 42	82.6	100.2	-0.8		-70.5	186	2304	19 47 21
19 51 30	J0756+5151	07 12 22	82.9	95.9	-0.8		-75.0	16	2304	19 51 30
19 52 40	=0753+519	07 13 32	83.1	96.3	-0.7		-74.9	70	2313	19 51 31
19 52 40	W0757+5113	07 13 32	82.8	101.0	-0.7		-70.1	-25	2313	No stop
19 56 10	---	07 17 03	83.4	102.6	-0.7		-69.2	185	2340	19 52 41
19 56 10	J0756+5151	07 17 03	83.6	97.5	-0.7		-74.3	-25	2340	No stop
19 57 40	=0753+519	07 18 33	83.8	98.1	-0.7		-74.1	65	2351	19 56 11

Schedule for TORUN (Code Tr) Page 8

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
19 57 40	W0757+5113	07 18 33	83.6	103.3	-0.7		-68.8	-26	2351	No stop
20 01 10	---	07 22 03	84.1	105.2	-0.6		-67.6	184	2378	19 57 41
20 01 50	J0756+5151	07 22 44	84.5	99.9	-0.6		-73.1	14	2378	20 01 50
20 03 00	=0753+519	07 23 54	84.6	100.4	-0.6		-72.8	70	2387	20 01 51
20 08 00	J1146+3958	07 28 55	45.2	79.9	-4.3		-50.4	137	2387	20 08 00
20 12 00	=1144+402	07 32 55	45.8	80.6	-4.2		-50.6	240	2418	20 08 01
20 12 00	W1146+4129	07 32 55	46.9	79.1	-4.2		-51.8	-17	2418	No stop
20 15 30	---	07 36 26	47.4	79.7	-4.2		-52.0	193	2445	20 12 01
20 15 30	J1146+3958	07 36 26	46.3	81.3	-4.2		-50.7	-17	2445	No stop
20 17 00	=1144+402	07 37 56	46.5	81.5	-4.2		-50.7	73	2456	20 15 31
20 17 00	W1146+4129	07 37 56	47.6	79.9	-4.2		-52.0	-17	2456	No stop
20 20 30	---	07 41 27	48.1	80.5	-4.1		-52.2	193	2483	20 17 01
20 21 10	J1146+3958	07 42 07	47.2	82.3	-4.1		-50.9	23	2483	20 21 10
20 22 20	=1144+402	07 43 17	47.3	82.5	-4.1		-50.9	70	2492	20 21 11
20 22 20	W1146+4129	07 43 17	48.4	80.8	-4.1		-52.2	-17	2492	No stop
20 25 50	---	07 46 47	48.9	81.5	-4.0		-52.3	193	2519	20 22 21
20 25 50	J1146+3958	07 46 47	47.9	83.1	-4.0		-51.0	-17	2519	No stop
20 27 20	=1144+402	07 48 18	48.1	83.4	-4.0		-51.0	73	2531	20 25 51
20 27 20	W1146+4129	07 48 18	49.1	81.7	-4.0		-52.4	-17	2531	No stop
20 30 50	---	07 51 48	49.7	82.3	-3.9		-52.5	193	2557	20 27 21
20 31 30	J1146+3958	07 52 28	48.7	84.1	-3.9		-51.1	23	2557	20 31 30
20 32 40	=1144+402	07 53 39	48.9	84.3	-3.9		-51.2	70	2566	20 31 31
20 32 40	W1146+4129	07 53 39	49.9	82.7	-3.9		-52.6	-17	2566	No stop
20 36 10	---	07 57 09	50.5	83.3	-3.8		-52.7	193	2593	20 32 41
20 36 10	J1146+3958	07 57 09	49.4	85.0	-3.8		-51.2	-17	2593	No stop
20 37 40	=1144+402	07 58 39	49.6	85.3	-3.8		-51.3	73	2605	20 36 11
20 37 40	W1146+4129	07 58 39	50.7	83.5	-3.8		-52.7	-17	2605	No stop
20 41 10	---	08 02 10	51.2	84.2	-3.7		-52.8	193	2632	20 37 41
20 41 50	J1146+3958	08 02 50	50.3	86.0	-3.7		-51.3	23	2632	20 41 50
20 43 00	=1144+402	08 04 00	50.4	86.3	-3.7		-51.4	70	2641	20 41 51

Schedule for TORUN (Code Tr) Page 9

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
20 43 00	W1146+4129	08 04 00	51.5	84.5	-3.7		-52.8	-17	2641	No stop
20 46 30	---	08 07 31	52.0	85.2	-3.7		-52.9	193	2668	20 43 01
20 46 30	J1146+3958	08 07 31	51.0	86.9	-3.7		-51.4	-17	2668	No stop
20 48 00	=1144+402	08 09 01	51.2	87.2	-3.6		-51.4	73	2679	20 46 31
20 48 00	W1146+4129	08 09 01	52.2	85.4	-3.6		-52.9	-17	2679	No stop
20 51 30	---	08 12 32	52.8	86.1	-3.6		-53.0	193	2706	20 48 01
20 52 10	J1146+3958	08 13 12	51.8	88.0	-3.6		-51.5	23	2706	20 52 10
20 53 20	=1144+402	08 14 22	52.0	88.2	-3.6		-51.5	70	2715	20 52 11
20 53 20	W1146+4129	08 14 22	53.0	86.4	-3.5		-53.0	-17	2715	No stop
20 56 50	---	08 17 53	53.6	87.1	-3.5		-53.1	193	2742	20 53 21
20 56 50	J1146+3958	08 17 53	52.5	88.9	-3.5		-51.5	-17	2742	No stop
20 58 20	=1144+402	08 19 23	52.7	89.2	-3.5		-51.5	73	2753	20 56 51
20 58 20	W1146+4129	08 19 23	53.8	87.4	-3.5		-53.1	-17	2753	No stop
21 01 50	---	08 22 53	54.3	88.0	-3.4		-53.1	193	2780	20 58 21
21 02 30	J1146+3958	08 23 34	53.4	90.1	-3.4		-51.5	23	2780	21 02 30
21 03 40	=1144+402	08 24 44	53.5	90.3	-3.4		-51.5	70	2789	21 02 31
21 03 40	W1146+4129	08 24 44	54.6	88.4	-3.4		-53.2	-17	2789	No stop
21 07 10	---	08 28 14	55.1	89.1	-3.3		-53.2	193	2816	21 03 41
21 07 10	J1146+3958	08 28 14	54.1	91.0	-3.3		-51.5	-18	2816	No stop
21 08 40	=1144+402	08 29 45	54.3	91.3	-3.3		-51.5	72	2828	21 07 11
21 08 40	W1146+4129	08 29 45	55.3	89.4	-3.3		-53.2	-17	2828	No stop
21 12 10	---	08 33 15	55.9	90.1	-3.2		-53.2	193	2854	21 08 41
21 12 50	J1146+3958	08 33 55	54.9	92.2	-3.2		-51.5	22	2854	21 12 50
21 14 00	=1144+402	08 35 05	55.1	92.4	-3.2		-51.4	70	2863	21 12 51
21 14 00	W1146+4129	08 35 05	56.1	90.5	-3.2		-53.2	-17	2863	No stop
21 17 30	---	08 38 36	56.7	91.2	-3.1		-53.2	193	2890	21 14 01
21 17 30	J1146+3958	08 38 36	55.6	93.2	-3.2		-51.4	-18	2890	No stop
21 19 00	=1144+402	08 40 06	55.9	93.5	-3.1		-51.4	72	2902	21 17 31
21 19 00	W1146+4129	08 40 06	56.9	91.5	-3.1		-53.2	-18	2902	No stop
21 22 30	---	08 43 37	57.4	92.2	-3.1		-53.1	192	2929	21 19 01

Schedule for TORUN (Code Tr) Page 10

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
21 23 10	J1146+3958	08 44 17	56.5	94.4	-3.1		-51.3	22	2929	21 23 10
21 24 20	=1144+402	08 45 27	56.7	94.6	-3.0		-51.3	70	2938	21 23 11
21 24 20	W1146+4129	08 45 27	57.7	92.6	-3.0		-53.1	-18	2938	No stop
21 27 50	---	08 48 58	58.2	93.3	-3.0		-53.1	192	2964	21 24 21
21 27 50	J1146+3958	08 48 58	57.2	95.4	-3.0		-51.2	-18	2964	No stop
21 29 20	=1144+402	08 50 28	57.4	95.7	-3.0		-51.1	72	2976	21 27 51
21 29 20	W1146+4129	08 50 28	58.4	93.7	-2.9		-53.0	-18	2976	No stop
21 32 50	---	08 53 59	59.0	94.4	-2.9		-53.0	192	3003	21 29 21
21 33 30	J1146+3958	08 54 39	58.0	96.7	-2.9		-51.0	22	3003	21 33 30
21 34 40	=1144+402	08 55 49	58.2	96.9	-2.9		-51.0	70	3012	21 33 31
21 34 40	W1146+4129	08 55 49	59.2	94.8	-2.9		-52.9	-18	3012	No stop
21 38 10	---	08 59 19	59.8	95.6	-2.8		-52.8	192	3039	21 34 41
21 38 10	J1146+3958	08 59 19	58.7	97.8	-2.8		-50.8	-18	3039	No stop
21 39 40	=1144+402	09 00 50	58.9	98.1	-2.8		-50.8	72	3050	21 38 11
21 39 40	W1146+4129	09 00 50	60.0	95.9	-2.8		-52.8	-18	3050	No stop
21 43 10	---	09 04 20	60.5	96.7	-2.7		-52.7	192	3077	21 39 41
21 43 50	J1146+3958	09 05 00	59.6	99.1	-2.7		-50.6	22	3077	21 43 50
21 45 00	=1144+402	09 06 10	59.7	99.4	-2.7		-50.6	70	3086	21 43 51
21 45 00	W1146+4129	09 06 10	60.8	97.2	-2.7		-52.6	-18	3086	No stop
21 48 30	---	09 09 41	61.3	98.0	-2.6		-52.4	192	3113	21 45 01
21 48 30	J1146+3958	09 09 41	60.3	100.2	-2.6		-50.4	-19	3113	No stop
21 50 00	=1144+402	09 11 11	60.5	100.6	-2.6		-50.3	71	3124	21 48 31
21 50 00	W1146+4129	09 11 11	61.5	98.4	-2.6		-52.4	-18	3124	No stop
21 53 30	---	09 14 42	62.1	99.2	-2.5		-52.2	192	3151	21 50 01
21 54 10	J1146+3958	09 15 22	61.1	101.7	-2.5		-50.0	21	3151	21 54 10
21 55 20	=1144+402	09 16 32	61.3	102.0	-2.5		-50.0	70	3160	21 54 11
21 55 20	W1146+4129	09 16 32	62.3	99.7	-2.5		-52.1	-18	3160	No stop
21 58 50	---	09 20 03	62.8	100.5	-2.4		-51.9	192	3187	21 55 21
21 58 50	J1146+3958	09 20 03	61.8	102.9	-2.5		-49.7	-19	3187	No stop
22 00 20	=1144+402	09 21 33	62.0	103.3	-2.4		-49.6	71	3199	21 58 51

Schedule for TORUN (Code Tr) Page 11

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
22 00 20	W1146+4129	09 21 33	63.1	100.9	-2.4		-51.8	-19	3199	No stop
22 03 50	---	09 25 04	63.6	101.8	-2.4		-51.6	191	3226	22 00 21
22 04 30	J1146+3958	09 25 44	62.6	104.4	-2.4		-49.3	21	3226	22 04 30
22 05 40	=1144+402	09 26 54	62.8	104.7	-2.3		-49.2	70	3235	22 04 31
22 05 40	W1146+4129	09 26 54	63.9	102.3	-2.3		-51.5	-19	3235	No stop
22 09 10	---	09 30 24	64.4	103.3	-2.3		-51.2	191	3261	22 05 41
22 09 10	J1146+3958	09 30 24	63.3	105.7	-2.3		-48.9	-19	3261	No stop
22 10 40	=1144+402	09 31 55	63.5	106.1	-2.3		-48.8	71	3273	22 09 11
22 10 40	W1146+4129	09 31 55	64.6	103.7	-2.3		-51.1	-19	3273	No stop
22 14 10	---	09 35 25	65.1	104.7	-2.2		-50.8	191	3300	22 10 41
22 14 50	J1146+3958	09 36 05	64.1	107.3	-2.2		-48.3	21	3300	22 14 50
22 16 00	=1144+402	09 37 16	64.3	107.7	-2.2		-48.2	70	3309	22 14 51
22 16 00	W1146+4129	09 37 16	65.4	105.2	-2.2		-50.6	-19	3309	No stop
22 19 30	---	09 40 46	65.9	106.2	-2.1		-50.2	191	3336	22 16 01
22 19 30	J1146+3958	09 40 46	64.8	108.7	-2.1		-47.8	-19	3336	No stop
22 21 00	=1144+402	09 42 16	65.0	109.2	-2.1		-47.7	71	3347	22 19 31
22 21 00	W1146+4129	09 42 16	66.1	106.6	-2.1		-50.1	-19	3347	No stop
22 24 30	---	09 45 47	66.6	107.7	-2.0		-49.7	191	3374	22 21 01
22 25 10	J1146+3958	09 46 27	65.6	110.5	-2.0		-47.2	20	3374	22 25 10
22 26 20	=1144+402	09 47 37	65.7	110.8	-2.0		-47.0	70	3383	22 25 11
22 26 20	W1146+4129	09 47 37	66.9	108.3	-2.0		-49.5	-19	3383	No stop
22 29 50	---	09 51 08	67.4	109.4	-1.9		-49.1	191	3410	22 26 21
22 29 50	J1146+3958	09 51 08	66.2	112.0	-1.9		-46.5	-20	3410	No stop
22 31 20	=1144+402	09 52 38	66.4	112.5	-1.9		-46.3	70	3421	22 29 51
22 31 20	W1146+4129	09 52 38	67.6	109.8	-1.9		-48.9	-19	3421	No stop
22 34 50	---	09 56 09	68.1	111.0	-1.8		-48.4	191	3448	22 31 21
22 35 30	J1146+3958	09 56 49	67.0	113.9	-1.8		-45.7	20	3448	22 35 30
22 36 40	=1144+402	09 57 59	67.2	114.3	-1.8		-45.5	70	3457	22 35 31
22 36 40	W1146+4129	09 57 59	68.3	111.6	-1.8		-48.1	-19	3457	No stop
22 40 10	---	10 01 30	68.8	112.8	-1.8		-47.6	191	3484	22 36 41

Schedule for TORUN (Code Tr) Page 12

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 21 Feb 2014 Day 52 ---										
22 40 10	J1146+3958	10 01 30	67.7	115.5	-1.8		-44.9	-20	3484	No stop
22 41 40	=1144+402	10 03 00	67.9	116.0	-1.7		-44.7	70	3496	22 40 11
22 41 40	W1146+4129	10 03 00	69.0	113.4	-1.7		-47.3	-19	3496	No stop
22 45 10	---	10 06 30	69.5	114.6	-1.7		-46.7	191	3523	22 41 41
22 45 50	J1146+3958	10 07 10	68.4	117.6	-1.7		-43.9	20	3523	22 45 50
22 47 00	=1144+402	10 08 21	68.6	118.0	-1.7		-43.7	70	3532	22 45 51
22 47 00	W1146+4129	10 08 21	69.7	115.3	-1.6		-46.4	-20	3532	No stop
22 50 30	---	10 11 51	70.2	116.6	-1.6		-45.7	190	3558	22 47 01
22 50 30	J1146+3958	10 11 51	69.0	119.4	-1.6		-43.0	-20	3558	No stop
22 52 00	=1144+402	10 13 22	69.2	120.0	-1.6		-42.7	70	3570	22 50 31
22 52 00	W1146+4129	10 13 22	70.4	117.2	-1.6		-45.4	-20	3570	No stop
22 55 30	---	10 16 52	70.9	118.6	-1.5		-44.6	190	3597	22 52 01
22 56 10	J1146+3958	10 17 32	69.8	121.7	-1.5		-41.8	20	3597	22 56 10
22 57 20	=1144+402	10 18 42	69.9	122.2	-1.5		-41.5	70	3606	22 56 11
22 57 20	W1146+4129	10 18 42	71.1	119.4	-1.5		-44.2	-20	3606	No stop
23 00 50	---	10 22 13	71.6	120.9	-1.4		-43.4	190	3633	22 57 21
23 00 50	J1146+3958	10 22 13	70.4	123.6	-1.4		-40.7	-20	3633	No stop
23 02 20	=1144+402	10 23 43	70.6	124.3	-1.4		-40.3	70	3644	23 00 51
23 02 20	W1146+4129	10 23 43	71.8	121.5	-1.4		-43.0	-20	3644	No stop
23 05 50	---	10 27 14	72.2	123.1	-1.3		-42.1	190	3671	23 02 21
23 06 30	J1146+3958	10 27 54	71.1	126.2	-1.3		-39.2	20	3671	23 06 30
23 07 40	=1144+402	10 29 04	71.2	126.7	-1.3		-38.9	70	3680	23 06 31
23 07 40	W1146+4129	10 29 04	72.5	123.9	-1.3		-41.6	-20	3680	No stop
23 11 10	---	10 32 35	72.9	125.6	-1.2		-40.6	190	3707	23 07 41
23 11 10	J1146+3958	10 32 35	71.6	128.4	-1.3		-37.8	-20	3707	No stop
23 12 40	=1144+402	10 34 05	71.8	129.1	-1.2		-37.4	70	3718	23 11 11
23 12 40	W1146+4129	10 34 05	73.1	126.3	-1.2		-40.2	-20	3718	No stop
23 16 10	---	10 37 35	73.5	128.1	-1.2		-39.1	190	3745	23 12 41
23 16 50	J1146+3958	10 38 16	72.3	131.2	-1.2		-36.1	20	3745	23 16 50
23 18 00	=1144+402	10 39 26	72.4	131.8	-1.1		-35.7	70	3754	23 16 51

```
Schedule for TORUN     (Code Tr )                                Page  13
               Hot DOGs in the microwave
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  21 Feb 2014   Day  52 ---

23 18 00  W1146+4129   10 39 26  73.7 129.0 -1.1     -38.4   -19     3754   No stop
23 21 30  ---          10 42 56  74.1 130.9 -1.1     -37.2   191     3781   23 18 01

23 21 30  J1146+3958   10 42 56  72.8 133.6 -1.1     -34.5   -20     3781   No stop
23 23 00  =1144+402    10 44 27  73.0 134.4 -1.1     -34.0    70     3793   23 21 31

23 23 00  W1146+4129   10 44 27  74.3 131.8 -1.0     -36.7   -19     3793   No stop
23 26 30  ---          10 47 57  74.7 133.7 -1.0     -35.3   191     3820   23 23 01

23 27 10  J1146+3958   10 48 37  73.4 136.8 -1.0     -32.4    20     3820   23 27 10
23 28 20  =1144+402    10 49 47  73.5 137.4 -1.0     -32.0    70     3828   23 27 11

23 33 50  J1606+3124   10 55 18  31.6  78.6 -5.2     -43.6   157     3828   23 33 50
23 37 50  =1604+315    10 59 19  32.2  79.3 -5.1     -43.7   240     3859   23 33 51

23 39 00  J1606+2717   11 00 29  29.2  82.6 -5.1     -42.1    44     3859   23 39 00
23 40 10  =1604+274    11 01 39  29.4  82.8 -5.1     -42.1    70     3868   23 39 01

23 40 10  W1603+2745   11 01 39  30.2  83.0 -5.0     -42.3   -16     3868   No stop
23 43 40  ---          11 05 10  30.7  83.7 -5.0     -42.4   194     3895   23 40 11

23 43 40  J1606+2717   11 05 10  29.9  83.5 -5.0     -42.2   -15     3895   No stop
23 45 10  =1604+274    11 06 40  30.1  83.8 -5.0     -42.2    75     3907   23 43 41

23 45 10  W1603+2745   11 06 40  31.0  84.0 -5.0     -42.4   -16     3907   No stop
23 48 40  ---          11 10 11  31.5  84.7 -4.9     -42.5   194     3933   23 45 11

23 49 20  J1606+2717   11 10 51  30.8  84.6 -4.9     -42.3    25     3933   23 49 20
23 50 30  =1604+274    11 12 01  30.9  84.8 -4.9     -42.3    70     3942   23 49 21

23 50 30  W1603+2745   11 12 01  31.8  85.0 -4.9     -42.5   -16     3942   No stop
23 54 00  ---          11 15 32  32.3  85.7 -4.8     -42.6   194     3969   23 50 31

23 54 00  J1606+2717   11 15 32  31.5  85.5 -4.9     -42.3   -15     3969   No stop
23 55 30  =1604+274    11 17 02  31.7  85.8 -4.8     -42.3    75     3981   23 54 01

23 55 30  W1603+2745   11 17 02  32.5  86.0 -4.8     -42.6   -16     3981   No stop
23 59 00  ---          11 20 33  33.0  86.7 -4.7     -42.6   194     4008   23 55 31

 --- Start: Fri  21 Feb 2014   Day  52 -- Stop: Sat  22 Feb 2014   Day  53 ---

23 59 40  J1606+2717   11 21 13  32.3  86.6 -4.8     -42.4    25     4008   23 59 40
00 00 50  =1604+274    11 22 23  32.5  86.8 -4.8     -42.4    70     4017   23 59 41
```

```
Schedule for TORUN     (Code Tr )                                Page  14
               Hot DOGs in the microwave
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Sat  22 Feb 2014   Day  53 ---

00 00 50  W1603+2745   11 22 23  33.3  87.0 -4.7     -42.6   -16     4017   No stop
00 04 20  ---          11 25 53  33.8  87.7 -4.6     -42.7   194     4044   00 00 51

00 04 20  J1606+2717   11 25 53  33.0  87.5 -4.7     -42.4   -15     4044   No stop
00 05 50  =1604+274    11 27 24  33.3  87.8 -4.7     -42.4    75     4055   00 04 21

00 05 50  W1603+2745   11 27 24  34.1  88.0 -4.6     -42.7   -16     4055   No stop
00 09 20  ---          11 30 54  34.6  88.7 -4.6     -42.7   194     4082   00 05 51

00 10 00  J1606+2717   11 31 34  33.9  88.6 -4.6     -42.5    25     4082   00 10 00
00 11 10  =1604+274    11 32 45  34.1  88.8 -4.6     -42.5    70     4091   00 10 01

00 11 10  W1603+2745   11 32 45  34.9  89.0 -4.5     -42.7   -16     4091   No stop
00 14 40  ---          11 36 15  35.4  89.7 -4.5     -42.7   194     4118   00 11 11

00 14 40  J1606+2717   11 36 15  34.6  89.5 -4.5     -42.5   -15     4118   No stop
00 16 10  =1604+274    11 37 45  34.8  89.8 -4.5     -42.5    75     4129   00 14 41

00 16 10  W1603+2745   11 37 45  35.6  90.0 -4.4     -42.7   -16     4129   No stop
00 19 40  ---          11 41 16  36.1  90.8 -4.4     -42.7   194     4156   00 16 11

00 20 20  J1606+2717   11 41 56  35.4  90.7 -4.4     -42.5    25     4156   00 20 20
00 21 30  =1604+274    11 43 06  35.6  90.9 -4.4     -42.5    70     4165   00 20 21

00 21 30  W1603+2745   11 43 06  36.4  91.1 -4.4     -42.7   -16     4165   No stop
00 25 00  ---          11 46 37  36.9  91.8 -4.3     -42.7   194     4192   00 21 31

00 25 00  J1606+2717   11 46 37  36.1  91.6 -4.3     -42.5   -15     4192   No stop
00 26 30  =1604+274    11 48 07  36.4  91.9 -4.3     -42.5    75     4204   00 25 01

00 26 30  W1603+2745   11 48 07  37.2  92.1 -4.3     -42.7   -16     4204   No stop
00 30 00  ---          11 51 38  37.7  92.9 -4.2     -42.6   194     4230   00 26 31

00 30 40  J1606+2717   11 52 18  37.0  92.8 -4.3     -42.4    25     4230   00 30 40
00 31 50  =1604+274    11 53 28  37.2  93.0 -4.2     -42.4    70     4239   00 30 41

00 31 50  W1603+2745   11 53 28  38.0  93.2 -4.2     -42.6   -16     4239   No stop
00 35 20  ---          11 56 58  38.5  94.0 -4.1     -42.6   194     4266   00 31 51

00 35 20  J1606+2717   11 56 58  37.7  93.8 -4.2     -42.4   -15     4266   No stop
00 36 50  =1604+274    11 58 29  37.9  94.1 -4.2     -42.4    75     4278   00 35 21

00 36 50  W1603+2745   11 58 29  38.7  94.3 -4.1     -42.6   -16     4278   No stop
00 40 20  ---          12 01 59  39.2  95.0 -4.0     -42.5   194     4305   00 36 51
```

Schedule for TORUN (Code Tr) Page 15

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
00 41 00	J1606+2717	12 02 39	38.5	94.9	-4.1		-42.3	25	4305	00 41 00
00 42 10	=1604+274	12 03 50	38.7	95.2	-4.1		-42.3	70	4314	00 41 01
00 42 10	W1603+2745	12 03 50	39.5	95.4	-4.0		-42.5	-16	4314	No stop
00 45 40	---	12 07 20	40.0	96.2	-4.0		-42.4	194	4340	00 42 11
00 45 40	J1606+2717	12 07 20	39.2	95.9	-4.0		-42.2	-15	4340	No stop
00 47 10	=1604+274	12 08 50	39.5	96.2	-4.0		-42.2	75	4352	00 45 41
00 47 10	W1603+2745	12 08 50	40.3	96.5	-3.9		-42.4	-16	4352	No stop
00 50 40	---	12 12 21	40.8	97.2	-3.9		-42.3	194	4379	00 47 11
00 51 20	J1606+2717	12 13 01	40.1	97.1	-3.9		-42.1	25	4379	00 51 20
00 52 30	=1604+274	12 14 11	40.3	97.4	-3.9		-42.1	70	4388	00 51 21
00 52 30	W1603+2745	12 14 11	41.1	97.6	-3.8		-42.2	-16	4388	No stop
00 56 00	---	12 17 42	41.6	98.4	-3.8		-42.2	194	4415	00 52 31
00 56 00	J1606+2717	12 17 42	40.8	98.2	-3.8		-42.0	-15	4415	No stop
00 57 30	=1604+274	12 19 12	41.0	98.5	-3.8		-41.9	75	4426	00 56 01
00 57 30	W1603+2745	12 19 12	41.8	98.7	-3.8		-42.1	-16	4426	No stop
01 01 00	---	12 22 43	42.3	99.5	-3.7		-42.0	194	4453	00 57 31
01 01 40	J1606+2717	12 23 23	41.6	99.4	-3.7		-41.8	25	4453	01 01 40
01 02 50	=1604+274	12 24 33	41.8	99.7	-3.7		-41.7	70	4462	01 01 41
01 02 50	W1603+2745	12 24 33	42.6	99.9	-3.7		-41.9	-16	4462	No stop
01 06 20	---	12 28 04	43.1	100.7	-3.6		-41.8	194	4489	01 02 51
01 06 20	J1606+2717	12 28 04	42.3	100.5	-3.7		-41.6	-15	4489	No stop
01 07 50	=1604+274	12 29 34	42.5	100.8	-3.6		-41.6	75	4500	01 06 21
01 07 50	W1603+2745	12 29 34	43.3	101.0	-3.6		-41.7	-16	4500	No stop
01 11 20	---	12 33 04	43.9	101.8	-3.5		-41.6	194	4527	01 07 51
01 12 00	J1606+2717	12 33 45	43.2	101.7	-3.6		-41.4	25	4527	01 12 00
01 13 10	=1604+274	12 34 55	43.3	102.0	-3.5		-41.3	70	4536	01 12 01
01 13 10	W1603+2745	12 34 55	44.1	102.3	-3.5		-41.5	-16	4536	No stop
01 16 40	---	12 38 25	44.6	103.1	-3.4		-41.4	194	4563	01 13 11
01 16 40	J1606+2717	12 38 25	43.8	102.8	-3.5		-41.2	-15	4563	No stop
01 18 10	=1604+274	12 39 56	44.1	103.2	-3.5		-41.1	75	4575	01 16 41

Schedule for TORUN (Code Tr) Page 16

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
01 18 10	W1603+2745	12 39 56	44.9	103.4	-3.4		-41.3	-15	4575	No stop
01 21 40	---	12 43 26	45.4	104.3	-3.4		-41.1	195	4602	01 18 11
01 22 20	J1606+2717	12 44 06	44.7	104.1	-3.4		-40.9	25	4602	01 22 20
01 23 30	=1604+274	12 45 16	44.8	104.4	-3.4		-40.9	70	4611	01 22 21
01 23 30	W1603+2745	12 45 16	45.6	104.7	-3.3		-41.0	-15	4611	No stop
01 27 00	---	12 48 47	46.1	105.5	-3.3		-40.8	195	4637	01 23 31
01 27 00	J1606+2717	12 48 47	45.3	105.3	-3.3		-40.7	-15	4637	No stop
01 28 30	=1604+274	12 50 17	45.6	105.6	-3.3		-40.6	75	4649	01 27 01
01 28 30	W1603+2745	12 50 17	46.4	105.9	-3.2		-40.7	-15	4649	No stop
01 32 00	---	12 53 48	46.9	106.8	-3.2		-40.5	195	4676	01 28 31
01 32 40	J1606+2717	12 54 28	46.2	106.6	-3.2		-40.3	25	4676	01 32 40
01 33 50	=1604+274	12 55 38	46.3	106.9	-3.2		-40.3	70	4685	01 32 41
01 33 50	W1603+2745	12 55 38	47.1	107.2	-3.1		-40.4	-15	4685	No stop
01 37 20	---	12 59 09	47.6	108.1	-3.1		-40.2	195	4712	01 33 51
01 37 20	J1606+2717	12 59 09	46.8	107.8	-3.1		-40.0	-15	4712	No stop
01 38 50	=1604+274	13 00 39	47.1	108.2	-3.1		-39.9	75	4723	01 37 21
01 38 50	W1603+2745	13 00 39	47.9	108.5	-3.1		-40.0	-15	4723	No stop
01 42 20	---	13 04 09	48.4	109.4	-3.0		-39.8	195	4750	01 38 51
01 43 00	J1606+2717	13 04 50	47.6	109.2	-3.0		-39.6	25	4750	01 43 00
01 44 10	=1604+274	13 06 00	47.8	109.5	-3.0		-39.5	70	4759	01 43 01
01 44 10	W1603+2745	13 06 00	48.6	109.8	-3.0		-39.7	-15	4759	No stop
01 47 40	---	13 09 30	49.1	110.7	-2.9		-39.4	195	4786	01 44 11
01 47 40	J1606+2717	13 09 30	48.3	110.4	-3.0		-39.3	-15	4786	No stop
01 49 10	=1604+274	13 11 01	48.5	110.8	-2.9		-39.1	75	4797	01 47 41
01 49 10	W1603+2745	13 11 01	49.3	111.1	-2.9		-39.3	-15	4797	No stop
01 52 40	---	13 14 31	49.8	112.1	-2.8		-39.0	195	4824	01 49 11
01 53 20	J1606+2717	13 15 11	49.1	111.9	-2.9		-38.8	25	4824	01 53 20
01 54 30	=1604+274	13 16 21	49.3	112.2	-2.9		-38.7	70	4833	01 53 21
01 54 30	W1603+2745	13 16 21	50.1	112.6	-2.8		-38.8	-15	4833	No stop
01 58 00	---	13 19 52	50.5	113.5	-2.7		-38.5	195	4860	01 54 31

Schedule for TORUN (Code Tr) Page 17

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
01 58 00	J1606+2717	13 19 52	49.8	113.2	-2.8		-38.4	-15	4860	No stop
01 59 30	=1604+274	13 21 22	50.0	113.6	-2.8		-38.3	75	4872	01 58 01
01 59 30	W1603+2745	13 21 22	50.8	113.9	-2.7		-38.3	-15	4872	No stop
02 03 00	---	13 24 53	51.2	114.9	-2.7		-38.0	195	4899	01 59 31
02 03 40	J1606+2717	13 25 33	50.5	114.7	-2.7		-37.8	25	4899	02 03 40
02 04 50	=1604+274	13 26 43	50.7	115.0	-2.7		-37.7	70	4908	02 03 41
02 04 50	W1603+2745	13 26 43	51.5	115.4	-2.6		-37.8	-15	4908	No stop
02 08 20	---	13 30 14	52.0	116.4	-2.6		-37.4	195	4934	02 04 51
02 08 20	J1606+2717	13 30 14	51.2	116.0	-2.6		-37.4	-15	4934	No stop
02 09 50	=1604+274	13 31 44	51.4	116.4	-2.6		-37.2	75	4946	02 08 21
02 09 50	W1603+2745	13 31 44	52.2	116.8	-2.5		-37.3	-15	4946	No stop
02 13 20	---	13 35 15	52.6	117.8	-2.5		-36.9	195	4973	02 09 51
02 14 00	J1606+2717	13 35 55	51.9	117.6	-2.5		-36.8	25	4973	02 14 00
02 15 10	=1604+274	13 37 05	52.1	118.0	-2.5		-36.6	70	4982	02 14 01
02 15 10	W1603+2745	13 37 05	52.9	118.4	-2.5		-36.6	-15	4982	No stop
02 18 40	---	13 40 35	53.3	119.4	-2.4		-36.2	195	5009	02 15 11
02 18 40	J1606+2717	13 40 35	52.5	119.0	-2.4		-36.2	-15	5009	No stop
02 20 10	=1604+274	13 42 06	52.7	119.4	-2.4		-36.0	75	5020	02 18 41
02 20 10	W1603+2745	13 42 06	53.5	119.9	-2.4		-36.0	-15	5020	No stop
02 23 40	---	13 45 36	54.0	120.9	-2.3		-35.6	195	5047	02 20 11
02 24 20	J1606+2717	13 46 16	53.3	120.7	-2.4		-35.5	25	5047	02 24 20
02 25 30	=1604+274	13 47 27	53.4	121.1	-2.3		-35.4	70	5056	02 24 21
02 25 30	W1603+2745	13 47 27	54.2	121.5	-2.3		-35.3	-15	5056	No stop
02 29 00	---	13 50 57	54.7	122.6	-2.2		-34.9	195	5083	02 25 31
02 29 00	J1606+2717	13 50 57	53.9	122.1	-2.3		-34.9	-15	5083	No stop
02 30 30	=1604+274	13 52 27	54.1	122.6	-2.3		-34.7	75	5094	02 29 01
02 30 30	W1603+2745	13 52 27	54.9	123.1	-2.2		-34.6	-15	5094	No stop
02 34 00	---	13 55 58	55.3	124.2	-2.1		-34.1	195	5121	02 30 31
02 34 40	J1606+2717	13 56 38	54.6	123.9	-2.2		-34.1	25	5121	02 34 40
02 35 50	=1604+274	13 57 48	54.7	124.3	-2.2		-33.9	70	5130	02 34 41

Schedule for TORUN (Code Tr) Page 18

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
02 35 50	W1603+2745	13 57 48	55.5	124.8	-2.1		-33.9	-15	5130	No stop
02 39 20	---	14 01 19	55.9	125.9	-2.1		-33.3	195	5157	02 35 51
02 39 20	J1606+2717	14 01 19	55.2	125.4	-2.1		-33.4	-15	5157	No stop
02 40 50	=1604+274	14 02 49	55.4	125.9	-2.1		-33.2	75	5169	02 39 21
02 40 50	W1603+2745	14 02 49	56.1	126.4	-2.0		-33.1	-15	5169	No stop
02 44 20	---	14 06 20	56.6	127.6	-2.0		-32.5	195	5196	02 40 51
02 45 00	J1606+2717	14 07 00	55.9	127.3	-2.0		-32.5	25	5196	02 45 00
02 46 10	=1604+274	14 08 10	56.0	127.7	-2.0		-32.3	70	5204	02 45 01
02 46 10	W1603+2745	14 08 10	56.8	128.2	-1.9		-32.2	-15	5204	No stop
02 49 40	---	14 11 41	57.2	129.4	-1.9		-31.6	195	5231	02 46 11
02 49 40	J1606+2717	14 11 41	56.4	128.9	-1.9		-31.7	-15	5231	No stop
02 51 10	=1604+274	14 13 11	56.6	129.4	-1.9		-31.5	75	5243	02 49 41
02 51 10	W1603+2745	14 13 11	57.4	130.0	-1.9		-31.3	-15	5243	No stop
02 54 40	---	14 16 41	57.8	131.2	-1.8		-30.7	195	5270	02 51 11
02 55 20	J1606+2717	14 17 21	57.1	130.8	-1.8		-30.7	25	5270	02 55 20
02 56 30	=1604+274	14 18 32	57.2	131.2	-1.8		-30.5	70	5279	02 55 21
02 58 40	J1734+3857	14 20 42	54.3	93.4	-3.2		-50.4	39	5279	02 58 40
03 02 40	=1732+389	14 24 43	54.9	94.2	-3.2		-50.4	240	5309	02 58 41
03 03 50	J1826+3431	14 25 53	44.2	88.8	-4.0		-46.8	16	5309	03 03 50
03 05 00	=1825+344	14 27 03	44.4	89.0	-4.0		-46.8	70	5318	03 03 51
03 05 00	W1814+3412	14 27 03	46.1	91.9	-3.8		-46.5	-20	5318	No stop
03 08 30	---	14 30 34	46.6	92.6	-3.7		-46.5	190	5345	03 05 01
03 08 30	J1826+3431	14 30 34	44.9	89.7	-3.9		-46.8	-20	5345	No stop
03 10 10	=1825+344	14 32 14	45.2	90.1	-3.9		-46.8	80	5358	03 08 31
03 10 10	W1814+3412	14 32 14	46.9	93.0	-3.7		-46.5	-20	5358	No stop
03 13 40	---	14 35 44	47.4	93.7	-3.7		-46.4	190	5385	03 10 11
03 14 25	J1826+3431	14 36 30	45.8	90.9	-3.9		-46.8	25	5385	03 14 25
03 15 35	=1825+344	14 37 40	46.0	91.2	-3.8		-46.8	70	5394	03 14 26
03 15 35	W1814+3412	14 37 40	47.7	94.1	-3.6		-46.4	-21	5394	No stop
03 19 05	---	14 41 10	48.2	94.9	-3.6		-46.3	189	5421	03 15 36

Schedule for TORUN (Code Tr) Page 19

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
03 19 05	J1826+3431	14 41 10	46.5	91.9	-3.8		-46.8	-20	5421	No stop
03 20 45	=1825+344	14 42 51	46.8	92.2	-3.7		-46.7	80	5434	03 19 06
03 20 45	W1814+3412	14 42 51	48.5	95.2	-3.5		-46.3	-21	5434	No stop
03 24 15	---	14 46 21	49.0	96.0	-3.5		-46.2	189	5460	03 20 46
03 25 00	J1826+3431	14 47 06	47.4	93.1	-3.7		-46.7	25	5460	03 25 00
03 26 10	=1825+344	14 48 17	47.6	93.3	-3.7		-46.7	70	5469	03 25 01
03 26 10	W1814+3412	14 48 17	49.3	96.4	-3.4		-46.2	-21	5469	No stop
03 29 40	---	14 51 47	49.8	97.2	-3.4		-46.1	189	5496	03 26 11
03 29 40	J1826+3431	14 51 47	48.1	94.1	-3.6		-46.6	-21	5496	No stop
03 31 20	=1825+344	14 53 27	48.4	94.4	-3.6		-46.6	79	5509	03 29 41
03 31 20	W1814+3412	14 53 27	50.0	97.6	-3.4		-46.0	-21	5509	No stop
03 34 50	---	14 56 58	50.6	98.4	-3.3		-45.9	189	5536	03 31 21
03 35 35	J1826+3431	14 57 43	49.0	95.4	-3.5		-46.5	24	5536	03 35 35
03 36 45	=1825+344	14 58 53	49.2	95.6	-3.5		-46.5	70	5545	03 35 36
03 36 45	W1814+3412	14 58 53	50.9	98.8	-3.3		-45.9	-21	5545	No stop
03 40 15	---	15 02 24	51.4	99.6	-3.2		-45.7	189	5572	03 36 46
03 40 15	J1826+3431	15 02 24	49.7	96.4	-3.4		-46.4	-21	5572	No stop
03 41 55	=1825+344	15 04 04	50.0	96.7	-3.4		-46.4	79	5585	03 40 16
03 41 55	W1814+3412	15 04 04	51.6	100.0	-3.2		-45.7	-21	5585	No stop
03 45 25	---	15 07 35	52.1	100.8	-3.1		-45.5	189	5612	03 41 56
03 46 10	J1826+3431	15 08 20	50.6	97.7	-3.3		-46.2	24	5612	03 46 10
03 47 20	=1825+344	15 09 30	50.8	97.9	-3.3		-46.2	70	5620	03 46 11
03 47 20	W1814+3412	15 09 30	52.4	101.3	-3.1		-45.4	-21	5620	No stop
03 50 50	---	15 13 01	52.9	102.1	-3.0		-45.2	189	5647	03 47 21
03 50 50	J1826+3431	15 13 01	51.3	98.7	-3.2		-46.1	-21	5647	No stop
03 52 30	=1825+344	15 14 41	51.5	99.1	-3.2		-46.0	79	5660	03 50 51
03 52 30	W1814+3412	15 14 41	53.2	102.5	-3.0		-45.1	-22	5660	No stop
03 56 00	---	15 18 11	53.7	103.4	-2.9		-44.9	188	5687	03 52 31
03 56 45	J1826+3431	15 18 57	52.2	100.1	-3.1		-45.9	24	5687	03 56 45
03 57 55	=1825+344	15 20 07	52.3	100.4	-3.1		-45.8	70	5696	03 56 46

Schedule for TORUN (Code Tr) Page 20

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
03 57 55	W1814+3412	15 20 07	54.0	103.8	-2.9		-44.8	-22	5696	No stop
04 01 25	---	15 23 37	54.5	104.7	-2.9		-44.6	188	5723	03 57 56
04 01 25	J1826+3431	15 23 37	52.9	101.2	-3.1		-45.6	-22	5723	No stop
04 03 05	=1825+344	15 25 18	53.1	101.6	-3.0		-45.6	78	5736	04 01 26
04 03 05	W1814+3412	15 25 18	54.7	105.2	-2.8		-44.5	-22	5736	No stop
04 06 35	---	15 28 48	55.2	106.1	-2.8		-44.3	188	5763	04 03 06
04 07 20	J1826+3431	15 29 33	53.7	102.7	-3.0		-45.3	23	5763	04 07 20
04 08 30	=1825+344	15 30 43	53.9	102.9	-2.9		-45.3	70	5772	04 07 21
04 08 30	W1814+3412	15 30 43	55.5	106.6	-2.7		-44.1	-22	5772	No stop
04 12 00	---	15 34 14	56.0	107.5	-2.7		-43.8	188	5798	04 08 31
04 12 00	J1826+3431	15 34 14	54.4	103.8	-2.9		-45.1	-22	5798	No stop
04 13 40	=1825+344	15 35 54	54.7	104.2	-2.9		-45.0	78	5811	04 12 01
04 13 40	W1814+3412	15 35 54	56.3	107.9	-2.6		-43.7	-22	5811	No stop
04 17 10	---	15 39 25	56.8	108.9	-2.6		-43.4	188	5838	04 13 41
04 17 55	J1826+3431	15 40 10	55.3	105.3	-2.8		-44.7	23	5838	04 17 55
04 19 05	=1825+344	15 41 20	55.4	105.6	-2.8		-44.6	70	5847	04 17 56
04 19 05	W1814+3412	15 41 20	57.0	109.4	-2.6		-43.2	-23	5847	No stop
04 22 35	---	15 44 51	57.5	110.4	-2.5		-42.9	187	5874	04 19 06
04 22 35	J1826+3431	15 44 51	55.9	106.5	-2.7		-44.3	-22	5874	No stop
04 24 15	=1825+344	15 46 31	56.2	107.0	-2.7		-44.2	78	5887	04 22 36
04 24 15	W1814+3412	15 46 31	57.8	110.9	-2.5		-42.7	-23	5887	No stop
04 27 45	---	15 50 02	58.2	111.9	-2.4		-42.4	187	5914	04 24 16
04 28 30	J1826+3431	15 50 47	56.8	108.1	-2.6		-43.8	22	5914	04 28 30
04 29 40	=1825+344	15 51 57	57.0	108.4	-2.6		-43.7	70	5923	04 28 31
04 29 40	W1814+3412	15 51 57	58.5	112.4	-2.4		-42.2	-23	5923	No stop
04 33 10	---	15 55 28	59.0	113.5	-2.3		-41.8	187	5949	04 29 41
04 33 10	J1826+3431	15 55 28	57.5	109.4	-2.5		-43.4	-23	5949	No stop
04 34 50	=1825+344	15 57 08	57.7	109.9	-2.5		-43.3	77	5962	04 33 11
04 34 50	W1814+3412	15 57 08	59.2	114.0	-2.3		-41.6	-23	5962	No stop
04 38 20	---	16 00 38	59.7	115.1	-2.2		-41.1	187	5989	04 34 51

Schedule for TORUN (Code Tr) Page 21

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
04 39 05	J1826+3431	16 01 24	58.3	111.1	-2.4		-42.9	22	5989	04 39 05
04 40 15	=1825+344	16 02 34	58.5	111.4	-2.4		-42.7	70	5998	04 39 06
04 40 15	W1814+3412	16 02 34	60.0	115.7	-2.2		-40.9	-24	5998	No stop
04 43 45	---	16 06 04	60.4	116.8	-2.1		-40.4	186	6025	04 40 16
04 43 45	J1826+3431	16 06 04	58.9	112.4	-2.4		-42.4	-23	6025	No stop
04 45 25	=1825+344	16 07 45	59.2	112.9	-2.3		-42.2	77	6038	04 43 46
04 45 25	W1814+3412	16 07 45	60.7	117.3	-2.1		-40.2	-24	6038	No stop
04 48 55	---	16 11 15	61.1	118.4	-2.1		-39.7	186	6065	04 45 26
04 49 40	J1826+3431	16 12 00	59.8	114.2	-2.3		-41.7	21	6065	04 49 40
04 50 50	=1825+344	16 13 10	59.9	114.6	-2.2		-41.5	70	6074	04 49 41
04 50 50	W1814+3412	16 13 10	61.4	119.1	-2.0		-39.4	-24	6074	No stop
04 54 20	---	16 16 41	61.8	120.3	-2.0		-38.8	186	6100	04 50 51
04 54 20	J1826+3431	16 16 41	60.4	115.7	-2.2		-41.1	-24	6100	No stop
04 56 00	=1825+344	16 18 21	60.6	116.2	-2.2		-40.8	76	6113	04 54 21
04 56 00	W1814+3412	16 18 21	62.1	120.8	-1.9		-38.6	-24	6113	No stop
04 59 30	---	16 21 52	62.5	122.1	-1.9		-38.0	186	6140	04 56 01
05 00 15	J1826+3431	16 22 37	61.2	117.6	-2.1		-40.2	21	6140	05 00 15
05 01 25	=1825+344	16 23 47	61.4	118.0	-2.1		-40.1	70	6149	05 00 16
05 01 25	W1814+3412	16 23 47	62.8	122.7	-1.9		-37.6	-25	6149	No stop
05 04 55	---	16 27 18	63.2	124.0	-1.8		-37.0	185	6176	05 01 26
05 04 55	J1826+3431	16 27 18	61.8	119.1	-2.0		-39.5	-25	6176	No stop
05 06 35	=1825+344	16 28 58	62.0	119.7	-2.0		-39.3	75	6189	05 04 56
05 06 35	W1814+3412	16 28 58	63.4	124.6	-1.8		-36.7	-25	6189	No stop
05 10 05	---	16 32 29	63.8	125.9	-1.7		-36.0	185	6216	05 06 36
05 10 50	J1826+3431	16 33 14	62.6	121.2	-1.9		-38.6	20	6216	05 10 50
05 12 00	=1825+344	16 34 24	62.7	121.6	-1.9		-38.4	70	6225	05 10 51
05 12 00	W1814+3412	16 34 24	64.1	126.7	-1.7		-35.6	-25	6225	No stop
05 15 30	---	16 37 55	64.5	128.0	-1.6		-34.9	185	6252	05 12 01
05 15 30	J1826+3431	16 37 55	63.2	122.8	-1.8		-37.8	-25	6252	No stop
05 17 10	=1825+344	16 39 35	63.4	123.4	-1.8		-37.5	75	6264	05 15 31

Schedule for TORUN (Code Tr) Page 22

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
05 17 10	W1814+3412	16 39 35	64.7	128.7	-1.6		-34.5	-26	6264	No stop
05 20 40	---	16 43 05	65.1	130.1	-1.5		-33.7	184	6291	05 17 11
05 21 25	J1826+3431	16 43 50	63.9	125.0	-1.7		-36.7	19	6291	05 21 25
05 22 35	=1825+344	16 45 01	64.1	125.4	-1.7		-36.4	70	6300	05 21 26
05 22 35	W1814+3412	16 45 01	65.3	130.9	-1.5		-33.3	-26	6300	No stop
05 26 05	---	16 48 31	65.7	132.4	-1.4		-32.4	184	6327	05 22 36
05 26 05	J1826+3431	16 48 31	64.5	126.8	-1.6		-35.7	-26	6327	No stop
05 27 45	=1825+344	16 50 12	64.7	127.4	-1.6		-35.4	74	6340	05 26 06
05 27 45	W1814+3412	16 50 12	65.9	133.1	-1.4		-32.0	-27	6340	No stop
05 31 15	---	16 53 42	66.3	134.6	-1.4		-31.1	183	6367	05 27 46
05 32 00	J1826+3431	16 54 27	65.2	129.1	-1.6		-34.4	19	6367	05 32 00
05 33 10	=1825+344	16 55 37	65.3	129.6	-1.5		-34.2	70	6376	05 32 01
05 33 10	W1814+3412	16 55 37	66.5	135.5	-1.3		-30.6	-27	6376	No stop
05 36 40	---	16 59 08	66.8	137.0	-1.3		-29.7	183	6403	05 33 11
05 36 40	J1826+3431	16 59 08	65.7	131.1	-1.5		-33.3	-27	6403	No stop
05 38 20	=1825+344	17 00 48	65.9	131.8	-1.4		-32.9	73	6415	05 36 41
05 38 20	W1814+3412	17 00 48	67.0	137.8	-1.2		-29.2	-27	6415	No stop
05 41 50	---	17 04 19	67.3	139.5	-1.2		-28.2	183	6442	05 38 21
05 42 35	J1826+3431	17 05 04	66.4	133.6	-1.4		-31.9	18	6442	05 42 35
05 43 45	=1825+344	17 06 14	66.5	134.1	-1.4		-31.5	70	6451	05 42 36
05 43 45	W1814+3412	17 06 14	67.5	140.4	-1.1		-27.6	-28	6451	No stop
05 47 15	---	17 09 45	67.9	142.1	-1.1		-26.5	182	6478	05 43 46
05 47 15	J1826+3431	17 09 45	66.9	135.7	-1.3		-30.6	-27	6478	No stop
05 48 55	=1825+344	17 11 25	67.1	136.4	-1.3		-30.1	73	6491	05 47 16
05 48 55	W1814+3412	17 11 25	68.0	142.9	-1.1		-26.0	-28	6491	No stop
05 52 25	---	17 14 56	68.3	144.7	-1.0		-24.8	182	6518	05 48 56
05 53 10	J1826+3431	17 15 41	67.5	138.4	-1.2		-28.9	17	6518	05 53 10
05 54 20	=1825+344	17 16 51	67.6	139.0	-1.2		-28.6	70	6527	05 53 11
05 54 20	W1814+3412	17 16 51	68.5	145.6	-1.0		-24.2	-29	6527	No stop
05 57 50	---	17 20 21	68.8	147.5	-0.9		-23.0	181	6554	05 54 21

Schedule for TORUN (Code Tr) Page 23

Hot DOGs in the microwave

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 22 Feb 2014 Day 53 ---										
05 57 50	J1826+3431	17 20 21	68.0	140.7	-1.1		-27.5	-28	6554	No stop
05 59 30	=1825+344	17 22 02	68.1	141.5	-1.1		-27.0	72	6566	05 57 51
05 59 30	W1814+3412	17 22 02	68.9	148.4	-0.9		-22.4	-29	6566	No stop
06 03 00	---	17 25 32	69.2	150.2	-0.8		-21.1	181	6593	05 59 31
06 03 45	J1826+3431	17 26 17	68.5	143.6	-1.0		-25.6	16	6593	06 03 45
06 04 55	=1825+344	17 27 28	68.6	144.2	-1.0		-25.2	70	6602	06 03 46
06 04 55	W1814+3412	17 27 28	69.3	151.3	-0.8		-20.4	-30	6602	No stop
06 08 25	---	17 30 58	69.6	153.2	-0.7		-19.1	180	6629	06 04 56
06 08 25	J1826+3431	17 30 58	68.9	146.0	-0.9		-24.0	-29	6629	No stop
06 10 05	=1825+344	17 32 38	69.0	146.9	-0.9		-23.5	71	6642	06 08 26
06 10 05	W1814+3412	17 32 38	69.7	154.2	-0.7		-18.4	-30	6642	No stop
06 13 35	---	17 36 09	69.9	156.2	-0.6		-17.1	180	6669	06 10 06
06 14 20	J1826+3431	17 36 54	69.4	149.2	-0.8		-21.9	16	6669	06 14 20
06 15 30	=1825+344	17 38 04	69.5	149.8	-0.8		-21.5	70	6678	06 14 21
06 15 30	W1814+3412	17 38 04	70.0	157.3	-0.6		-16.3	-30	6678	No stop
06 19 00	---	17 41 35	70.2	159.3	-0.6		-14.8	180	6705	06 15 31
06 19 00	J1826+3431	17 41 35	69.7	151.8	-0.8		-20.2	-30	6705	No stop
06 20 40	=1825+344	17 43 15	69.8	152.7	-0.7		-19.5	70	6717	06 19 01
06 20 40	W1814+3412	17 43 15	70.3	160.3	-0.5		-14.1	-31	6717	No stop
06 24 10	---	17 46 46	70.5	162.4	-0.5		-12.7	179	6744	06 20 41
06 24 55	J1826+3431	17 47 31	70.1	155.1	-0.7		-17.9	15	6744	06 24 55
06 26 05	=1825+344	17 48 41	70.2	155.8	-0.6		-17.4	70	6753	06 24 56
06 26 05	W1814+3412	17 48 41	70.6	163.6	-0.4		-11.8	-31	6753	No stop
06 28 50	---	17 51 27	70.7	165.3	-0.4		-10.6	134	6774	06 26 06
06 28 50	J1826+3431	17 51 27	70.4	157.4	-0.6		-16.3	-30	6774	No stop
06 30 00	=1825+344	17 52 37	70.4	158.1	-0.6		-15.8	40	6783	06 28 51

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


 ======== Setup file: sess114.L1024
   Matching groups in /usr/local/sched/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    2         Station: TORUN            Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2        Sample rate: 32.000
   Number of channels: 16    DBE type:                 Speedup factor:   0.50

   Disk used to record data.

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

  The following frequency sets based on these setups were used.

   Frequency Set:   6  Setup file default.  Used pcal sets:   1
   LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
             1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
   BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
              625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
   Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
               16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
    Matching frequency sets:   6

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = OFF
    PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
    PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
    PCALFR1=     0     0     0     0     0     0     0     0
    PCALFR2=     0     0     0     0     0     0     0     0

   Track assignments are:
    track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
    barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* W0757+5113	07 53 38.344934	* 07 57 25.066000	07 58 31.389508	0.00
	51 21 23.18184	* 51 13 19.24000	51 10 54.24059	0.00
* W1146+4129	11 43 35.208021	* 11 46 12.874000	11 46 59.065883	0.00
	41 45 53.81585	* 41 29 14.10000	41 24 15.47835	0.00
* W1603+2745	16 01 54.340519	* 16 03 57.355000	16 04 32.484103	0.00
	27 54 02.36798	* 27 45 52.57000	27 43 24.64062	0.00
* W1814+3412	18 12 28.861269	* 18 14 17.330000	18 14 47.590441	0.00
	34 11 26.35502	* 34 12 24.90000	34 12 35.58866	0.00
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 31.708728	0.13
* DA193	39 48 21.94578	* 39 48 49.16493	39 48 51.85327	0.10
* J0756+5151	07 53 11.081975	* 07 56 59.543156	07 58 06.377660	0.33
0753+519	51 59 02.49453	* 51 51 00.23765	51 48 35.84505	0.30
* J0824+5552	08 20 53.203687	* 08 24 47.236363	08 25 55.773022	0.18
0820+560	56 02 27.45538	* 55 52 42.66929	55 49 48.58405	0.10
* J1146+3958	11 44 21.020907	* 11 46 58.297919	11 47 44.371554	0.13
1144+402	40 15 14.23940	* 39 58 34.30431	39 53 35.66608	0.10
* J1606+3124	16 04 10.611566	* 16 06 08.518385	16 06 42.148260	0.21
1604+315	31 32 47.72177	* 31 24 46.45776	31 22 20.11221	0.29
* J1606+2717	16 04 54.881876	* 16 06 58.300348	16 07 33.532191	0.32
1604+274	27 25 03.85147	* 27 17 05.58299	27 14 41.14310	0.50
* J1734+3857	17 32 40.487473	* 17 34 20.578539	17 34 48.572355	0.13
1732+389	38 59 46.93234	* 38 57 51.44302	38 57 10.31845	0.10
* J1826+3431	18 25 11.817274	* 18 26 59.982856	18 27 30.100183	0.22
1825+344	34 29 20.20703	* 34 31 14.11936	34 31 40.94384	0.34

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)
W0757+5113	129.9
W1146+4129	143.6
W1603+2745	98.3
W1814+3412	73.3
DA193	115.0
J0756+5151	129.4
J0824+5552	129.3
J1146+3958	144.7
J1606+3124	98.3
J1606+2717	97.6
J1734+3857	82.5
J1826+3431	71.1

rk01uftr

RadioAstron AGN survey

PI: *Yuri Kovalev*

```
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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
-------------------------------------------------------------------------------------------

 --- Sat  22 Feb 2014   Day  53 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

22 00 00  1357+769     09 25 10  56.0  22.6 -4.5     -93.3     0         0   22 00 00
22 09 30  ---          09 34 41  56.6  22.5 -4.4     -95.7   570        18   22 00 01

22 10 00  1357+769     09 35 11  56.6  22.5 -4.4     -95.8    24        18   22 10 00
22 19 30  ---          09 44 43  57.2  22.4 -4.2     -98.2   570        36   22 10 01

22 20 00  1357+769     09 45 13  57.2  22.4 -4.2     -98.4    25        36   22 20 00
22 29 30  ---          09 54 44  57.7  22.2 -4.1    -100.8   570        55   22 20 01

22 30 00  1357+769     09 55 14  57.8  22.2 -4.0    -101.0    25        55   22 30 00
22 39 30  ---          10 04 46  58.3  22.0 -3.9    -103.5   570        73   22 30 01

22 40 00  1357+769     10 05 16  58.3  21.9 -3.9    -103.6    25        73   22 40 00
22 49 30  ---          10 14 48  58.9  21.7 -3.7    -106.1   570        91   22 40 01

22 50 00  1357+769     10 15 18  58.9  21.7 -3.7    -106.3    25        91   22 50 00
23 00 00  ---          10 25 19  59.4  21.3 -3.5    -109.0   600       110   22 50 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
   Matching groups in ./rk01uf_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   9  Setup file default.  Used pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   9

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1357+769          13 57 42.117007   * 13 57 55.371538     13 58 00.704393       0.00
  J1357+7643        76 57 53.35418    * 76 43 21.05098      76 38 56.85387        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1357+769           107.7

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

rk01ugtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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```


```
Observing mode: C-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  23 Feb 2014   Day  54 ---

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

01 00 00  1334-127     12 25 39  22.1 160.8 -1.2     -11.7     0         0   01 00 00
01 09 30  ---          12 35 11  22.5 163.3 -1.1     -10.2   570        18   01 00 01

01 10 00  1334-127     12 35 41  22.5 163.4 -1.0     -10.1    24        18   01 10 00
01 19 30  ---          12 45 12  22.9 165.9 -0.9      -8.6   570        36   01 10 01

01 20 00  1334-127     12 45 42  22.9 166.0 -0.9      -8.6    24        36   01 20 00
01 29 30  ---          12 55 14  23.2 168.5 -0.7      -7.0   570        55   01 20 01

01 30 00  1334-127     12 55 44  23.2 168.7 -0.7      -7.0    24        55   01 30 00
01 39 30  ---          13 05 16  23.5 171.2 -0.6      -5.4   570        73   01 30 01

01 40 00  1334-127     13 05 46  23.5 171.3 -0.5      -5.3    24        73   01 40 00
01 49 30  ---          13 15 17  23.7 173.8 -0.4      -3.8   570        91   01 40 01

01 50 00  1334-127     13 15 47  23.7 174.0 -0.4      -3.7    24        91   01 50 00
02 00 00  ---          13 25 49  23.8 176.6 -0.2      -2.1   600       110   01 50 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
   Matching groups in ./rk01ug_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1334-127          13 34 59.803872   * 13 37 39.782777     13 38 26.635390       0.00
  J1337-1257       -12 42 09.74318    *-12 57 24.69345     -13 01 46.83297        0.00


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)
  1334-127           126.8

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

rk01uhtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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


```
Observing mode: C-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  23 Feb 2014   Day  54 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1253-055     15 26 09  23.2 221.0  2.5      23.3     0         0   04 00 00
04 09 30  ---          15 35 40  22.2 223.3  2.6      24.5   570        18   04 00 01

04 10 00  1253-055     15 36 10  22.2 223.4  2.7      24.5    24        18   04 10 00
04 19 30  ---          15 45 42  21.2 225.8  2.8      25.6   570        36   04 10 01

04 20 00  1253-055     15 46 12  21.1 225.9  2.8      25.7    24        36   04 20 00
04 29 30  ---          15 55 44  20.1 228.1  3.0      26.7   570        55   04 20 01

04 30 00  1253-055     15 56 14  20.0 228.3  3.0      26.8    24        55   04 30 00
04 39 30  ---          16 05 45  18.9 230.5  3.1      27.8   570        73   04 30 01

04 40 00  1253-055     16 06 15  18.9 230.6  3.2      27.8    24        73   04 40 00
04 49 30  ---          16 15 47  17.7 232.8  3.3      28.7   570        91   04 40 01

04 50 00  1253-055     16 16 17  17.7 232.9  3.3      28.8    24        91   04 50 00
05 00 00  ---          16 26 19  16.5 235.2  3.5      29.7   600       110   04 50 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
   Matching groups in ./rk01uh_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 56 56.766516       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 52 04.47819        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           139.1

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

ep088ctr

LIRGI - Source group 1 - Run b

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```


```
Observing mode: 1024 Mbps


Schedule for TORUN     (Code Tr )                                   Page   2
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  23 Feb 2014   Day  54 ---

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

21 30 00  J1102+2757   08 59 01  56.0 125.5 -2.1     -33.6     0        0   21 30 00
21 34 50  ---          09 03 52  56.6 127.1 -2.0     -32.8   290       37   21 30 01

21 35 50  IRAS10565    09 04 52  54.1 131.6 -1.9     -29.6    37       37   21 35 50
21 39 30  ---          09 08 33  54.5 132.8 -1.9     -28.9   220       65   21 35 51

21 39 30  J1102+2757   09 08 33  57.1 128.7 -1.9     -32.0   -24       65   No stop
21 40 50  ---          09 09 53  57.3 129.2 -1.9     -31.8    56       76   21 39 31

21 41 50  IRAS10565    09 10 53  54.8 133.6 -1.8     -28.5    36       76   21 41 50
21 45 30  ---          09 14 34  55.2 134.9 -1.8     -27.8   220      104   21 41 51

21 45 30  J1102+2757   09 14 34  57.8 130.9 -1.8     -30.9   -24      104   No stop
21 46 50  ---          09 15 54  58.0 131.3 -1.8     -30.7    56      114   21 45 31

21 46 50  IRAS10565    09 15 54  55.3 135.4 -1.7     -27.6   -24      114   No stop
21 50 30  ---          09 19 35  55.7 136.7 -1.7     -26.9   196      142   21 46 51

21 50 30  J1102+2757   09 19 35  58.4 132.7 -1.7     -30.0   -24      142   No stop
21 51 50  ---          09 20 55  58.5 133.1 -1.7     -29.7    56      152   21 50 31

21 52 50  IRAS10565    09 21 55  55.9 137.6 -1.6     -26.4    36      152   21 52 50
21 56 30  ---          09 25 35  56.3 138.9 -1.6     -25.7   220      180   21 52 51

21 56 30  J1102+2757   09 25 35  59.0 134.9 -1.6     -28.8   -24      180   No stop
21 57 50  ---          09 26 56  59.2 135.4 -1.6     -28.5    56      191   21 56 31

21 57 50  IRAS10565    09 26 56  56.4 139.4 -1.6     -25.4   -24      191   No stop
22 01 30  ---          09 30 36  56.8 140.8 -1.5     -24.7   196      219   21 57 51
```

Schedule for TORUN (Code Tr) Page 3

LIRGI - Source group 1 - Run b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 23 Feb 2014 Day 54 ---										
22 01 30	J1102+2757	09 30 36	59.5	136.8	-1.5		-27.7	-24	219	No stop
22 02 50	---	09 31 57	59.7	137.3	-1.5		-27.4	56	229	22 01 31
22 03 50	IRAS10565	09 32 57	57.0	141.7	-1.5		-24.2	36	229	22 03 50
22 07 30	---	09 36 37	57.3	143.1	-1.4		-23.3	220	257	22 03 51
22 07 30	J1102+2757	09 36 37	60.2	139.2	-1.4		-26.4	-25	257	No stop
22 08 50	---	09 37 58	60.3	139.7	-1.4		-26.1	55	268	22 07 31
22 08 50	IRAS10565	09 37 58	57.5	143.6	-1.4		-23.1	-24	268	No stop
22 12 30	---	09 41 38	57.8	145.0	-1.3		-22.2	196	296	22 08 51
22 12 30	J1102+2757	09 41 38	60.6	141.2	-1.4		-25.2	-25	296	No stop
22 13 50	---	09 42 58	60.8	141.7	-1.3		-24.9	55	306	22 12 31
22 14 50	IRAS10565	09 43 59	58.0	146.0	-1.3		-21.7	35	306	22 14 50
22 18 30	---	09 47 39	58.3	147.4	-1.2		-20.8	220	334	22 14 51
22 18 30	J1102+2757	09 47 39	61.2	143.7	-1.3		-23.7	-25	334	No stop
22 19 50	---	09 48 59	61.3	144.2	-1.2		-23.4	55	344	22 18 31
22 19 50	IRAS10565	09 48 59	58.4	148.0	-1.2		-20.5	-25	344	No stop
22 23 30	---	09 52 40	58.7	149.5	-1.1		-19.6	195	372	22 19 51
22 23 30	J1102+2757	09 52 40	61.6	145.8	-1.2		-22.4	-25	372	No stop
22 24 50	---	09 54 00	61.7	146.4	-1.2		-22.1	55	383	22 23 31
22 25 50	IRAS10565	09 55 00	58.8	150.5	-1.1		-19.0	35	383	22 25 50
22 29 30	---	09 58 41	59.1	152.0	-1.0		-18.0	220	411	22 25 51
22 29 30	J1102+2757	09 58 41	62.1	148.4	-1.1		-20.8	-25	411	No stop
22 30 50	---	10 00 01	62.2	149.0	-1.1		-20.5	55	421	22 29 31
22 30 50	IRAS10565	10 00 01	59.2	152.6	-1.0		-17.7	-25	421	No stop
22 34 30	---	10 03 42	59.5	154.1	-0.9		-16.7	195	449	22 30 51
22 34 30	J1102+2757	10 03 42	62.5	150.7	-1.0		-19.4	-25	449	No stop
22 35 50	---	10 05 02	62.6	151.3	-1.0		-19.1	55	460	22 34 31
22 36 50	IRAS10565	10 06 02	59.6	155.1	-0.9		-16.1	35	460	22 36 50
22 40 30	---	10 09 43	59.8	156.7	-0.8		-15.1	220	488	22 36 51
22 40 30	J1102+2757	10 09 43	62.9	153.4	-0.9		-17.7	-26	488	No stop
22 41 50	---	10 11 03	63.0	154.0	-0.9		-17.3	54	498	22 40 31
22 41 50	IRAS10565	10 11 03	59.9	157.3	-0.8		-14.7	-25	498	No stop
22 45 30	---	10 14 44	60.1	158.9	-0.8		-13.7	195	526	22 41 51

Schedule for TORUN (Code Tr) Page 4

LIRGI - Source group 1 - Run b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 23 Feb 2014 Day 54 ---										
22 45 30	J1102+2757	10 14 44	63.2	155.7	-0.8		-16.2	-26	526	No stop
22 46 50	---	10 16 04	63.3	156.4	-0.8		-15.8	54	536	22 45 31
22 47 50	IRAS10565	10 17 04	60.2	160.0	-0.7		-13.0	34	536	22 47 50
22 51 30	---	10 20 45	60.4	161.6	-0.7		-12.0	220	564	22 47 51
22 51 30	J1102+2757	10 20 45	63.6	158.6	-0.7		-14.3	-26	564	No stop
22 52 50	---	10 22 05	63.7	159.3	-0.7		-13.9	54	575	22 51 31
22 52 50	IRAS10565	10 22 05	60.5	162.2	-0.6		-11.6	-26	575	No stop
22 56 30	---	10 25 45	60.6	163.9	-0.6		-10.5	194	603	22 52 51
22 56 30	J1102+2757	10 25 45	63.9	161.0	-0.6		-12.7	-26	603	No stop
22 57 50	---	10 27 06	63.9	161.7	-0.6		-12.3	54	613	22 56 31
22 58 50	IRAS10565	10 28 06	60.7	165.0	-0.5		-9.8	34	613	22 58 50
23 02 30	---	10 31 46	60.9	166.7	-0.5		-8.7	220	641	22 58 51
23 02 30	J1102+2757	10 31 46	64.1	164.0	-0.5		-10.8	-26	641	No stop
23 03 50	---	10 33 07	64.2	164.7	-0.5		-10.3	54	652	23 02 31
23 03 50	IRAS10565	10 33 07	60.9	167.3	-0.4		-8.3	-26	652	No stop
23 07 30	---	10 36 47	61.0	169.0	-0.4		-7.2	194	680	23 03 51
23 07 30	J1102+2757	10 36 47	64.3	166.5	-0.4		-9.1	-26	680	No stop
23 08 50	---	10 38 07	64.4	167.2	-0.4		-8.7	54	690	23 07 31
23 09 50	IRAS10565	10 39 08	61.1	170.1	-0.3		-6.5	34	690	23 09 50
23 13 30	---	10 42 48	61.2	171.8	-0.3		-5.4	220	718	23 09 51
23 13 30	J1102+2757	10 42 48	64.5	169.6	-0.3		-7.1	-26	718	No stop
23 14 50	---	10 44 08	64.5	170.3	-0.3		-6.6	54	728	23 13 31
23 14 50	IRAS10565	10 44 08	61.2	172.4	-0.3		-5.0	-26	728	No stop
23 18 30	---	10 47 49	61.3	174.2	-0.2		-3.8	194	756	23 14 51
23 18 30	J1102+2757	10 47 49	64.6	172.1	-0.3		-5.3	-26	756	No stop
23 19 50	---	10 49 09	64.6	172.8	-0.2		-4.9	54	767	23 18 31
23 20 50	IRAS10565	10 50 09	61.3	175.3	-0.2		-3.1	34	767	23 20 50
23 24 30	---	10 53 50	61.3	177.0	-0.1		-2.0	220	795	23 20 51
23 24 30	J1102+2757	10 53 50	64.7	175.2	-0.2		-3.2	-27	795	No stop
23 25 50	---	10 55 10	64.7	175.9	-0.1		-2.8	53	805	23 24 31
23 25 50	IRAS10565	10 55 10	61.4	177.7	-0.1		-1.5	-27	805	No stop
23 29 30	---	10 58 51	61.4	179.4	-0.0		-0.4	193	833	23 25 51

```
Schedule for TORUN     (Code Tr )                                Page   5
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  23 Feb 2014   Day  54 ---

23 29 30  J1102+2757   10 58 51  64.8 177.8 -0.1      -1.5   -27      833   No stop
23 30 50  ---          11 00 11  64.8 178.5 -0.0      -1.0    53      844   23 29 31

23 30 50  J1453+2648   11 00 11  39.7  97.6 -3.9     -41.8  -176      844   No stop
23 34 50  ---          11 04 12  40.3  98.5 -3.8     -41.7    64      874   23 30 51

23 35 30  VV340A       11 04 52  38.3  99.8 -3.9     -40.6    18      874   23 35 30
23 39 10  ---          11 08 32  38.9 100.6 -3.8     -40.5   220      902   23 35 31

23 39 10  J1453+2648   11 08 32  41.0  99.4 -3.8     -41.6   -22      902   No stop
23 40 30  ---          11 09 53  41.2  99.7 -3.7     -41.5    58      913   23 39 11

23 41 10  VV340A       11 10 33  39.2 101.1 -3.8     -40.4    18      913   23 41 10
23 44 50  ---          11 14 13  39.7 101.9 -3.7     -40.2   220      941   23 41 11

23 44 50  J1453+2648   11 14 13  41.8 100.7 -3.7     -41.4   -22      941   No stop
23 46 00  ---          11 15 23  42.0 101.0 -3.7     -41.3    48      950   23 44 51

23 46 00  VV340A       11 15 23  39.9 102.2 -3.7     -40.2   -22      950   No stop
23 49 40  ---          11 19 04  40.4 103.0 -3.6     -40.0   198      978   23 46 01

23 49 40  J1453+2648   11 19 04  42.5 101.8 -3.6     -41.2   -22      978   No stop
23 51 00  ---          11 20 24  42.7 102.1 -3.6     -41.1    58      988   23 49 41

23 51 40  VV340A       11 21 04  40.7 103.5 -3.6     -39.9    18      988   23 51 40
23 55 20  ---          11 24 45  41.2 104.3 -3.5     -39.8   220     1016   23 51 41

23 55 20  J1453+2648   11 24 45  43.4 103.1 -3.5     -40.9   -22     1016   No stop
23 56 30  ---          11 25 55  43.5 103.4 -3.5     -40.9    48     1025   23 55 21

 --- Start: Sun  23 Feb 2014   Day  54 -- Stop: Mon  24 Feb 2014   Day  55 ---

23 56 30  VV340A       11 25 55  41.4 104.6 -3.5     -39.7   -22     1025   No stop
00 00 10  ---          11 29 36  42.0 105.4 -3.5     -39.5   198     1053   23 56 31

00 00 10  J1453+2648   11 29 36  44.1 104.3 -3.4     -40.7   -22     1053   No stop
00 01 30  ---          11 30 56  44.3 104.6 -3.4     -40.6    58     1064   00 00 11

00 02 10  VV340A       11 31 36  42.2 105.9 -3.4     -39.4    18     1064   00 02 10
00 05 50  ---          11 35 17  42.8 106.8 -3.4     -39.2   220     1092   00 02 11

00 05 50  J1453+2648   11 35 17  44.9 105.6 -3.3     -40.4   -22     1092   No stop
00 07 00  ---          11 36 27  45.1 105.9 -3.3     -40.3    48     1101   00 05 51

00 07 00  VV340A       11 36 27  42.9 107.1 -3.4     -39.1   -22     1101   No stop
00 10 40  ---          11 40 08  43.5 108.0 -3.3     -38.9   198     1129   00 07 01
```

Schedule for TORUN (Code Tr) Page 6

LIRGI - Source group 1 - Run b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
00 10 40	J1453+2648	11 40 08	45.6	106.8	-3.2		-40.1	-22	1129	No stop
00 12 00	---	11 41 28	45.8	107.1	-3.2		-40.0	58	1139	00 10 41
00 12 40	VV340A	11 42 08	43.8	108.5	-3.3		-38.8	18	1139	00 12 40
00 16 20	---	11 45 48	44.3	109.4	-3.2		-38.5	220	1167	00 12 41
00 16 20	J1453+2648	11 45 48	46.4	108.2	-3.1		-39.7	-22	1167	No stop
00 17 30	---	11 46 59	46.6	108.5	-3.1		-39.6	48	1176	00 16 21
00 17 30	VV340A	11 46 59	44.4	109.7	-3.2		-38.4	-22	1176	No stop
00 21 10	---	11 50 39	45.0	110.6	-3.1		-38.2	198	1204	00 17 31
00 21 10	J1453+2648	11 50 39	47.1	109.4	-3.1		-39.4	-22	1204	No stop
00 22 30	---	11 51 59	47.3	109.7	-3.0		-39.3	58	1215	00 21 11
00 23 10	VV340A	11 52 40	45.2	111.1	-3.1		-38.0	18	1215	00 23 10
00 26 50	---	11 56 20	45.8	112.0	-3.0		-37.7	220	1243	00 23 11
00 26 50	J1453+2648	11 56 20	47.9	110.9	-3.0		-38.9	-22	1243	No stop
00 28 00	---	11 57 30	48.1	111.2	-3.0		-38.8	48	1252	00 26 51
00 28 00	VV340A	11 57 30	45.9	112.3	-3.0		-37.6	-22	1252	No stop
00 31 40	---	12 01 11	46.4	113.3	-2.9		-37.3	198	1280	00 28 01
00 31 40	J1453+2648	12 01 11	48.6	112.1	-2.9		-38.5	-22	1280	No stop
00 33 00	---	12 02 31	48.8	112.5	-2.9		-38.4	58	1290	00 31 41
00 33 40	VV340A	12 03 11	46.7	113.8	-2.9		-37.2	18	1290	00 33 40
00 37 20	---	12 06 52	47.2	114.8	-2.8		-36.8	220	1318	00 33 41
00 37 20	J1453+2648	12 06 52	49.4	113.6	-2.8		-38.0	-22	1318	No stop
00 38 30	---	12 08 02	49.5	114.0	-2.8		-37.9	48	1327	00 37 21
00 38 30	VV340A	12 08 02	47.4	115.1	-2.8		-36.7	-22	1327	No stop
00 42 10	---	12 11 43	47.9	116.1	-2.8		-36.4	198	1356	00 38 31
00 42 10	J1453+2648	12 11 43	50.0	115.0	-2.7		-37.6	-22	1356	No stop
00 43 30	---	12 13 03	50.2	115.3	-2.7		-37.4	58	1366	00 42 11
00 44 10	VV340A	12 13 43	48.1	116.7	-2.7		-36.2	18	1366	00 44 10
00 47 50	---	12 17 24	48.6	117.7	-2.7		-35.8	220	1394	00 44 11
00 47 50	J1453+2648	12 17 24	50.8	116.5	-2.6		-37.0	-22	1394	No stop
00 49 00	---	12 18 34	51.0	116.9	-2.6		-36.9	48	1403	00 47 51

```
Schedule for TORUN     (Code Tr )                                Page   7
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

00 49 00  VV340A       12 18 34  48.8 118.0 -2.7     -35.7   -22     1403   No stop
00 52 40  ---          12 22 14  49.3 119.0 -2.6     -35.3   198     1431   00 49 01

00 52 40  J1453+2648   12 22 14  51.4 117.9 -2.5     -36.5   -22     1431   No stop
00 54 00  ---          12 23 35  51.6 118.3 -2.5     -36.3    58     1441   00 52 41

00 54 40  VV340A       12 24 15  49.5 119.6 -2.6     -35.0    18     1441   00 54 40
00 58 20  ---          12 27 55  50.0 120.7 -2.5     -34.6   220     1469   00 54 41

00 58 20  J1453+2648   12 27 55  52.2 119.6 -2.4     -35.8   -22     1469   No stop
00 59 30  ---          12 29 06  52.3 119.9 -2.4     -35.6    48     1478   00 58 21

00 59 30  VV340A       12 29 06  50.2 121.0 -2.5     -34.5   -22     1478   No stop
01 03 10  ---          12 32 46  50.6 122.1 -2.4     -34.0   198     1507   00 59 31

01 03 10  J1453+2648   12 32 46  52.8 121.0 -2.4     -35.2   -22     1507   No stop
01 04 30  ---          12 34 06  53.0 121.4 -2.3     -35.0    58     1517   01 03 11

01 05 10  VV340A       12 34 46  50.9 122.7 -2.4     -33.7    18     1517   01 05 10
01 08 50  ---          12 38 27  51.3 123.8 -2.3     -33.3   220     1545   01 05 11

01 08 50  J1453+2648   12 38 27  53.5 122.8 -2.3     -34.4   -22     1545   No stop
01 10 00  ---          12 39 37  53.7 123.1 -2.2     -34.3    48     1554   01 08 51

01 10 00  VV340A       12 39 37  51.5 124.2 -2.3     -33.1   -22     1554   No stop
01 13 40  ---          12 43 18  51.9 125.3 -2.2     -32.6   198     1582   01 10 01

01 13 40  J1453+2648   12 43 18  54.2 124.3 -2.2     -33.7   -22     1582   No stop
01 15 00  ---          12 44 38  54.3 124.7 -2.2     -33.6    58     1592   01 13 41

01 15 40  VV340A       12 45 18  52.2 125.9 -2.2     -32.3    18     1592   01 15 40
01 19 20  ---          12 48 59  52.6 127.1 -2.1     -31.8   220     1620   01 15 41

01 19 20  J1453+2648   12 48 59  54.9 126.1 -2.1     -32.9   -22     1620   No stop
01 20 30  ---          12 50 09  55.0 126.5 -2.1     -32.7    48     1629   01 19 21

01 20 30  VV340A       12 50 09  52.8 127.5 -2.1     -31.6   -22     1629   No stop
01 24 10  ---          12 53 50  53.2 128.6 -2.1     -31.0   198     1658   01 20 31

01 24 10  J1453+2648   12 53 50  55.4 127.7 -2.0     -32.1   -22     1658   No stop
01 25 30  ---          12 55 10  55.6 128.2 -2.0     -31.9    58     1668   01 24 11

01 25 30  J1522+3144   12 55 10  56.0 114.1 -2.5     -40.1   -43     1668   No stop
01 27 00  ---          12 56 40  56.2 114.6 -2.4     -39.9    47     1679   01 25 31
```

```
Schedule for TORUN     (Code Tr )                                Page   8
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

01 28 00  IRASF15250   12 57 40  58.8 108.2 -2.5     -44.8    32     1679   01 28 00
01 31 40  ---          13 01 21  59.3 109.2 -2.4     -44.5   220     1708   01 28 01

01 31 40  J1522+3144   13 01 21  56.8 116.0 -2.4     -39.4   -29     1708   No stop
01 33 05  ---          13 02 46  57.0 116.4 -2.3     -39.2    56     1718   01 31 41

01 34 05  IRASF15250   13 03 46  59.6 109.9 -2.4     -44.2    32     1718   01 34 05
01 37 45  ---          13 07 27  60.2 111.0 -2.3     -43.8   220     1747   01 34 06

01 37 45  J1522+3144   13 07 27  57.6 117.8 -2.3     -38.6   -29     1747   No stop
01 39 15  ---          13 08 57  57.8 118.3 -2.2     -38.4    61     1758   01 37 46

01 39 15  IRASF15250   13 08 57  60.4 111.4 -2.3     -43.7   -29     1758   No stop
01 42 55  ---          13 12 38  60.9 112.5 -2.2     -43.2   191     1786   01 39 16

01 42 55  J1522+3144   13 12 38  58.3 119.4 -2.2     -37.9   -29     1786   No stop
01 44 20  ---          13 14 03  58.5 119.9 -2.1     -37.7    56     1797   01 42 56

01 45 20  IRASF15250   13 15 03  61.2 113.2 -2.2     -43.0    31     1797   01 45 20
01 49 00  ---          13 18 44  61.7 114.4 -2.1     -42.5   220     1825   01 45 21

01 49 00  J1522+3144   13 18 44  59.1 121.4 -2.1     -37.0   -29     1825   No stop
01 50 30  ---          13 20 14  59.3 121.9 -2.0     -36.8    61     1837   01 49 01

01 50 30  IRASF15250   13 20 14  61.9 114.9 -2.1     -42.3   -29     1837   No stop
01 54 10  ---          13 23 55  62.4 116.0 -2.1     -41.8   191     1865   01 50 31

01 54 10  J1522+3144   13 23 55  59.7 123.2 -2.0     -36.2   -30     1865   No stop
01 55 35  ---          13 25 20  59.9 123.7 -2.0     -36.0    55     1876   01 54 11

01 56 35  IRASF15250   13 26 20  62.7 116.8 -2.0     -41.4    31     1876   01 56 35
02 00 15  ---          13 30 01  63.2 118.1 -2.0     -40.9   220     1904   01 56 36

02 00 15  J1522+3144   13 30 01  60.5 125.3 -1.9     -35.2   -30     1904   No stop
02 01 45  ---          13 31 31  60.7 125.8 -1.9     -34.9    60     1916   02 00 16

02 01 45  IRASF15250   13 31 31  63.4 118.6 -1.9     -40.6   -29     1916   No stop
02 05 25  ---          13 35 11  63.9 119.9 -1.9     -40.0   191     1944   02 01 46

02 05 25  J1522+3144   13 35 11  61.1 127.1 -1.8     -34.2   -30     1944   No stop
02 06 50  ---          13 36 37  61.3 127.7 -1.8     -34.0    55     1955   02 05 26

02 07 50  IRASF15250   13 37 37  64.2 120.7 -1.8     -39.6    31     1955   02 07 50
02 11 30  ---          13 41 17  64.7 122.1 -1.8     -38.9   220     1983   02 07 51
```

```
Schedule for TORUN     (Code Tr )                                Page   9
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

02 11 30  J1522+3144   13 41 17  61.9 129.4 -1.7     -33.0   -30     1983   No stop
02 13 00  ---          13 42 48  62.0 130.0 -1.7     -32.7    60     1994   02 11 31

02 13 00  IRASF15250   13 42 48  64.9 122.6 -1.7     -38.6   -29     1994   No stop
02 16 40  ---          13 46 28  65.4 124.0 -1.7     -37.9   191     2022   02 13 01

02 16 40  J1522+3144   13 46 28  62.4 131.4 -1.6     -32.0   -30     2022   No stop
02 18 05  ---          13 47 53  62.6 131.9 -1.6     -31.7    55     2033   02 16 41

02 19 05  IRASF15250   13 48 54  65.7 124.9 -1.6     -37.4    31     2033   02 19 05
02 22 45  ---          13 52 34  66.1 126.4 -1.6     -36.6   220     2061   02 19 06

02 22 45  J1522+3144   13 52 34  63.1 133.8 -1.5     -30.6   -30     2061   No stop
02 24 15  ---          13 54 04  63.3 134.4 -1.5     -30.3    60     2073   02 22 46

02 24 15  IRASF15250   13 54 04  66.3 127.0 -1.6     -36.3   -30     2073   No stop
02 27 55  ---          13 57 45  66.7 128.5 -1.5     -35.5   190     2101   02 24 16

02 27 55  J1522+3144   13 57 45  63.7 135.9 -1.4     -29.4   -30     2101   No stop
02 29 20  ---          13 59 10  63.8 136.5 -1.4     -29.0    55     2112   02 27 56

02 30 20  IRASF15250   14 00 10  67.0 129.5 -1.5     -34.9    30     2112   02 30 20
02 34 00  ---          14 03 51  67.4 131.1 -1.4     -34.0   220     2140   02 30 21

02 34 00  J1522+3144   14 03 51  64.3 138.5 -1.3     -27.9   -30     2140   No stop
02 35 30  ---          14 05 21  64.4 139.2 -1.3     -27.5    60     2152   02 34 01

02 35 30  IRASF15250   14 05 21  67.6 131.8 -1.4     -33.6   -29     2152   No stop
02 39 10  ---          14 09 02  68.0 133.4 -1.3     -32.6   191     2180   02 35 31

02 39 10  J1522+3144   14 09 02  64.8 140.8 -1.2     -26.5   -30     2180   No stop
02 40 35  ---          14 10 27  64.9 141.5 -1.2     -26.1    55     2191   02 39 11

02 41 35  IRASF15250   14 11 27  68.3 134.6 -1.3     -31.9    31     2191   02 41 35
02 45 15  ---          14 15 08  68.6 136.3 -1.2     -30.8   220     2219   02 41 36

02 45 15  J1522+3144   14 15 08  65.4 143.6 -1.1     -24.8   -30     2219   No stop
02 46 45  ---          14 16 38  65.5 144.3 -1.1     -24.3    60     2230   02 45 16

02 46 45  IRASF15250   14 16 38  68.8 137.0 -1.2     -30.4   -29     2230   No stop
02 50 25  ---          14 20 19  69.2 138.8 -1.1     -29.2   191     2259   02 46 46

02 50 25  J1522+3144   14 20 19  65.8 146.0 -1.0     -23.2   -30     2259   No stop
02 51 50  ---          14 21 44  65.9 146.7 -1.0     -22.8    55     2269   02 50 26
```

Schedule for TORUN (Code Tr) Page 10

LIRGI - Source group 1 - Run b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
02 52 50	IRASF15250	14 22 44	69.4	140.0	-1.1		-28.5	31	2269	02 52 50
02 56 30	---	14 26 25	69.8	141.9	-1.0		-27.2	220	2298	02 52 51
02 56 30	J1522+3144	14 26 25	66.3	149.0	-0.9		-21.3	-30	2298	No stop
02 58 00	---	14 27 55	66.4	149.7	-0.9		-20.8	60	2309	02 56 31
02 58 00	IRASF15250	14 27 55	69.9	142.7	-1.0		-26.7	-29	2309	No stop
03 01 40	---	14 31 36	70.2	144.7	-0.9		-25.4	191	2337	02 58 01
03 01 40	J1522+3144	14 31 36	66.7	151.6	-0.9		-19.6	-29	2337	No stop
03 03 05	---	14 33 01	66.8	152.3	-0.8		-19.1	56	2348	03 01 41
03 04 05	IRASF15250	14 34 01	70.4	146.0	-0.9		-24.5	32	2348	03 04 05
03 07 45	---	14 37 42	70.7	148.0	-0.8		-23.1	220	2376	03 04 06
03 07 45	J1522+3144	14 37 42	67.1	154.7	-0.8		-17.5	-29	2376	No stop
03 09 15	---	14 39 12	67.2	155.5	-0.7		-17.0	61	2388	03 07 46
03 09 15	IRASF15250	14 39 12	70.8	148.9	-0.8		-22.5	-28	2388	No stop
03 12 55	---	14 42 52	71.1	151.0	-0.7		-21.1	192	2416	03 09 16
03 12 55	J1522+3144	14 42 52	67.4	157.5	-0.7		-15.7	-28	2416	No stop
03 14 20	---	14 44 18	67.5	158.2	-0.6		-15.2	57	2427	03 12 56
03 15 20	IRASF15250	14 45 18	71.3	152.4	-0.7		-20.1	32	2427	03 15 20
03 19 00	---	14 48 58	71.5	154.6	-0.6		-18.5	220	2455	03 15 21
03 19 00	J1522+3144	14 48 58	67.7	160.7	-0.6		-13.5	-28	2455	No stop
03 20 30	---	14 50 29	67.8	161.6	-0.5		-12.9	62	2467	03 19 01
03 20 30	IRASF15250	14 50 29	71.6	155.5	-0.6		-17.9	-28	2467	No stop
03 24 10	---	14 54 09	71.9	157.8	-0.6		-16.3	192	2495	03 20 31
03 24 10	J1522+3144	14 54 09	68.0	163.6	-0.5		-11.5	-28	2495	No stop
03 25 40	---	14 55 40	68.0	164.4	-0.5		-10.9	62	2506	03 24 11
03 25 40	J1824+5651	14 55 40	60.6	61.5	-3.5		-74.8	-220	2506	No stop
03 30 00	---	15 00 00	61.1	61.8	-3.4		-75.4	40	2540	03 25 41
03 31 00	NGC6670A	15 01 00	60.7	55.2	-3.5		-79.4	32	2540	03 31 00
03 34 40	---	15 04 41	61.2	55.4	-3.5		-80.1	220	2568	03 31 01
03 34 40	J1824+5651	15 04 41	61.8	62.1	-3.3		-76.1	-29	2568	No stop
03 36 00	---	15 06 01	61.9	62.2	-3.3		-76.3	51	2578	03 34 41

```
Schedule for TORUN     (Code Tr )                                Page  11
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

03 37 00  NGC6670A     15 07 01  61.5  55.5 -3.4     -80.5    31     2578   03 37 00
03 40 40  ---          15 10 42  61.9  55.6 -3.4     -81.1   220     2606   03 37 01

03 40 40  J1824+5651   15 10 42  62.6  62.5 -3.2     -77.0   -29     2606   No stop
03 42 00  ---          15 12 02  62.7  62.6 -3.2     -77.2    51     2616   03 40 41

03 42 00  NGC6670A     15 12 02  62.1  55.7 -3.4     -81.4   -29     2616   No stop
03 45 40  ---          15 15 43  62.5  55.8 -3.3     -82.0   191     2644   03 42 01

03 45 40  J1824+5651   15 15 43  63.2  62.9 -3.1     -77.8   -29     2644   No stop
03 47 00  ---          15 17 03  63.4  62.9 -3.1     -78.0    51     2655   03 45 41

03 48 00  NGC6670A     15 18 03  62.8  55.9 -3.3     -82.5    31     2655   03 48 00
03 51 40  ---          15 21 44  63.3  56.0 -3.2     -83.2   220     2683   03 48 01

03 51 40  J1824+5651   15 21 44  64.0  63.2 -3.0     -78.7   -29     2683   No stop
03 53 00  ---          15 23 04  64.2  63.3 -3.0     -78.9    51     2693   03 51 41

03 53 00  NGC6670A     15 23 04  63.5  56.1 -3.2     -83.4   -29     2693   No stop
03 56 40  ---          15 26 45  63.9  56.2 -3.1     -84.1   191     2721   03 53 01

03 56 40  J1824+5651   15 26 45  64.7  63.5 -3.0     -79.5   -30     2721   No stop
03 58 00  ---          15 28 05  64.9  63.6 -2.9     -79.7    50     2732   03 56 41

03 59 00  NGC6670A     15 29 05  64.2  56.2 -3.1     -84.6    30     2732   03 59 00
04 02 40  ---          15 32 46  64.7  56.3 -3.0     -85.3   220     2760   03 59 01

04 02 40  J1824+5651   15 32 46  65.5  63.9 -2.9     -80.4   -30     2760   No stop
04 04 00  ---          15 34 06  65.7  63.9 -2.8     -80.7    50     2770   04 02 41

04 04 00  NGC6670A     15 34 06  64.8  56.4 -3.0     -85.5   -30     2770   No stop
04 07 40  ---          15 37 46  65.3  56.5 -2.9     -86.2   190     2798   04 04 01

04 07 40  J1824+5651   15 37 46  66.2  64.1 -2.8     -81.2   -30     2798   No stop
04 09 00  ---          15 39 07  66.4  64.2 -2.8     -81.5    50     2808   04 07 41

04 10 00  NGC6670A     15 40 07  65.6  56.5 -2.9     -86.7    30     2808   04 10 00
04 13 40  ---          15 43 47  66.0  56.6 -2.8     -87.5   220     2836   04 10 01

04 13 40  J1824+5651   15 43 47  67.0  64.4 -2.7     -82.2   -31     2836   No stop
04 15 00  ---          15 45 08  67.2  64.5 -2.7     -82.5    49     2847   04 13 41

04 15 00  NGC6670A     15 45 08  66.2  56.6 -2.8     -87.7   -31     2847   No stop
04 18 40  ---          15 48 48  66.7  56.6 -2.7     -88.5   189     2875   04 15 01

04 18 40  J1824+5651   15 48 48  67.7  64.7 -2.6     -83.1   -31     2875   No stop
04 20 00  ---          15 50 08  67.9  64.7 -2.6     -83.3    49     2885   04 18 41
```

Schedule for TORUN (Code Tr) Page 12

LIRGI - Source group 1 - Run b

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

Start UT	Source	Start / Stop						Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Mon 24 Feb 2014 Day 55 ---										
04 21 00	NGC6670A	15 51 09	67.0	56.6	-2.7		-89.0	29	2885	04 21 00
04 24 40	---	15 54 49	67.4	56.6	-2.6		-89.8	220	2913	04 21 01
04 24 40	J1824+5651	15 54 49	68.5	64.9	-2.5		-84.1	-32	2913	No stop
04 26 00	---	15 56 09	68.7	65.0	-2.5		-84.3	48	2924	04 24 41
04 26 00	NGC6670A	15 56 09	67.6	56.6	-2.6		-90.1	-32	2924	No stop
04 29 40	---	15 59 50	68.1	56.6	-2.6		-90.9	188	2952	04 26 01
04 29 40	J1824+5651	15 59 50	69.2	65.1	-2.4		-85.0	-32	2952	No stop
04 31 00	---	16 01 10	69.4	65.1	-2.4		-85.2	48	2962	04 29 41
04 32 00	NGC6670A	16 02 10	68.3	56.6	-2.5		-91.4	28	2962	04 32 00
04 35 40	---	16 05 51	68.8	56.6	-2.5		-92.2	220	2990	04 32 01
04 35 40	J1824+5651	16 05 51	70.0	65.3	-2.3		-86.1	-32	2990	No stop
04 37 00	---	16 07 11	70.2	65.3	-2.3		-86.3	48	3000	04 35 41
04 37 00	NGC6670A	16 07 11	69.0	56.6	-2.4		-92.5	-33	3000	No stop
04 40 40	---	16 10 52	69.4	56.5	-2.4		-93.4	187	3028	04 37 01
04 40 40	J1824+5651	16 10 52	70.7	65.4	-2.2		-87.0	-33	3028	No stop
04 42 00	---	16 12 12	70.9	65.4	-2.2		-87.3	47	3039	04 40 41
04 43 00	NGC6670A	16 13 12	69.7	56.4	-2.3		-93.9	27	3039	04 43 00
04 46 40	---	16 16 53	70.2	56.3	-2.3		-94.8	220	3067	04 43 01
04 46 40	J1824+5651	16 16 53	71.5	65.5	-2.1		-88.2	-33	3067	No stop
04 48 00	---	16 18 13	71.7	65.5	-2.1		-88.4	47	3077	04 46 41
04 48 00	NGC6670A	16 18 13	70.4	56.3	-2.3		-95.1	-34	3077	No stop
04 51 40	---	16 21 54	70.8	56.2	-2.2		-96.1	186	3105	04 48 01
04 51 40	J1824+5651	16 21 54	72.2	65.6	-2.0		-89.2	-34	3105	No stop
04 53 00	---	16 23 14	72.4	65.6	-2.0		-89.4	46	3116	04 51 41
04 54 00	NGC6670A	16 24 14	71.1	56.1	-2.2		-96.7	26	3116	04 54 00
04 57 40	---	16 27 55	71.6	55.9	-2.1		-97.6	220	3144	04 54 01
04 57 40	J1824+5651	16 27 55	73.0	65.6	-1.9		-90.4	-34	3144	No stop
04 59 00	---	16 29 15	73.2	65.6	-1.9		-90.7	46	3154	04 57 41
04 59 00	NGC6670A	16 29 15	71.7	55.8	-2.1		-98.0	-35	3154	No stop
05 02 40	---	16 32 56	72.2	55.6	-2.0		-99.0	185	3182	04 59 01
05 02 40	J1824+5651	16 32 56	73.7	65.5	-1.9		-91.5	-35	3182	No stop
05 04 00	---	16 34 16	73.9	65.5	-1.8		-91.8	45	3192	05 02 41

```
Schedule for TORUN     (Code Tr )                                Page  13
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

05 05 00  NGC6670A     16 35 16  72.5  55.4 -2.0     -99.7    25     3192   05 05 00
05 08 40  ---          16 38 56  72.9  55.2 -1.9    -100.7   220     3220   05 05 01

05 08 40  J1824+5651   16 38 56  74.5  65.4 -1.8     -92.9   -36     3220   No stop
05 10 00  ---          16 40 17  74.7  65.4 -1.7     -93.2    44     3231   05 08 41

05 10 00  NGC6670A     16 40 17  73.1  55.0 -1.9    -101.1   -36     3231   No stop
05 13 40  ---          16 43 57  73.5  54.7 -1.8    -102.2   184     3259   05 10 01

05 13 40  J1824+5651   16 43 57  75.2  65.3 -1.7     -94.1   -36     3259   No stop
05 15 00  ---          16 45 18  75.4  65.2 -1.7     -94.4    44     3269   05 13 41

05 16 00  NGC6670A     16 46 18  73.8  54.5 -1.8    -102.9    24     3269   05 16 00
05 19 40  ---          16 49 58  74.3  54.1 -1.7    -104.1   220     3297   05 16 01

05 19 40  J1824+5651   16 49 58  76.0  65.0 -1.6     -95.6   -37     3297   No stop
05 21 00  ---          16 51 19  76.2  64.9 -1.6     -96.0    43     3308   05 19 41

05 21 00  NGC6670A     16 51 19  74.4  53.9 -1.7    -104.5   -37     3308   No stop
05 24 40  ---          16 54 59  74.9  53.5 -1.6    -105.8   183     3336   05 21 01

05 24 40  J1824+5651   16 54 59  76.7  64.7 -1.5     -97.0   -37     3336   No stop
05 26 05  ---          16 56 24  76.9  64.6 -1.5     -97.4    48     3347   05 24 41

05 26 45  J2108+1430   16 57 04  27.7 103.0 -4.2     -37.2  -157     3347   05 26 45
05 31 30  ---          17 01 50  28.4 104.1 -4.1     -37.0   128     3383   05 26 46

05 32 10  CGCG448      17 02 30  32.2 104.9 -3.9     -37.4    12     3383   05 32 10
05 35 50  ---          17 06 11  32.7 105.7 -3.9     -37.2   220     3411   05 32 11

05 35 50  J2108+1430   17 06 11  29.0 105.0 -4.1     -36.8   -28     3411   No stop
05 37 05  ---          17 07 26  29.2 105.3 -4.0     -36.8    47     3421   05 35 51

05 37 45  CGCG448      17 08 06  33.0 106.1 -3.8     -37.1    12     3421   05 37 45
05 41 23  ---          17 11 45  33.5 107.0 -3.8     -37.0   218     3449   05 37 46

05 41 23  J2108+1430   17 11 45  29.8 106.3 -4.0     -36.6   -28     3449   No stop
05 42 38  ---          17 13 00  30.0 106.5 -3.9     -36.5    47     3458   05 41 24

05 42 38  CGCG448      17 13 00  33.7 107.3 -3.8     -36.9   -28     3458   No stop
05 46 17  ---          17 16 40  34.2 108.1 -3.7     -36.7   191     3486   05 42 39

05 46 17  J2108+1430   17 16 40  30.5 107.4 -3.9     -36.3   -28     3486   No stop
05 47 32  ---          17 17 55  30.7 107.6 -3.9     -36.2    47     3496   05 46 18

05 48 12  CGCG448      17 18 35  34.5 108.6 -3.7     -36.6    12     3496   05 48 12
05 51 50  ---          17 22 14  35.0 109.4 -3.6     -36.4   218     3524   05 48 13
```

```
Schedule for TORUN     (Code Tr )                                Page  14
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

05 51 50  J2108+1430   17 22 14  31.3 108.6 -3.8     -36.0   -28     3524   No stop
05 53 05  ---          17 23 29  31.5 108.9 -3.8     -35.9    47     3533   05 51 51

05 53 05  CGCG448      17 23 29  35.2 109.7 -3.6     -36.3   -28     3533   No stop
05 56 44  ---          17 27 08  35.7 110.6 -3.5     -36.0   191     3561   05 53 06

05 56 44  J2108+1430   17 27 08  32.0 109.8 -3.7     -35.7   -28     3561   No stop
05 57 59  ---          17 28 24  32.2 110.1 -3.7     -35.6    47     3571   05 56 45

05 58 39  CGCG448      17 29 04  36.0 111.0 -3.5     -35.9    12     3571   05 58 39
06 02 17  ---          17 32 42  36.5 111.9 -3.4     -35.7   218     3599   05 58 40

06 02 17  J2108+1430   17 32 42  32.8 111.1 -3.6     -35.4   -28     3599   No stop
06 03 32  ---          17 33 58  33.0 111.4 -3.6     -35.3    47     3609   06 02 18

06 03 32  CGCG448      17 33 58  36.7 112.2 -3.4     -35.6   -28     3609   No stop
06 07 11  ---          17 37 37  37.2 113.1 -3.3     -35.3   191     3637   06 03 33

06 07 11  J2108+1430   17 37 37  33.5 112.2 -3.5     -35.1   -28     3637   No stop
06 08 26  ---          17 38 52  33.6 112.5 -3.5     -35.0    47     3646   06 07 12

06 09 06  CGCG448      17 39 32  37.4 113.6 -3.3     -35.2    12     3646   06 09 06
06 12 44  ---          17 43 11  37.9 114.5 -3.2     -34.9   218     3674   06 09 07

06 12 44  J2108+1430   17 43 11  34.2 113.6 -3.4     -34.7   -28     3674   No stop
06 13 59  ---          17 44 26  34.4 113.9 -3.4     -34.6    47     3684   06 12 45

06 13 59  CGCG448      17 44 26  38.1 114.8 -3.2     -34.8   -28     3684   No stop
06 17 38  ---          17 48 06  38.6 115.7 -3.2     -34.5   191     3712   06 14 00

06 17 38  J2108+1430   17 48 06  34.9 114.7 -3.4     -34.3   -28     3712   No stop
06 18 53  ---          17 49 21  35.1 115.0 -3.3     -34.2    47     3721   06 17 39

06 19 33  CGCG448      17 50 01  38.9 116.2 -3.1     -34.3    12     3721   06 19 33
06 23 11  ---          17 53 40  39.3 117.1 -3.1     -34.0   218     3749   06 19 34

06 23 11  J2108+1430   17 53 40  35.7 116.1 -3.3     -33.9   -28     3749   No stop
06 24 26  ---          17 54 55  35.8 116.4 -3.2     -33.8    47     3759   06 23 12

06 24 26  CGCG448      17 54 55  39.5 117.4 -3.1     -33.9   -28     3759   No stop
06 28 05  ---          17 58 35  40.0 118.4 -3.0     -33.6   191     3787   06 24 27

06 28 05  J2108+1430   17 58 35  36.3 117.3 -3.2     -33.4   -28     3787   No stop
06 29 20  ---          17 59 50  36.5 117.6 -3.2     -33.3    47     3796   06 28 06

06 30 00  CGCG448      18 00 30  40.3 118.9 -3.0     -33.4    12     3796   06 30 00
06 33 38  ---          18 04 08  40.7 119.8 -2.9     -33.0   218     3824   06 30 01
```

Schedule for TORUN (Code Tr) Page 15

LIRGI - Source group 1 - Run b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
06 33 38	J2108+1430	18 04 08	37.1	118.7	-3.1		-33.0	-27	3824	No stop
06 34 53	---	18 05 24	37.2	119.1	-3.1		-32.8	48	3834	06 33 39
06 34 53	CGCG448	18 05 24	40.9	120.2	-2.9		-32.9	-28	3834	No stop
06 38 32	---	18 09 03	41.4	121.1	-2.8		-32.5	191	3862	06 34 54
06 38 32	J2108+1430	18 09 03	37.7	120.0	-3.0		-32.5	-27	3862	No stop
06 39 47	---	18 10 18	37.9	120.3	-3.0		-32.4	48	3872	06 38 33
06 40 27	CGCG448	18 10 59	41.6	121.7	-2.8		-32.3	12	3872	06 40 27
06 44 05	---	18 14 37	42.1	122.6	-2.7		-32.0	218	3900	06 40 28
06 44 05	J2108+1430	18 14 37	38.4	121.4	-2.9		-32.0	-27	3900	No stop
06 45 20	---	18 15 52	38.6	121.8	-2.9		-31.8	48	3909	06 44 06
06 45 20	CGCG448	18 15 52	42.2	123.0	-2.7		-31.8	-28	3909	No stop
06 48 59	---	18 19 32	42.7	124.0	-2.6		-31.4	191	3937	06 45 21
06 48 59	J2108+1430	18 19 32	39.0	122.7	-2.8		-31.5	-27	3937	No stop
06 50 14	---	18 20 47	39.2	123.1	-2.8		-31.3	48	3947	06 49 00
06 50 54	CGCG448	18 21 27	42.9	124.5	-2.6		-31.2	12	3947	06 50 54
06 54 32	---	18 25 06	43.4	125.6	-2.5		-30.8	218	3975	06 50 55
06 54 32	J2108+1430	18 25 06	39.7	124.2	-2.7		-30.9	-27	3975	No stop
06 55 47	---	18 26 21	39.9	124.6	-2.7		-30.7	48	3984	06 54 33
06 55 47	CGCG448	18 26 21	43.5	125.9	-2.5		-30.6	-28	3984	No stop
06 59 26	---	18 30 01	44.0	127.0	-2.5		-30.2	191	4012	06 55 48
06 59 26	J2108+1430	18 30 01	40.3	125.6	-2.7		-30.3	-27	4012	No stop
07 00 41	---	18 31 16	40.5	125.9	-2.6		-30.2	48	4022	06 59 27
07 01 21	CGCG448	18 31 56	44.2	127.5	-2.4		-29.9	12	4022	07 01 21
07 04 59	---	18 35 35	44.6	128.6	-2.4		-29.4	218	4050	07 01 22
07 04 59	J2108+1430	18 35 35	41.0	127.1	-2.6		-29.7	-27	4050	No stop
07 06 14	---	18 36 50	41.2	127.5	-2.5		-29.5	48	4059	07 05 00
07 06 14	CGCG448	18 36 50	44.8	128.9	-2.4		-29.3	-28	4059	No stop
07 09 53	---	18 40 29	45.2	130.0	-2.3		-28.8	191	4087	07 06 15
07 09 53	J2108+1430	18 40 29	41.6	128.5	-2.5		-29.1	-27	4087	No stop
07 11 08	---	18 41 45	41.7	128.8	-2.5		-28.9	48	4097	07 09 54
07 11 48	CGCG448	18 42 25	45.4	130.6	-2.3		-28.5	12	4097	07 11 48
07 15 26	---	18 46 03	45.8	131.7	-2.2		-28.0	218	4125	07 11 49

Schedule for TORUN (Code Tr) Page 16

LIRGI - Source group 1 - Run b

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
07 15 26	J2108+1430	18 46 03	42.2	130.1	-2.4		-28.3	-27	4125	No stop
07 16 41	---	18 47 19	42.4	130.4	-2.4		-28.2	48	4135	07 15 27
07 16 41	CGCG448	18 47 19	46.0	132.1	-2.2		-27.8	-27	4135	No stop
07 20 20	---	18 50 58	46.4	133.2	-2.1		-27.3	192	4163	07 16 42
07 20 20	J2108+1430	18 50 58	42.8	131.5	-2.3		-27.7	-27	4163	No stop
07 21 40	---	18 52 18	43.0	131.9	-2.3		-27.5	53	4173	07 20 21
07 22 20	3C454.3	18 52 58	30.5	104.2	-4.0		-37.3	-30	4173	07 22 20
07 25 10	---	18 55 49	30.9	104.8	-4.0		-37.2	140	4195	07 22 21
07 25 10	3C454.3	18 55 49	30.9	104.8	-4.0		-37.2	-5	4195	No stop
07 27 15	---	18 57 54	31.2	105.3	-3.9		-37.1	120	4211	07 25 11
07 27 55	J1549+5038	18 58 34	61.3	284.3	3.1		66.4	-335	4211	07 27 55
07 36 00	---	19 06 41	60.1	285.4	3.3		65.8	150	4273	07 27 56
07 36 40	NGC6090A	19 07 21	63.9	286.4	2.9		70.9	12	4273	07 36 40
07 40 20	---	19 11 01	63.4	286.8	3.0		70.5	220	4301	07 36 41
07 40 20	J1549+5038	19 11 01	59.4	286.0	3.4		65.4	-29	4301	No stop
07 41 40	---	19 12 22	59.3	286.1	3.4		65.3	51	4311	07 40 21
07 42 20	NGC6090A	19 13 02	63.1	287.0	3.0		70.3	12	4311	07 42 20
07 46 00	---	19 16 42	62.5	287.4	3.1		69.9	220	4339	07 42 21
07 46 00	J1549+5038	19 16 42	58.6	286.7	3.5		64.9	-29	4339	No stop
07 47 20	---	19 18 03	58.4	286.9	3.5		64.8	51	4349	07 46 01
07 47 20	NGC6090A	19 18 03	62.3	287.6	3.1		69.8	-28	4349	No stop
07 51 00	---	19 21 43	61.8	288.0	3.2		69.5	192	4378	07 47 21
07 51 00	J1549+5038	19 21 43	57.9	287.4	3.5		64.5	-29	4378	No stop
07 52 20	---	19 23 03	57.7	287.5	3.6		64.4	51	4388	07 51 01
07 53 00	NGC6090A	19 23 43	61.5	288.2	3.2		69.3	12	4388	07 53 00
07 56 40	---	19 27 24	61.0	288.6	3.3		68.9	220	4416	07 53 01
07 56 40	J1549+5038	19 27 24	57.1	288.1	3.6		64.0	-29	4416	No stop
07 58 00	---	19 28 44	56.9	288.3	3.7		63.9	51	4426	07 56 41
07 58 00	NGC6090A	19 28 44	60.8	288.8	3.3		68.8	-28	4426	No stop
08 01 40	---	19 32 25	60.3	289.2	3.3		68.4	192	4454	07 58 01
08 01 40	J1549+5038	19 32 25	56.4	288.7	3.7		63.6	-29	4454	No stop
08 03 00	---	19 33 45	56.2	288.9	3.7		63.5	51	4465	08 01 41

```
Schedule for TORUN     (Code Tr )                                Page  17
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

08 03 40  NGC6090A     19 34 25  60.0 289.4  3.4      68.2    12     4465   08 03 40
08 07 20  ---          19 38 06  59.5 289.9  3.4      67.8   220     4493   08 03 41

08 07 20  J1549+5038   19 38 06  55.6 289.4  3.8      63.1   -29     4493   No stop
08 08 40  ---          19 39 26  55.4 289.6  3.8      63.0    51     4503   08 07 21

08 08 40  NGC6090A     19 39 26  59.3 290.0  3.5      67.7   -28     4503   No stop
08 12 20  ---          19 43 07  58.8 290.4  3.5      67.3   192     4531   08 08 41

08 12 20  J1549+5038   19 43 07  54.9 290.1  3.9      62.7   -29     4531   No stop
08 13 40  ---          19 44 27  54.7 290.2  3.9      62.5    51     4541   08 12 21

08 14 20  NGC6090A     19 45 07  58.5 290.6  3.6      67.1    12     4541   08 14 20
08 18 00  ---          19 48 48  58.0 291.1  3.6      66.7   220     4570   08 14 21

08 18 00  J1549+5038   19 48 48  54.1 290.8  4.0      62.2   -29     4570   No stop
08 19 20  ---          19 50 08  53.9 291.0  4.0      62.0    51     4580   08 18 01

08 19 20  NGC6090A     19 50 08  57.8 291.2  3.6      66.6   -28     4580   No stop
08 23 00  ---          19 53 48  57.3 291.6  3.7      66.2   192     4608   08 19 21

08 23 00  J1549+5038   19 53 48  53.4 291.4  4.1      61.7   -29     4608   No stop
08 24 20  ---          19 55 09  53.2 291.6  4.1      61.6    51     4618   08 23 01

08 25 00  NGC6090A     19 55 49  57.0 291.9  3.7      66.0    12     4618   08 25 00
08 28 40  ---          19 59 29  56.5 292.3  3.8      65.6   220     4646   08 25 01

08 28 40  J1549+5038   19 59 29  52.6 292.1  4.2      61.2   -29     4646   No stop
08 30 00  ---          20 00 50  52.4 292.3  4.2      61.0    51     4657   08 28 41

08 30 00  NGC6090A     20 00 50  56.3 292.4  3.8      65.5   -28     4657   No stop
08 33 40  ---          20 04 30  55.8 292.9  3.9      65.1   192     4685   08 30 01

08 33 40  J1549+5038   20 04 30  51.9 292.8  4.2      60.7   -29     4685   No stop
08 35 00  ---          20 05 50  51.7 292.9  4.3      60.6    51     4695   08 33 41

08 36 00  NGC6090A     20 06 51  55.5 293.1  3.9      64.9    32     4695   08 36 00
08 39 40  ---          20 10 31  55.0 293.5  4.0      64.5   220     4723   08 36 01

08 39 40  J1549+5038   20 10 31  51.0 293.5  4.3      60.1   -29     4723   No stop
08 41 00  ---          20 11 51  50.9 293.7  4.4      60.0    51     4733   08 39 41

08 41 00  NGC6090A     20 11 51  54.8 293.7  4.0      64.4   -28     4733   No stop
08 44 40  ---          20 15 32  54.3 294.1  4.1      64.0   192     4762   08 41 01

08 44 40  J1549+5038   20 15 32  50.4 294.2  4.4      59.6   -29     4762   No stop
08 46 00  ---          20 16 52  50.2 294.3  4.5      59.5    51     4772   08 44 41
```

```
Schedule for TORUN     (Code Tr )                                Page  18
               LIRGI - Source group 1 - Run b
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

08 47 00  NGC6090A     20 17 52  54.0 294.4  4.1      63.7    32     4772   08 47 00
08 50 40  ---          20 21 33  53.5 294.8  4.2      63.3   220     4800   08 47 01

08 50 40  J1549+5038   20 21 33  49.5 294.9  4.5      59.1   -29     4800   No stop
08 52 00  ---          20 22 53  49.4 295.1  4.6      58.9    51     4810   08 50 41

08 52 00  NGC6090A     20 22 53  53.3 295.0  4.2      63.2   -28     4810   No stop
08 55 40  ---          20 26 34  52.8 295.4  4.2      62.8   192     4838   08 52 01

08 55 40  J1549+5038   20 26 34  48.9 295.6  4.6      58.6   -29     4838   No stop
08 57 00  ---          20 27 54  48.7 295.7  4.6      58.4    51     4849   08 55 41

08 58 00  NGC6090A     20 28 54  52.5 295.7  4.3      62.6    32     4849   08 58 00
09 01 40  ---          20 32 35  52.0 296.1  4.3      62.2   220     4877   08 58 01

09 01 40  J1549+5038   20 32 35  48.0 296.3  4.7      58.0   -29     4877   No stop
09 03 00  ---          20 33 55  47.9 296.5  4.7      57.8    51     4887   09 01 41

09 03 00  NGC6090A     20 33 55  51.8 296.2  4.4      62.0   -28     4887   No stop
09 06 40  ---          20 37 36  51.3 296.7  4.4      61.6   192     4915   09 03 01

09 06 40  J1549+5038   20 37 36  47.4 296.9  4.8      57.5   -29     4915   No stop
09 08 00  ---          20 38 56  47.2 297.1  4.8      57.3    51     4925   09 06 41

09 09 00  NGC6090A     20 39 56  51.0 296.9  4.5      61.4    32     4925   09 09 00
09 12 40  ---          20 43 37  50.5 297.4  4.5      61.0   220     4954   09 09 01

09 12 40  J1549+5038   20 43 37  46.6 297.7  4.9      56.9   -29     4954   No stop
09 14 00  ---          20 44 57  46.4 297.9  4.9      56.7    51     4964   09 12 41

09 14 00  NGC6090A     20 44 57  50.3 297.5  4.5      60.8   -28     4964   No stop
09 17 40  ---          20 48 37  49.8 297.9  4.6      60.4   192     4992   09 14 01

09 17 40  J1549+5038   20 48 37  45.9 298.3  5.0      56.4   -29     4992   No stop
09 19 00  ---          20 49 58  45.7 298.5  5.0      56.2    51     5002   09 17 41

09 20 00  NGC6090A     20 50 58  49.5 298.2  4.6      60.2    32     5002   09 20 00
09 23 40  ---          20 54 38  49.0 298.6  4.7      59.8   220     5030   09 20 01

09 23 40  J1549+5038   20 54 38  45.1 299.1  5.1      55.7   -29     5030   No stop
09 25 00  ---          20 55 59  44.9 299.3  5.1      55.6    51     5041   09 23 41

09 25 00  NGC6090A     20 55 59  48.9 298.8  4.7      59.6   -28     5041   No stop
09 28 40  ---          20 59 39  48.4 299.2  4.8      59.2   192     5069   09 25 01

09 28 40  J1549+5038   20 59 39  44.5 299.7  5.2      55.2   -29     5069   No stop
09 30 00  ---          21 00 59  44.3 299.9  5.2      55.1    51     5079   09 28 41
```

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


 ======== Setup file: sess114.L1024
   Matching groups in /Users/torres/sched11/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    3         Station: TORUN            Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2        Sample rate: 32.000
   Number of channels: 16    DBE type:                 Speedup factor:   0.50

   Disk used to record data.

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

  The following frequency sets based on these setups were used.

   Frequency Set:   7  Setup file default.  Used pcal sets:   1
   LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
             1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
   BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
              625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
   Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
               16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
    Matching frequency sets:   7

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = OFF
    PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
    PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
    PCALFR1=     0     0     0     0     0     0     0     0
    PCALFR2=     0     0     0     0     0     0     0     0

   Track assignments are:
    track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
    barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* IRAS10565	10 56 36.176767	* 10 59 18.140000	11 00 05.702361	0.00
	24 48 39.87457	* 24 32 34.40000	24 27 46.21786	0.00
* J1102+2757	10 59 31.439332	* 11 02 14.288462	11 03 02.093561	0.00
	28 13 17.49366	* 27 57 08.68984	27 52 19.52339	0.00
* VV340A	14 54 48.205811	* 14 57 00.630000	14 57 38.901724	0.00
	24 49 05.20936	* 24 37 04.20000	24 33 29.39228	0.00
* J1453+2648	14 51 43.035340	* 14 53 53.600640	14 54 31.343559	0.00
	27 00 43.75981	* 26 48 33.41002	26 44 55.33653	0.00
* IRASF15250	15 25 03.716279	* 15 26 59.420000	15 27 32.684037	0.00
	36 09 00.97586	* 35 58 37.40000	35 55 28.42026	0.00
* J1522+3144	15 20 08.107572	* 15 22 09.991715	15 22 45.075172	0.00
	31 54 54.51259	* 31 44 14.38185	31 41 01.50176	0.00
* NGC6090A	16 10 24.556817	* 16 11 40.880000	16 12 02.481123	0.00
	52 35 05.48919	* 52 27 27.00000	52 25 03.20119	0.00
* J1549+5038	15 47 52.271601	* 15 49 17.468542	15 49 41.775211	0.00
	50 47 09.25451	* 50 38 05.78822	50 35 17.53350	0.00
* NGC6670A	18 32 57.837319	* 18 33 37.750000	18 33 47.784171	0.00
	59 50 57.78647	* 59 53 22.90000	59 53 55.33709	0.00
* J1824+5651	18 23 14.951498	* 18 24 07.068376	18 24 20.776777	0.00
	56 49 18.07203	* 56 51 01.49084	56 51 21.88225	0.00
* CGCG448	20 55 05.290426	* 20 57 24.370000	20 58 03.099734	0.00
	16 56 02.30972	* 17 07 39.20000	17 10 57.13201	0.00
* J2108+1430	21 06 18.978800	* 21 08 41.032151	21 09 20.598645	0.00
	14 18 15.61321	* 14 30 27.01241	14 33 54.93948	0.00
J2253+1608	22 51 29.519738	* 22 53 57.747937	22 54 39.130069	0.68
* 3C454.3	15 52 54.34810	* 16 08 53.56093	16 13 25.51583	0.72

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)	Source	Sun distance (deg)
IRAS10565	163.3	J1549+5038	103.6
J1102+2757	160.0	NGC6670A	83.5
VV340A	114.6	J1824+5651	83.0
J1453+2648	115.3	CGCG448	34.9
IRASF15250	108.0	J2108+1430	31.1
J1522+3144	109.0	3C454.3	26.5
NGC6090A	100.1		

eh028btr

Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4

PI: *Bo HU*

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Schedule for TORUN (Code Tr) Page 2

Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4

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

--- Mon 24 Feb 2014 Day 55 ---

Next scan frequencies:			1609.35	1609.35	1609.35	1609.35	1613.35	1613.35	1613.35	1613.35					
			1617.35	1617.35	1617.35	1617.35	1621.35	1621.35	1621.35	1621.35					
Next BBC frequencies:			690.65	690.65	690.65	690.65	686.65	686.65	686.65	686.65					
			682.65	682.65	682.65	682.65	678.65	678.65	678.65	678.65					
Next scan bandwidths:			2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00					
			2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00					
Start UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC					
Stop UT															
11 00 00	3C84	22 31 14	41.8	73.1	-4.8		-50.1	0	0	11 00 00					
11 05 00	---	22 36 15	42.5	73.9	-4.7		-50.4	300	5	11 00 01					
11 07 23	J0322+6610	22 38 39	54.0	40.6	-4.8		-75.6	61	5	11 07 23					
11 08 53	---	22 40 09	54.2	40.6	-4.7		-75.9	90	6	11 07 24					
11 08 53	OH138.0+7.2	22 40 09	53.8	41.6	-4.8		-74.5	-14	6	No stop					
11 12 23	---	22 43 39	54.1	41.7	-4.7		-75.2	196	10	11 08 54					
11 12 53	J0333+6536	22 44 10	53.3	41.2	-4.9		-73.7	14	10	11 12 53					
11 14 23	---	22 45 40	53.5	41.3	-4.8		-74.0	90	11	11 12 54					
11 14 23	OH138.0+7.2	22 45 40	54.3	41.8	-4.7		-75.6	-16	11	No stop					
11 17 53	---	22 49 10	54.7	42.0	-4.6		-76.3	194	14	11 14 24					
11 17 53	J0322+6610	22 49 10	55.1	41.0	-4.6		-77.7	-14	14	No stop					
11 19 23	---	22 50 41	55.2	41.0	-4.6		-78.0	76	16	11 17 54					
11 19 23	OH138.0+7.2	22 50 41	54.8	42.0	-4.6		-76.6	-14	16	No stop					
11 22 53	---	22 54 11	55.2	42.2	-4.5		-77.2	196	19	11 19 24					
11 23 23	J0333+6536	22 54 41	54.4	41.7	-4.7		-75.7	14	19	11 23 23					
11 24 53	---	22 56 11	54.5	41.8	-4.7		-76.0	90	21	11 23 24					
11 24 53	OH138.0+7.2	22 56 11	55.4	42.2	-4.5		-77.6	-16	21	No stop					
11 28 23	---	22 59 42	55.7	42.4	-4.4		-78.3	194	24	11 24 54					
11 28 23	J0322+6610	22 59 42	56.1	41.3	-4.4		-79.8	-14	24	No stop					
11 29 53	---	23 01 12	56.3	41.4	-4.4		-80.1	76	25	11 28 24					
11 29 53	OH138.0+7.2	23 01 12	55.9	42.4	-4.4		-78.6	-14	25	No stop					
11 33 23	---	23 04 43	56.2	42.6	-4.4		-79.3	196	29	11 29 54					

Schedule for TORUN (Code Tr) Page 3

Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
11 33 53	J0333+6536	23 05 13	55.4	42.1	-4.5		-77.8	14	29	11 33 53
11 35 23	---	23 06 43	55.6	42.2	-4.5		-78.1	90	30	11 33 54
11 35 23	OH138.0+7.2	23 06 43	56.4	42.6	-4.3		-79.7	-16	30	No stop
11 38 53	---	23 10 14	56.8	42.7	-4.3		-80.4	194	34	11 35 24
11 38 53	J0322+6610	23 10 14	57.2	41.7	-4.2		-81.9	-14	34	No stop
11 40 23	---	23 11 44	57.3	41.7	-4.2		-82.2	76	35	11 38 54
11 40 23	OH138.0+7.2	23 11 44	57.0	42.8	-4.2		-80.7	-14	35	No stop
11 43 53	---	23 15 15	57.3	42.9	-4.2		-81.4	196	38	11 40 24
11 44 23	J0333+6536	23 15 45	56.5	42.5	-4.3		-79.9	14	38	11 44 23
11 45 53	---	23 17 15	56.6	42.5	-4.3		-80.2	90	40	11 44 24
11 45 53	OH138.0+7.2	23 17 15	57.5	42.9	-4.2		-81.8	-16	40	No stop
11 49 23	---	23 20 46	57.9	43.0	-4.1		-82.6	194	43	11 45 54
11 49 23	J0322+6610	23 20 46	58.2	41.9	-4.0		-84.1	-15	43	No stop
11 50 53	---	23 22 16	58.4	41.9	-4.0		-84.5	75	45	11 49 24
11 50 53	OH138.0+7.2	23 22 16	58.0	43.1	-4.1		-82.9	-15	45	No stop
11 54 23	---	23 25 46	58.4	43.2	-4.0		-83.6	195	48	11 50 54
11 54 53	J0333+6536	23 26 16	57.5	42.8	-4.1		-82.0	14	48	11 54 53
11 56 23	---	23 27 47	57.7	42.8	-4.1		-82.3	90	49	11 54 54
11 56 23	OH138.0+7.2	23 27 47	58.6	43.2	-4.0		-84.0	-16	49	No stop
11 59 53	---	23 31 17	59.0	43.3	-3.9		-84.8	194	53	11 56 24
11 59 53	J0322+6610	23 31 17	59.3	42.1	-3.9		-86.4	-15	53	No stop
12 01 23	---	23 32 47	59.4	42.1	-3.8		-86.7	75	54	11 59 54
12 01 23	OH138.0+7.2	23 32 47	59.1	43.3	-3.9		-85.1	-15	54	No stop
12 04 53	---	23 36 18	59.5	43.4	-3.8		-85.8	195	58	12 01 24
12 05 23	J0333+6536	23 36 48	58.6	43.1	-4.0		-84.2	14	58	12 05 23
12 06 53	---	23 38 18	58.8	43.1	-3.9		-84.5	90	59	12 05 24
12 06 53	OH138.0+7.2	23 38 18	59.7	43.4	-3.8		-86.3	-16	59	No stop
12 10 23	---	23 41 49	60.0	43.4	-3.7		-87.0	194	62	12 06 54
12 10 23	J0322+6610	23 41 49	60.3	42.2	-3.7		-88.7	-15	62	No stop
12 11 53	---	23 43 19	60.5	42.2	-3.7		-89.1	75	64	12 10 24
12 11 53	OH138.0+7.2	23 43 19	60.2	43.4	-3.7		-87.4	-15	64	No stop
12 15 23	---	23 46 50	60.6	43.5	-3.7		-88.1	195	67	12 11 54

```
Schedule for TORUN     (Code Tr )                                   Page   4
               Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

12 15 53  J0333+6536   23 47 20  59.7  43.2 -3.8     -86.4    14       67   12 15 53
12 17 23  ---          23 48 50  59.9  43.2 -3.8     -86.8    90       69   12 15 54

12 17 23  OH138.0+7.2  23 48 50  60.8  43.5 -3.6     -88.6   -16       69   No stop
12 20 53  ---          23 52 21  61.1  43.5 -3.6     -89.4   194       72   12 17 24

12 20 53  J0322+6610   23 52 21  61.4  42.2 -3.5     -91.1   -15       72   No stop
12 22 23  ---          23 53 51  61.5  42.2 -3.5     -91.5    75       73   12 20 54

12 22 23  OH138.0+7.2  23 53 51  61.3  43.5 -3.5     -89.7   -15       73   No stop
12 25 53  ---          23 57 21  61.6  43.5 -3.5     -90.5   195       77   12 22 24

12 26 23  J0333+6536   23 57 52  60.8  43.3 -3.6     -88.8    14       77   12 26 23
12 27 53  ---          23 59 22  60.9  43.3 -3.6     -89.1    90       78   12 26 24

12 27 53  OH138.0+7.2  23 59 22  61.9  43.5 -3.5     -91.0   -16       78   No stop
12 31 23  ---          00 02 52  62.2  43.5 -3.4     -91.8   194       82   12 27 54

12 31 23  J0322+6610   00 02 52  62.5  42.1 -3.3     -93.6   -16       82   No stop
12 32 53  ---          00 04 23  62.6  42.0 -3.3     -94.0    74       83   12 31 24

12 32 53  OH138.0+7.2  00 04 23  62.4  43.5 -3.4     -92.1   -16       83   No stop
12 36 23  ---          00 07 53  62.7  43.4 -3.3     -93.0   194       86   12 32 54

12 36 53  J0333+6536   00 08 23  61.9  43.3 -3.4     -91.2    14       86   12 36 53
12 38 23  ---          00 09 54  62.0  43.3 -3.4     -91.5    90       88   12 36 54

12 38 23  OH138.0+7.2  00 09 54  62.9  43.4 -3.3     -93.4   -16       88   No stop
12 41 53  ---          00 13 24  63.3  43.3 -3.2     -94.3   194       91   12 38 24

12 41 53  J0322+6610   00 13 24  63.5  41.9 -3.2     -96.2   -16       91   No stop
12 43 23  ---          00 14 54  63.7  41.8 -3.1     -96.6    74       93   12 41 54

12 43 23  OH138.0+7.2  00 14 54  63.5  43.3 -3.2     -94.6   -16       93   No stop
12 46 53  ---          00 18 25  63.8  43.2 -3.1     -95.5   194       96   12 43 24

12 47 23  J0333+6536   00 18 55  63.0  43.2 -3.3     -93.6    14       96   12 47 23
12 48 53  ---          00 20 25  63.1  43.2 -3.2     -94.0    90       97   12 47 24

12 48 53  OH138.0+7.2  00 20 25  64.0  43.2 -3.1     -96.0   -16       97   No stop
12 52 23  ---          00 23 56  64.4  43.1 -3.0     -96.9   194      101   12 48 54

12 52 23  J0322+6610   00 23 56  64.6  41.5 -3.0     -98.9   -16      101   No stop
12 53 53  ---          00 25 26  64.7  41.5 -3.0     -99.3    74      102   12 52 24

12 53 53  OH138.0+7.2  00 25 26  64.5  43.1 -3.0     -97.3   -16      102   No stop
12 57 23  ---          00 28 57  64.9  42.9 -3.0     -98.2   194      106   12 53 54
```

Schedule for TORUN (Code Tr) Page 5

Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
12 57 53	J0333+6536	00 29 27	64.0	43.0	-3.1		-96.2	14	106	12 57 53
12 59 23	---	00 30 57	64.2	43.0	-3.1		-96.6	90	107	12 57 54
12 59 23	OH138.0+7.2	00 30 57	65.1	42.9	-2.9		-98.7	-16	107	No stop
13 02 53	---	00 34 28	65.5	42.7	-2.9		-99.6	194	110	12 59 24
13 02 53	J0322+6610	00 34 28	65.6	41.1	-2.8		-101.7	-16	110	No stop
13 04 23	---	00 35 58	65.8	41.0	-2.8		-102.1	74	112	13 02 54
13 04 23	OH138.0+7.2	00 35 58	65.6	42.7	-2.8		-100.0	-16	112	No stop
13 07 53	---	00 39 28	66.0	42.5	-2.8		-101.0	194	115	13 04 24
13 08 23	J0333+6536	00 39 58	65.1	42.7	-2.9		-98.9	14	115	13 08 23
13 09 53	---	00 41 29	65.3	42.6	-2.9		-99.3	90	117	13 08 24
13 09 53	OH138.0+7.2	00 41 29	66.2	42.4	-2.7		-101.5	-16	117	No stop
13 13 23	---	00 44 59	66.5	42.2	-2.7		-102.5	194	120	13 09 54
13 27 25	F0217+7349	00 59 03	67.6	14.4	-1.3		-147.4	775	120	13 27 25
13 32 25	---	01 04 04	67.8	13.6	-1.2		-149.3	300	125	13 27 26
13 33 55	J0322+6610	01 05 35	68.6	38.8	-2.3		-110.9	25	125	13 33 55
13 35 25	---	01 07 05	68.8	38.7	-2.3		-111.4	90	126	13 33 56
13 35 25	OH138.0+7.2	01 07 05	68.7	40.6	-2.3		-109.0	-17	126	No stop
13 38 55	---	01 10 36	69.1	40.3	-2.3		-110.1	193	130	13 35 26
13 39 25	J0333+6536	01 11 06	68.2	40.8	-2.4		-107.7	14	130	13 39 25
13 40 55	---	01 12 36	68.4	40.7	-2.4		-108.2	90	131	13 39 26
13 40 55	OH138.0+7.2	01 12 36	69.3	40.1	-2.2		-110.8	-16	131	No stop
13 44 25	---	01 16 07	69.6	39.7	-2.2		-111.9	194	134	13 40 56
13 44 25	J0322+6610	01 16 07	69.6	37.7	-2.1		-114.4	-18	134	No stop
13 45 55	---	01 17 37	69.7	37.5	-2.1		-114.9	72	136	13 44 26
13 45 55	OH138.0+7.2	01 17 37	69.7	39.5	-2.1		-112.4	-18	136	No stop
13 49 25	---	01 21 07	70.1	39.1	-2.1		-113.6	192	139	13 45 56
13 49 55	J0333+6536	01 21 38	69.3	39.8	-2.2		-111.0	14	139	13 49 55
13 51 25	---	01 23 08	69.4	39.7	-2.2		-111.5	90	141	13 49 56
13 51 25	OH138.0+7.2	01 23 08	70.3	38.8	-2.1		-114.3	-16	141	No stop
13 54 55	---	01 26 38	70.6	38.4	-2.0		-115.5	194	144	13 51 26

Schedule for TORUN (Code Tr) Page 6

Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
13 54 55	J0322+6610	01 26 38	70.5	36.3	-2.0		-118.1	-18	144	No stop
13 56 25	---	01 28 09	70.7	36.1	-1.9		-118.7	72	145	13 54 56
13 56 25	OH138.0+7.2	01 28 09	70.7	38.2	-2.0		-116.1	-18	145	No stop
13 59 55	---	01 31 39	71.1	37.7	-1.9		-117.4	192	149	13 56 26
14 00 25	J0333+6536	01 32 09	70.3	38.6	-2.1		-114.6	14	149	14 00 25
14 01 55	---	01 33 39	70.4	38.4	-2.0		-115.1	90	150	14 00 26
14 01 55	OH138.0+7.2	01 33 39	71.2	37.4	-1.9		-118.1	-16	150	No stop
14 05 25	---	01 37 10	71.6	36.8	-1.8		-119.4	194	154	14 01 56
14 05 25	J0322+6610	01 37 10	71.5	34.7	-1.8		-122.1	-18	154	No stop
14 06 55	---	01 38 40	71.6	34.4	-1.8		-122.7	72	155	14 05 26
14 06 55	OH138.0+7.2	01 38 40	71.7	36.6	-1.8		-120.0	-18	155	No stop
14 10 25	---	01 42 11	72.0	36.0	-1.7		-121.3	192	158	14 06 56
14 10 55	J0333+6536	01 42 41	71.2	37.1	-1.9		-118.4	15	158	14 10 55
14 12 25	---	01 44 11	71.4	36.9	-1.9		-118.9	90	160	14 10 56
14 12 25	OH138.0+7.2	01 44 11	72.2	35.6	-1.7		-122.1	-16	160	No stop
14 15 55	---	01 47 42	72.5	35.0	-1.6		-123.6	194	163	14 12 26
14 15 55	J0322+6610	01 47 42	72.3	32.7	-1.6		-126.3	-19	163	No stop
14 17 25	---	01 49 12	72.5	32.4	-1.6		-126.9	71	165	14 15 56
14 17 25	OH138.0+7.2	01 49 12	72.6	34.7	-1.6		-124.2	-18	165	No stop
14 20 55	---	01 52 43	72.9	34.0	-1.6		-125.6	192	168	14 17 26
14 21 25	J0333+6536	01 53 13	72.2	35.4	-1.7		-122.4	14	168	14 21 25
14 22 55	---	01 54 43	72.3	35.1	-1.7		-123.0	90	169	14 21 26
14 22 55	OH138.0+7.2	01 54 43	73.1	33.6	-1.5		-126.5	-16	169	No stop
14 26 25	---	01 58 14	73.4	32.8	-1.5		-128.0	194	173	14 22 56
14 26 25	J0322+6610	01 58 14	73.2	30.5	-1.4		-130.9	-19	173	No stop
14 27 55	---	01 59 44	73.3	30.2	-1.4		-131.5	71	174	14 26 26
14 27 55	OH138.0+7.2	01 59 44	73.5	32.5	-1.4		-128.7	-18	174	No stop
14 31 25	---	02 03 14	73.8	31.7	-1.4		-130.3	192	178	14 27 56
14 31 55	J0333+6536	02 03 44	73.1	33.3	-1.5		-126.8	13	178	14 31 55
14 33 25	---	02 05 15	73.2	33.0	-1.5		-127.4	90	179	14 31 56

Schedule for TORUN (Code Tr) Page 7

Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
14 33 25	OH138.0+7.2	02 05 15	73.9	31.2	-1.4		-131.2	-17	179	No stop
14 36 55	---	02 08 45	74.2	30.3	-1.3		-132.8	193	182	14 33 26
14 36 55	J0322+6610	02 08 45	73.9	27.9	-1.2		-135.7	-19	182	No stop
14 38 25	---	02 10 15	74.1	27.5	-1.2		-136.5	71	184	14 36 56
14 38 25	OH138.0+7.2	02 10 15	74.3	29.9	-1.3		-133.6	-19	184	No stop
14 41 55	---	02 13 46	74.6	29.0	-1.2		-135.3	191	187	14 38 26
14 42 25	J0333+6536	02 14 16	73.9	30.9	-1.3		-131.5	12	187	14 42 25
14 43 55	---	02 15 46	74.0	30.6	-1.3		-132.2	90	189	14 42 26
14 43 55	OH138.0+7.2	02 15 46	74.7	28.4	-1.2		-136.3	-18	189	No stop
14 47 25	---	02 19 17	75.0	27.4	-1.1		-138.1	192	192	14 43 56
14 47 25	J0322+6610	02 19 17	74.7	25.0	-1.1		-141.0	-19	192	No stop
14 48 55	---	02 20 47	74.7	24.6	-1.0		-141.7	71	193	14 47 26
14 48 55	OH138.0+7.2	02 20 47	75.1	26.9	-1.1		-138.8	-19	193	No stop
14 52 25	---	02 24 18	75.3	25.9	-1.0		-140.7	191	197	14 48 56
14 52 55	J0333+6536	02 24 48	74.7	28.1	-1.2		-136.6	11	197	14 52 55
14 54 25	---	02 26 18	74.8	27.7	-1.1		-137.3	90	198	14 52 56
14 54 25	OH138.0+7.2	02 26 18	75.4	25.2	-1.0		-141.8	-19	198	No stop
14 57 55	---	02 29 49	75.6	24.1	-0.9		-143.7	191	202	14 54 26
14 57 55	J0322+6610	02 29 49	75.3	21.7	-0.9		-146.6	-19	202	No stop
14 59 25	---	02 31 19	75.4	21.2	-0.9		-147.4	71	203	14 57 56
14 59 25	OH138.0+7.2	02 31 19	75.7	23.6	-0.9		-144.5	-18	203	No stop
15 02 55	---	02 34 50	75.9	22.3	-0.9		-146.5	192	206	14 59 26
15 03 25	J0333+6536	02 35 20	75.4	25.0	-1.0		-142.0	10	206	15 03 25
15 04 55	---	02 36 50	75.5	24.5	-1.0		-142.9	90	208	15 03 26
15 04 55	OH138.0+7.2	02 36 50	76.1	21.6	-0.8		-147.6	-20	208	No stop
15 08 25	---	02 40 20	76.2	20.3	-0.8		-149.7	190	211	15 04 56
15 08 25	J0322+6610	02 40 20	75.8	18.0	-0.7		-152.5	-19	211	No stop
15 09 55	---	02 41 51	75.9	17.5	-0.7		-153.4	71	213	15 08 26
15 09 55	OH138.0+7.2	02 41 51	76.3	19.8	-0.7		-150.6	-18	213	No stop
15 13 25	---	02 45 21	76.5	18.4	-0.7		-152.7	192	216	15 09 56

```
Schedule for TORUN     (Code Tr )                                  Page   8
               Parallax Measurement to 1.6GHz OH Masers in OH/IR star OH 138.0+7.4
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-----------------------------------------------------------------------------------------
Start UT  Source               Start / Stop                 Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-----------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

15 13 55  J0333+6536   02 45 51  76.0  21.4 -0.8    -147.9     9      216   15 13 55
15 15 25  ---          02 47 22  76.1  20.8 -0.8    -148.8    90      217   15 13 56

15 15 25  OH138.0+7.2  02 47 22  76.6  17.6 -0.7    -153.9   -21      217   No stop
15 18 55  ---          02 50 52  76.7  16.2 -0.6    -156.1   189      221   15 15 26

15 18 55  J0322+6610   02 50 52  76.3  14.0 -0.5    -158.8   -18      221   No stop
15 20 25  ---          02 52 22  76.3  13.4 -0.5    -159.7    72      222   15 18 56

15 20 25  OH138.0+7.2  02 52 22  76.8  15.5 -0.6    -157.1   -18      222   No stop
15 23 55  ---          02 55 53  76.9  14.1 -0.5    -159.3   192      226   15 20 26

15 24 25  J0333+6536   02 56 23  76.5  17.4 -0.6    -154.2     9      226   15 24 25
15 25 55  ---          02 57 53  76.6  16.8 -0.6    -155.1    90      227   15 24 26

15 25 55  OH138.0+7.2  02 57 53  77.0  13.2 -0.5    -160.6   -22      227   No stop
15 29 25  ---          03 01 24  77.1  11.7 -0.4    -162.9   188      230   15 25 56

15 29 25  J0322+6610   03 01 24  76.6   9.7 -0.4    -165.4   -18      230   No stop
15 30 55  ---          03 02 54  76.6   9.1 -0.3    -166.4    72      232   15 29 26

15 30 55  OH138.0+7.2  03 02 54  77.2  11.0 -0.4    -163.9   -17      232   No stop
15 34 25  ---          03 06 25  77.3   9.4 -0.3    -166.3   193      235   15 30 56

15 34 55  J0333+6536   03 06 55  76.9  13.0 -0.5    -160.9     8      235   15 34 55
15 36 25  ---          03 08 25  77.0  12.3 -0.4    -161.8    90      237   15 34 56

15 36 25  OH138.0+7.2  03 08 25  77.3   8.5 -0.3    -167.6   -23      237   No stop
15 39 55  ---          03 11 56  77.4   6.9 -0.2    -170.0   187      240   15 36 26

15 45 45  F0102+5824   03 17 46  70.6 -60.5  2.2      91.5   200      240   15 45 45
15 50 45  ---          03 22 47  70.0 -60.5  2.3      90.4   300      245   15 45 46



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


 ======== Setup file: sess114.L128
   Matching groups in /home/hb/bin/SCHED/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    3         Station: TORUN             Total bit rate:   128
   Format: MKIV1:1           Bits per sample: 2         Sample rate:  4.000
   Number of channels: 16    DBE type:                  Speedup factor:   2.00

   Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

 Frequency Set:   7  Based on FREQ, BW, and/or DOPPLER in schedule.  Used pcal sets:   1
  LO sum=   1609.35  1609.35  1609.35  1609.35  1613.35  1613.35  1613.35  1613.35
            1617.35  1617.35  1617.35  1617.35  1621.35  1621.35  1621.35  1621.35
  BBC fr=    690.65   690.65   690.65   690.65   686.65   686.65   686.65   686.65
             682.65   682.65   682.65   682.65   678.65   678.65   678.65   678.65
  Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
               2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
   Matching frequency sets:   7

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = OFF
   PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
   PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
   PCALFR1=     0     0     0     0     0     0     0     0
   PCALFR2=     0     0     0     0     0     0     0     0

  Track assignments are:
   track1=   2,  6, 10, 14, 18, 22, 26, 30,  3,  7, 11, 15, 19, 23, 27, 31
   barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 3C84              03 16 29.567270   * 03 19 48.160100     03 20 45.229547       0.00
                    41 19 51.91597    * 41 30 42.10310      41 33 47.81131        0.00

* F0217+7349        02 12 49.921919   * 02 17 30.813400     02 18 51.767957       0.00
                    73 35 40.08567    * 73 49 32.62200      73 53 39.48755        0.00

* F0102+5824        00 59 43.470991   * 01 02 45.762400     01 03 37.390436       0.00
                    58 08 04.84785    * 58 24 11.13700      58 28 53.14573        0.00

* J0322+6610        03 17 57.999024   * 03 22 27.228812     03 23 45.104011       0.00
                    65 59 45.07766    * 66 10 28.30547      66 13 38.58320        0.00

* J0333+6536        03 29 25.878099   * 03 33 56.737993     03 35 15.146874       0.00
                    65 26 52.21323    * 65 36 56.18412      65 39 54.84866        0.00

* OH138.0+7.2       03 20 41.852264   * 03 25 08.800001     03 26 26.013148       0.00
                    65 21 32.90423    * 65 32 07.00001      65 35 14.47661        0.00
```

ev019atr

Phase-referencing of NGC4418

PI: *Eskil Varenius*


```
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          Onsala Space Observatory          34992 Onsala          Sweden
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Phone during observation: +46 70 6755341
```


```
Observing mode: Phase-referencing of NGC4418 at 18cm (1 Gb/s)

Notes:    Part of EV019; See also exp. EV019B at C-band.
```

```
Schedule for TORUN     (Code Tr )                                    Page   2
               Phase-referencing of NGC4418
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes recorded to this point.
  TPStart:  Recording start time.  Frequencies are LO sum (band edge).
  SYNC: Time correlator is expected to sync up.
-------------------------------------------------------------------------------------------
Start UT  Source                Start / Stop                  Early    Disk   TPStart
Stop UT                  LST      EL    AZ   HA  UP   ParA  Dwell   GBytes    SYNC
-------------------------------------------------------------------------------------------

 --- Mon  24 Feb 2014   Day  55 ---

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

20 30 00  J1232        08 02 48  11.2 109.8 -4.5     -34.4     0        0   20 30 00
20 32 00  ---          08 04 48  11.5 110.2 -4.5     -34.3   120       15   20 30 01

20 32 29  NGC4418      08 05 18  13.6 110.5 -4.4     -34.2     8       15   20 32 29
20 40 29  ---          08 13 19  14.7 112.2 -4.2     -33.8   480       77   20 32 30

20 40 59  J1232        08 13 48  12.8 112.1 -4.3     -33.8     8       77   20 40 59
20 42 59  ---          08 15 49  13.1 112.5 -4.3     -33.7   120       92   20 41 00

20 43 28  NGC4418      08 16 18  15.1 112.9 -4.2     -33.6     8       92   20 43 28
20 51 28  ---          08 24 19  16.2 114.6 -4.1     -33.1   480      154   20 43 29

20 51 57  J1232        08 24 49  14.3 114.5 -4.1     -33.2     8      154   20 51 57
20 53 57  ---          08 26 49  14.6 114.9 -4.1     -33.0   120      169   20 51 58

20 54 26  NGC4418      08 27 18  16.6 115.2 -4.0     -32.9     8      169   20 54 26
21 02 26  ---          08 35 19  17.7 117.0 -3.9     -32.3   480      230   20 54 27

21 02 56  J1232        08 35 49  15.8 116.9 -3.9     -32.4     8      230   21 02 56
21 04 56  ---          08 37 49  16.1 117.3 -3.9     -32.3   120      246   21 02 57

21 05 25  NGC4418      08 38 19  18.1 117.7 -3.8     -32.1     8      246   21 05 25
21 13 25  ---          08 46 20  19.2 119.5 -3.7     -31.5   480      307   21 05 26

21 13 54  J1232        08 46 49  17.3 119.3 -3.8     -31.6     8      307   21 13 54
21 15 54  ---          08 48 49  17.5 119.7 -3.7     -31.5   120      323   21 13 55
```

Schedule for TORUN (Code Tr) Page 3

Phase-referencing of NGC4418

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
21 16 23	NGC4418	08 49 19	19.5	120.2	-3.6		-31.3	8	323	21 16 23
21 24 23	---	08 57 20	20.6	122.0	-3.5		-30.6	480	384	21 16 24
21 24 53	J1232	08 57 50	18.7	121.8	-3.6		-30.7	8	384	21 24 53
21 26 53	---	08 59 50	18.9	122.2	-3.5		-30.6	120	399	21 24 54
21 27 22	NGC4418	09 00 19	21.0	122.7	-3.5		-30.4	8	399	21 27 22
21 35 22	---	09 08 20	22.0	124.5	-3.3		-29.7	480	461	21 27 23
21 35 51	J1232	09 08 50	20.1	124.3	-3.4		-29.8	8	461	21 35 51
21 37 51	---	09 10 50	20.3	124.7	-3.4		-29.6	120	476	21 35 52
21 38 20	NGC4418	09 11 20	22.3	125.2	-3.3		-29.4	8	476	21 38 20
21 46 20	---	09 19 21	23.3	127.1	-3.1		-28.6	480	538	21 38 21
21 46 50	J1232	09 19 50	21.4	126.8	-3.2		-28.8	8	538	21 46 50
21 48 50	---	09 21 50	21.6	127.3	-3.2		-28.6	120	553	21 46 51
21 49 19	NGC4418	09 22 20	23.7	127.9	-3.1		-28.3	8	553	21 49 19
21 57 19	---	09 30 21	24.6	129.8	-3.0		-27.5	480	614	21 49 20
21 57 48	J1232	09 30 50	22.7	129.5	-3.0		-27.7	8	614	21 57 48
21 59 48	---	09 32 51	22.9	129.9	-3.0		-27.4	120	630	21 57 49
22 00 17	NGC4418	09 33 20	24.9	130.5	-2.9		-27.2	8	630	22 00 17
22 08 17	---	09 41 21	25.8	132.5	-2.8		-26.3	480	691	22 00 18
22 08 47	J1232	09 41 51	24.0	132.1	-2.8		-26.5	8	691	22 08 47
22 10 47	---	09 43 51	24.2	132.6	-2.8		-26.3	120	707	22 08 48
22 11 16	NGC4418	09 44 20	26.2	133.3	-2.7		-25.9	8	707	22 11 16
22 19 16	---	09 52 22	27.0	135.3	-2.6		-25.0	480	768	22 11 17
22 20 27	J1256	09 53 33	19.5	130.8	-3.1		-27.2	29	768	22 20 27
22 24 27	---	09 57 34	20.0	131.7	-3.0		-26.8	240	799	22 20 28
22 25 26	J1232	09 58 33	25.8	136.3	-2.6		-24.6	23	799	22 25 26
22 27 26	---	10 00 33	26.0	136.8	-2.5		-24.3	120	814	22 25 27
22 27 55	NGC4418	10 01 03	27.9	137.5	-2.4		-23.9	8	814	22 27 55
22 35 55	---	10 09 04	28.7	139.6	-2.3		-22.9	480	876	22 27 56
22 36 25	J1232	10 09 33	26.9	139.1	-2.4		-23.2	8	876	22 36 25
22 38 25	---	10 11 34	27.1	139.6	-2.4		-22.9	120	891	22 36 26
22 38 54	NGC4418	10 12 03	29.0	140.4	-2.3		-22.5	8	891	22 38 54
22 46 54	---	10 20 04	29.8	142.5	-2.1		-21.4	480	952	22 38 55

Schedule for TORUN (Code Tr) Page 4

Phase-referencing of NGC4418

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 24 Feb 2014 Day 55 ---										
22 47 23	J1232	10 20 34	27.9	141.9	-2.2		-21.8	9	952	22 47 23
22 49 23	---	10 22 34	28.1	142.5	-2.2		-21.5	120	968	22 47 24
22 49 52	NGC4418	10 23 03	30.0	143.3	-2.1		-21.0	8	968	22 49 52
22 57 52	---	10 31 05	30.7	145.5	-1.9		-19.9	480	1029	22 49 53
22 59 03	J1256	10 32 15	23.6	140.2	-2.4		-22.8	29	1029	22 59 03
23 03 03	---	10 36 16	24.0	141.2	-2.3		-22.2	240	1060	22 59 04
23 04 00	J1232	10 37 13	29.4	146.4	-1.9		-19.4	23	1060	23 04 00
23 06 00	---	10 39 13	29.5	146.9	-1.9		-19.2	120	1075	23 04 01
23 06 29	NGC4418	10 39 43	31.4	147.9	-1.8		-18.6	8	1075	23 06 29
23 14 29	---	10 47 44	32.1	150.1	-1.7		-17.4	480	1137	23 06 30
23 14 58	J1232	10 48 13	30.3	149.4	-1.7		-17.8	9	1137	23 14 58
23 16 58	---	10 50 14	30.4	149.9	-1.7		-17.5	120	1152	23 14 59
23 17 28	NGC4418	10 50 43	32.3	151.0	-1.6		-17.0	9	1152	23 17 28
23 25 28	---	10 58 44	32.8	153.2	-1.5		-15.7	480	1213	23 17 29
23 25 57	J1232	10 59 14	31.1	152.4	-1.6		-16.2	9	1213	23 25 57
23 27 57	---	11 01 14	31.2	153.0	-1.5		-15.8	120	1229	23 25 58
23 28 26	NGC4418	11 01 43	33.0	154.1	-1.4		-15.2	9	1229	23 28 26
23 36 26	---	11 09 45	33.5	156.4	-1.3		-13.9	480	1290	23 28 27
23 37 35	J1256	11 10 53	26.9	150.1	-1.8		-17.5	29	1290	23 37 35
23 41 35	---	11 14 54	27.2	151.2	-1.7		-16.9	240	1321	23 37 36
23 42 30	J1232	11 15 49	32.1	157.1	-1.3		-13.5	23	1321	23 42 30
23 44 30	---	11 17 50	32.2	157.7	-1.2		-13.2	120	1336	23 42 31
23 44 59	NGC4418	11 18 19	34.0	158.9	-1.2		-12.5	9	1336	23 44 59
23 52 59	---	11 26 20	34.4	161.3	-1.0		-11.1	480	1398	23 45 00
23 53 28	J1232	11 26 50	32.7	160.3	-1.1		-11.7	9	1398	23 53 28
23 55 28	---	11 28 50	32.8	160.9	-1.1		-11.3	120	1413	23 53 29
--- Start: Mon 24 Feb 2014 Day 55 -- Stop: Tue 25 Feb 2014 Day 56 ---										
23 55 58	NGC4418	11 29 19	34.6	162.2	-1.0		-10.6	9	1413	23 55 58
00 03 58	---	11 37 21	34.9	164.6	-0.8		-9.2	480	1475	23 55 59
00 04 27	J1232	11 37 50	33.2	163.5	-0.9		-9.8	9	1475	00 04 27
00 06 27	---	11 39 50	33.3	164.1	-0.9		-9.5	120	1490	00 04 28

Schedule for TORUN (Code Tr) Page 5

Phase-referencing of NGC4418

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 25 Feb 2014 Day 56 ---										
00 06 56	NGC4418	11 40 20	35.0	165.5	-0.8		-8.7	9	1490	00 06 56
00 14 56	---	11 48 21	35.3	167.9	-0.7		-7.2	480	1551	00 06 57
00 15 25	J1232	11 48 50	33.7	166.8	-0.7		-7.9	9	1551	00 15 25
00 17 25	---	11 50 51	33.7	167.4	-0.7		-7.5	120	1567	00 15 26
00 17 55	NGC4418	11 51 20	35.4	168.8	-0.6		-6.7	9	1567	00 17 55
00 25 55	---	11 59 21	35.6	171.3	-0.5		-5.2	480	1628	00 17 56
00 26 24	J1232	11 59 51	34.0	170.1	-0.5		-5.9	10	1628	00 26 24
00 28 24	---	12 01 51	34.0	170.7	-0.5		-5.6	120	1644	00 26 25
00 28 53	NGC4418	12 02 20	35.7	172.2	-0.4		-4.7	9	1644	00 28 53
00 36 53	---	12 10 22	35.8	174.7	-0.3		-3.2	480	1705	00 28 54
00 37 22	J1232	12 10 51	34.2	173.4	-0.4		-4.0	10	1705	00 37 22
00 39 22	---	12 12 51	34.3	174.0	-0.3		-3.6	120	1720	00 37 23
00 39 52	NGC4418	12 13 21	35.9	175.6	-0.2		-2.7	10	1720	00 39 52
00 47 52	---	12 21 22	35.9	178.1	-0.1		-1.2	480	1782	00 39 53
00 48 21	J1232	12 21 51	34.4	176.7	-0.2		-2.0	10	1782	00 48 21
00 50 21	---	12 23 52	34.4	177.3	-0.1		-1.6	120	1797	00 48 22
00 50 50	NGC4418	12 24 21	35.9	179.0	-0.1		-0.6	10	1797	00 50 50
00 58 50	---	12 32 22	35.9	181.5	0.1		0.9	480	1859	00 50 51
00 59 52	J1256	12 33 24	30.8	173.2	-0.4		-4.1	29	1859	00 59 52
01 03 52	---	12 37 25	30.9	174.3	-0.3		-3.4	240	1889	00 59 53
01 04 41	J1232	12 38 14	34.4	181.7	0.1		1.0	19	1889	01 04 41
01 06 41	---	12 40 14	34.4	182.3	0.1		1.4	120	1905	01 04 42
01 07 10	NGC4418	12 40 43	35.9	184.0	0.2		2.4	10	1905	01 07 10
01 15 10	---	12 48 44	35.8	186.5	0.4		3.9	480	1966	01 07 11
01 15 39	J1232	12 49 14	34.3	185.0	0.3		3.0	10	1966	01 15 39
01 17 39	---	12 51 14	34.3	185.6	0.3		3.4	120	1981	01 15 40
01 18 08	NGC4418	12 51 44	35.7	187.4	0.4		4.4	10	1981	01 18 08
01 26 08	---	12 59 45	35.5	189.9	0.5		5.9	480	2043	01 18 09
01 26 38	J1232	13 00 14	34.1	188.3	0.5		5.0	11	2043	01 26 38
01 28 38	---	13 02 14	34.1	188.9	0.5		5.3	120	2058	01 26 39
01 29 07	NGC4418	13 02 44	35.5	190.8	0.6		6.5	11	2058	01 29 07
01 37 07	---	13 10 45	35.2	193.2	0.7		7.9	480	2120	01 29 08

Schedule for TORUN (Code Tr) Page 6

Phase-referencing of NGC4418

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 25 Feb 2014 Day 56 ---										
01 37 36	J1232	13 11 15	33.8	191.6	0.6		6.9	11	2120	01 37 36
01 39 36	---	13 13 15	33.8	192.2	0.7		7.3	120	2135	01 37 37
01 40 05	NGC4418	13 13 44	35.1	194.1	0.8		8.4	11	2135	01 40 05
01 48 05	---	13 21 45	34.8	196.5	0.9		9.8	480	2196	01 40 06
01 48 35	J1232	13 22 15	33.5	194.9	0.8		8.9	11	2196	01 48 35
01 50 35	---	13 24 15	33.4	195.5	0.9		9.2	120	2212	01 48 36
01 51 04	NGC4418	13 24 45	34.6	197.4	1.0		10.4	11	2212	01 51 04
01 59 04	---	13 32 46	34.3	199.8	1.1		11.7	480	2273	01 51 05
01 59 33	J1232	13 33 15	33.0	198.1	1.0		10.8	11	2273	01 59 33
02 01 33	---	13 35 15	32.9	198.7	1.0		11.1	120	2289	01 59 34
02 02 02	NGC4418	13 35 45	34.1	200.7	1.1		12.3	11	2289	02 02 02
02 10 02	---	13 43 46	33.7	203.1	1.3		13.6	480	2350	02 02 03
02 10 32	J1232	13 44 15	32.4	201.3	1.2		12.6	12	2350	02 10 32
02 12 32	---	13 46 16	32.3	201.9	1.2		12.9	120	2365	02 10 33
02 13 01	NGC4418	13 46 45	33.5	203.9	1.3		14.1	12	2365	02 13 01
02 21 01	---	13 54 46	33.0	206.2	1.5		15.4	480	2427	02 13 02
02 21 53	J1256	13 55 39	29.7	196.9	1.0		10.1	18	2427	02 21 53
02 25 53	---	13 59 39	29.6	198.0	1.0		10.8	240	2458	02 21 54
02 26 42	J1232	14 00 28	31.5	205.9	1.5		15.2	18	2458	02 26 42
02 28 42	---	14 02 29	31.3	206.5	1.5		15.6	120	2473	02 26 43
02 29 11	NGC4418	14 02 58	32.4	208.6	1.6		16.7	12	2473	02 29 11
02 37 11	---	14 10 59	31.8	210.8	1.7		17.9	480	2534	02 29 12
02 37 40	J1232	14 11 29	30.7	209.0	1.6		17.0	12	2534	02 37 40
02 39 40	---	14 13 29	30.5	209.6	1.7		17.3	120	2550	02 37 41
02 40 10	NGC4418	14 13 58	31.6	211.7	1.8		18.4	12	2550	02 40 10
02 48 10	---	14 22 00	30.9	213.9	1.9		19.6	480	2611	02 40 11
02 48 39	J1232	14 22 29	29.9	212.1	1.8		18.6	12	2611	02 48 39
02 50 39	---	14 24 29	29.7	212.6	1.9		18.9	120	2627	02 48 40
02 51 08	NGC4418	14 24 59	30.7	214.7	2.0		20.0	12	2627	02 51 08
02 59 08	---	14 33 00	30.0	216.9	2.1		21.1	480	2688	02 51 09
02 59 37	J1232	14 33 29	28.9	215.0	2.0		20.2	12	2688	02 59 37
03 01 37	---	14 35 30	28.8	215.6	2.0		20.5	120	2703	02 59 38

Schedule for TORUN (Code Tr) Page 7

Phase-referencing of NGC4418

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

--- Tue 25 Feb 2014 Day 56 ---

Start UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
03 02 07	NGC4418	14 35 59	29.7	217.7	2.1		21.5	12	2703	03 02 07
03 10 07	---	14 44 00	28.9	219.8	2.3		22.6	480	2765	03 02 08
03 10 36	J1232	14 44 30	28.0	217.9	2.2		21.7	12	2765	03 10 36
03 12 36	---	14 46 30	27.8	218.5	2.2		22.0	120	2780	03 10 37
03 13 06	NGC4418	14 47 00	28.6	220.6	2.3		23.0	12	2780	03 13 06
03 21 06	---	14 55 01	27.8	222.7	2.5		24.0	480	2842	03 13 07
03 21 35	J1232	14 55 30	26.9	220.8	2.4		23.1	12	2842	03 21 35
03 23 35	---	14 57 31	26.7	221.3	2.4		23.4	120	2857	03 21 36
03 24 05	NGC4418	14 58 01	27.5	223.5	2.5		24.4	12	2857	03 24 05
03 32 05	---	15 06 02	26.7	225.5	2.6		25.4	480	2918	03 24 06
03 32 34	J1232	15 06 31	25.8	223.6	2.6		24.5	12	2918	03 32 34
03 34 34	---	15 08 31	25.6	224.1	2.6		24.7	120	2934	03 32 35
03 35 04	NGC4418	15 09 01	26.4	226.3	2.7		25.7	12	2934	03 35 04
03 43 04	---	15 17 03	25.5	228.3	2.8		26.6	480	2995	03 35 05
03 43 57	J1256	15 17 56	24.0	218.9	2.3		22.3	19	2995	03 43 57
03 47 57	---	15 21 57	23.6	219.9	2.4		22.8	240	3026	03 43 58
03 48 46	J1232	15 22 46	24.1	227.7	2.8		26.4	19	3026	03 48 46
03 50 46	---	15 24 46	23.8	228.2	2.9		26.6	120	3041	03 48 47
03 51 16	NGC4418	15 25 16	24.6	230.3	3.0		27.5	12	3041	03 51 16
03 59 16	---	15 33 18	23.6	232.2	3.1		28.3	480	3103	03 51 17
03 59 45	J1232	15 33 47	22.8	230.3	3.0		27.6	12	3103	03 59 45
04 01 45	---	15 35 47	22.6	230.8	3.1		27.8	120	3118	03 59 46
04 02 15	NGC4418	15 36 17	23.3	232.9	3.1		28.6	12	3118	04 02 15
04 10 15	---	15 44 18	22.3	234.8	3.3		29.4	480	3180	04 02 16
04 10 44	J1232	15 44 48	21.5	233.0	3.2		28.7	12	3180	04 10 44
04 12 44	---	15 46 48	21.3	233.4	3.2		28.9	120	3195	04 10 45
04 13 14	NGC4418	15 47 18	21.9	235.5	3.3		29.7	12	3195	04 13 14
04 21 14	---	15 55 19	20.9	237.4	3.5		30.4	480	3256	04 13 15
04 21 43	J1232	15 55 49	20.2	235.5	3.4		29.7	12	3256	04 21 43
04 23 43	---	15 57 49	19.9	236.0	3.4		29.9	120	3272	04 21 44
04 24 13	NGC4418	15 58 19	20.5	238.1	3.5		30.7	12	3272	04 24 13
04 32 13	---	16 06 20	19.5	239.9	3.6		31.3	480	3333	04 24 14

Schedule for TORUN (Code Tr) Page 8

Phase-referencing of NGC4418

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

Start UT / Stop UT	Source	Start LST	Start EL	Start AZ	Start HA	Start UP	Start ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 25 Feb 2014 Day 56 ---										
04 32 42	J1232	16 06 49	18.8	238.0	3.6		30.7	12	3333	04 32 42
04 34 42	---	16 08 50	18.5	238.5	3.6		30.8	120	3348	04 32 43
04 35 12	NGC4418	16 09 19	19.1	240.6	3.7		31.5	12	3348	04 35 12
04 43 12	---	16 17 21	18.1	242.4	3.8		32.2	480	3410	04 35 13
04 43 41	J1232	16 17 50	17.4	240.5	3.8		31.6	12	3410	04 43 41
04 45 41	---	16 19 50	17.1	241.0	3.8		31.7	120	3425	04 43 42
04 46 11	NGC4418	16 20 20	17.7	243.1	3.9		32.4	12	3425	04 46 11
04 54 11	---	16 28 22	16.6	244.8	4.0		32.9	480	3487	04 46 12
04 54 40	J1232	16 28 51	15.9	243.0	3.9		32.4	12	3487	04 54 40
04 56 40	---	16 30 51	15.6	243.4	4.0		32.5	120	3502	04 54 41
04 57 10	NGC4418	16 31 21	16.2	245.5	4.1		33.1	12	3502	04 57 10
05 05 10	---	16 39 22	15.1	247.2	4.2		33.6	480	3564	04 57 11
05 06 03	J1256	16 40 15	14.7	238.3	3.7		30.9	20	3564	05 06 03
05 10 03	---	16 44 16	14.2	239.2	3.8		31.2	240	3594	05 06 04
05 10 51	J1232	16 45 04	13.7	246.5	4.2		33.4	19	3594	05 10 51
05 12 51	---	16 47 04	13.4	246.9	4.2		33.6	120	3610	05 10 52
05 13 20	NGC4418	16 47 34	13.9	249.0	4.3		34.1	12	3610	05 13 20
05 21 20	---	16 55 35	12.8	250.7	4.5		34.5	480	3671	05 13 21
05 21 50	J1232	16 56 05	12.2	248.8	4.4		34.1	12	3671	05 21 50
05 23 50	---	16 58 05	11.9	249.2	4.4		34.2	120	3686	05 21 51
05 24 19	NGC4418	16 58 35	12.4	251.3	4.5		34.7	12	3686	05 24 19
05 32 19	---	17 06 36	11.2	253.0	4.6		35.0	480	3748	05 24 20
05 32 48	J1232	17 07 05	10.6	251.1	4.6		34.7	12	3748	05 32 48
05 34 48	---	17 09 06	10.3	251.6	4.6		34.8	120	3763	05 32 49
05 35 18	NGC4418	17 09 35	10.8	253.6	4.7		35.2	12	3763	05 35 18
05 43 18	---	17 17 36	9.6	255.3	4.8		35.5	480	3825	05 35 19
05 43 47	J1232	17 18 06	9.1	253.4	4.8		35.2	12	3825	05 43 47
05 45 47	---	17 20 06	8.8	253.8	4.8		35.3	120	3840	05 43 48
05 46 16	NGC4418	17 20 36	9.2	255.9	4.9		35.6	12	3840	05 46 16
05 54 16	---	17 28 37	8.0	257.5	5.0		35.9	480	3901	05 46 17
05 54 45	J1232	17 29 06	7.5	255.7	4.9		35.6	11	3901	05 54 45
05 56 45	---	17 31 06	7.2	256.1	5.0		35.7	120	3917	05 54 46

```
Schedule for TORUN     (Code Tr )                                Page   9
               Phase-referencing of NGC4418
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  25 Feb 2014   Day  56 ---

05 57 14  NGC4418      17 31 35   7.6 258.1  5.1      36.0    12     3917   05 57 14
06 05 14  ---          17 39 37   6.4 259.8  5.2      36.2   480     3978   05 57 15

06 05 43  J1232        17 40 05   5.9 257.9  5.1      36.0    11     3978   06 05 43
06 07 43  ---          17 42 06   5.6 258.3  5.2      36.1   120     3994   06 05 44

06 08 12  NGC4418      17 42 35   6.0 260.4  5.2      36.3    12     3994   06 08 12
06 16 12  ---          17 50 36   4.8 262.0  5.4      36.5   480     4055   06 08 13

06 16 41  J1232        17 51 05   4.2 260.2  5.3      36.3    11     4055   06 16 41
06 18 41  ---          17 53 05   3.9 260.6  5.3      36.4   120     4070   06 16 42

06 19 04  NGC4418      17 53 29   4.3 262.6  5.4      36.6     6     4070   06 19 04
06 27 04  ---          18 01 30   3.2 264.2  5.6      36.7   480     4132   06 19 05



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


 ======== Setup file: sess114.L1024
   Matching groups in /opt/sched/sched_11.0/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    3         Station: TORUN             Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2         Sample rate: 32.000
   Number of channels: 16    DBE type:                  Speedup factor:   0.50

   Disk used to record data.

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

```
 The following frequency sets based on these setups were used.

  Frequency Set:   5  Setup file default.  Used pcal sets:   1
  LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
            1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
  BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
             625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
  Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
              16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
   Matching frequency sets:   5

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = OFF
   PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
   PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
   PCALFR1=     0     0     0     0     0     0     0     0
   PCALFR2=     0     0     0     0     0     0     0     0

  Track assignments are:
   track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
   barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* NGC4418            12 24 20.753136   * 12 26 54.612600     12 27 39.873319       0.00
                    -00 36 03.52524    *-00 52 39.37200     -00 57 31.42499        0.00

* J1232              12 29 25.899380   * 12 32 00.015985     12 32 45.353459       0.00
                    -02 07 31.66618    *-02 24 04.79425     -02 28 55.54677        0.00

* J1256              12 53 35.831298   * 12 56 11.166566     12 56 56.816922       0.00
                    -05 31 07.99587    *-05 47 21.52473     -05 52 04.79554        0.00

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)
  NGC4418            149.6
  J1232              147.9
  J1256              141.0

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      327 MHz        117. deg
      610 MHz         81. deg
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
```

rk01ultr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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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
-------------------------------------------------------------------------------------------

 --- Tue  25 Feb 2014   Day  56 ---

 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

18 10 00  0748+126     05 46 21  42.3 136.6 -2.1     -25.0     0         0   18 10 00
18 24 30  ---          06 00 54  43.8 141.1 -1.8     -22.7   870        28   18 10 01

18 25 00  0748+126     06 01 24  43.8 141.2 -1.8     -22.7    24        28   18 25 00
18 39 30  ---          06 15 56  45.1 145.8 -1.6     -20.2   870        56   18 25 01

18 40 00  0748+126     06 16 26  45.2 146.0 -1.6     -20.1    24        56   18 40 00
18 54 30  ---          06 30 59  46.3 150.8 -1.3     -17.4   870        84   18 40 01

18 55 00  0748+126     06 31 29  46.3 151.0 -1.3     -17.4    24        84   18 55 00
19 10 00  ---          06 46 31  47.4 156.2 -1.1     -14.4   900       112   18 55 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 ./rk01ul_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

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

   Disk used to record data.
```

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

The following frequency sets based on these setups were used.

 Frequency Set:   7  Setup file default.  Used pcal sets:   1
 LO sum=   22236.00  22236.00  22236.00  22236.00
 BBC fr=     736.00    736.00    736.00    736.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   7

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0748+126          07 48 05.060493   * 07 50 52.045731     07 51 40.960590       0.00
  J0750+1231        12 38 45.47747    * 12 31 04.82815      12 28 38.98287        0.00


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)
  3C147              107.8
  0748+126           139.7

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

rk01umtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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```


```
Observing mode: C-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  25 Feb 2014   Day  56 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

22 00 00  0727-115     09 36 59  19.8 212.9  2.1      19.5     0        0   22 00 00
22 19 30  ---          09 56 32  18.1 217.7  2.4      22.0  1170       37   22 00 01

22 20 00  0727-115     09 57 02  18.1 217.8  2.4      22.1    24       37   22 20 00
22 40 00  ---          10 17 06  16.1 222.5  2.8      24.5  1200       76   22 20 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
   Matching groups in ./rk01um_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0727-115          07 27 58.097813   * 07 30 19.112473     07 31 00.613881       0.00
  J0730-1141       -11 34 52.58107    *-11 41 12.60063     -11 43 20.45909        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0727-115           129.7

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

rk01untr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: 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  26 Feb 2014   Day  57 ---

 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

01 00 00  0754+100     12 37 29  19.9 259.7  4.7      36.9     0         0   01 00 00
01 09 30  ---          12 47 00  18.5 261.7  4.8      37.1   570        18   01 00 01

01 10 00  0754+100     12 47 30  18.4 261.8  4.8      37.1    24        18   01 10 00
01 19 30  ---          12 57 02  17.0 263.8  5.0      37.3   570        36   01 10 01

01 20 00  0754+100     12 57 32  16.9 263.9  5.0      37.3    24        36   01 20 00
01 29 30  ---          13 07 04  15.5 265.8  5.2      37.4   570        55   01 20 01

01 30 00  0754+100     13 07 34  15.5 265.9  5.2      37.4    24        55   01 30 00
01 40 00  ---          13 17 35  13.9 268.0  5.3      37.5   600        74   01 30 01



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


 ======== Setup file: ra1cm2.set
   Matching groups in ./rk01un_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

   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:   2  Setup file default.  Used pcal sets:   1
 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

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0754+100          07 54 22.579229   * 07 57 06.642950     07 57 54.740618       0.00
  J0757+0956        10 04 39.66684    * 09 56 34.85224      09 54 01.58442        0.00


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)
  0754+100           140.9

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

em110tr

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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Schedule for TORUN (Code Tr) Page 2

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

--- Wed 26 Feb 2014 Day 57 ---

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

Start UT / Stop UT	Source	LST	Start EL	Start AZ	Stop HA	Stop UP	Stop ParA	Early / Dwell	Disk GBytes	TPStart SYNC
02 30 00	3C345	14 07 44	60.5	101.0	-2.6		-50.1	0	0	02 30 00
02 34 50	---	14 12 34	61.2	102.2	-2.5		-49.8	290	37	02 30 01
02 37 50	J2015+3710	14 15 35	28.9	65.4	-6.0		-43.3	44	37	02 37 50
02 39 50	=2013+370	14 17 35	29.1	65.7	-6.0		-43.4	120	52	02 37 51
02 39 50	J2032+4127	14 17 35	30.0	59.7	-6.3		-43.8	-27	52	No stop
02 43 50	---	14 21 36	30.5	60.3	-6.2		-44.1	213	83	02 39 51
02 43 50	J2015+3710	14 21 36	29.7	66.4	-5.9		-43.7	-27	83	No stop
02 45 50	=2013+370	14 23 36	30.0	66.7	-5.9		-43.9	93	99	02 43 51
02 45 50	J2032+4127	14 23 36	30.8	60.6	-6.2		-44.3	-27	99	No stop
02 49 50	---	14 27 37	31.3	61.2	-6.1		-44.7	213	129	02 45 51
02 50 50	J2015+3710	14 28 37	30.7	67.6	-5.8		-44.2	33	129	02 50 50
02 52 50	=2013+370	14 30 37	30.9	67.9	-5.8		-44.3	120	145	02 50 51
02 52 50	J2032+4127	14 30 37	31.7	61.7	-6.0		-44.9	-27	145	No stop
02 56 50	---	14 34 38	32.3	62.3	-6.0		-45.2	213	175	02 52 51
02 56 50	J2015+3710	14 34 38	31.5	68.6	-5.7		-44.6	-28	175	No stop
02 58 50	=2013+370	14 36 38	31.8	68.9	-5.7		-44.7	92	191	02 56 51
02 58 50	J2032+4127	14 36 38	32.5	62.6	-5.9		-45.4	-27	191	No stop
03 02 50	---	14 40 39	33.1	63.3	-5.9		-45.7	213	221	02 58 51
03 03 50	J2015+3710	14 41 39	32.5	69.7	-5.6		-45.0	32	221	03 03 50
03 05 50	=2013+370	14 43 39	32.8	70.1	-5.5		-45.2	120	237	03 03 51

```
Schedule for TORUN     (Code Tr )                                   Page   3
              Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  26 Feb 2014   Day  57 ---

03 05 50  J2032+4127   14 43 39  33.5  63.7 -5.8     -46.0   -28      237   No stop
03 09 50  ---          14 47 40  34.0  64.3 -5.8     -46.3   212      268   03 05 51

03 09 50  J2015+3710   14 47 40  33.3  70.7 -5.5     -45.4   -28      268   No stop
03 11 50  =2013+370    14 49 40  33.6  71.1 -5.4     -45.5    92      283   03 09 51

03 11 50  J2007+4029   14 49 40  37.0  69.4 -5.3     -47.7   -27      283   No stop
03 12 50  =2005+403    14 50 41  37.1  69.6 -5.3     -47.8    33      291   03 11 51

03 13 50  J2015+3710   14 51 41  33.9  71.4 -5.4     -45.6    34      291   03 13 50
03 15 50  =2013+370    14 53 41  34.2  71.7 -5.4     -45.7   120      306   03 13 51

03 15 50  J2032+4127   14 53 41  34.8  65.3 -5.7     -46.8   -28      306   No stop
03 19 50  ---          14 57 42  35.4  65.9 -5.6     -47.1   212      337   03 15 51

03 19 50  J2015+3710   14 57 42  34.8  72.4 -5.3     -46.0   -28      337   No stop
03 21 50  =2013+370    14 59 42  35.1  72.8 -5.3     -46.1    92      352   03 19 51

03 21 50  J2032+4127   14 59 42  35.6  66.2 -5.6     -47.2   -28      352   No stop
03 25 50  ---          15 03 43  36.2  66.9 -5.5     -47.5   212      383   03 21 51

03 26 50  J2015+3710   15 04 43  35.8  73.6 -5.2     -46.3    32      383   03 26 50
03 28 50  =2013+370    15 06 43  36.1  73.9 -5.2     -46.4   120      398   03 26 51

03 28 50  J2032+4127   15 06 43  36.6  67.3 -5.4     -47.7   -28      398   No stop
03 32 50  ---          15 10 44  37.2  68.0 -5.4     -48.0   212      429   03 28 51

03 33 50  J2015+3710   15 11 44  36.8  74.8 -5.1     -46.7    32      429   03 33 50
03 35 50  =2013+370    15 13 44  37.1  75.1 -5.0     -46.8   120      444   03 33 51

03 35 50  J2032+4127   15 13 44  37.6  68.4 -5.3     -48.2   -28      444   No stop
03 39 50  ---          15 17 45  38.1  69.1 -5.2     -48.5   212      475   03 35 51

03 39 50  J2015+3710   15 17 45  37.7  75.8 -5.0     -47.0   -29      475   No stop
03 41 50  =2013+370    15 19 45  38.0  76.2 -4.9     -47.1    91      490   03 39 51

03 41 50  J2032+4127   15 19 45  38.4  69.4 -5.2     -48.6   -28      490   No stop
03 45 50  ---          15 23 46  39.0  70.0 -5.1     -48.9   212      521   03 41 51

03 46 50  J2015+3710   15 24 46  38.7  77.0 -4.9     -47.3    31      521   03 46 50
03 48 50  =2013+370    15 26 46  39.0  77.4 -4.8     -47.4   120      536   03 46 51

03 48 50  J2032+4127   15 26 46  39.4  70.5 -5.1     -49.1   -29      536   No stop
03 52 50  ---          15 30 47  40.0  71.1 -5.0     -49.4   211      567   03 48 51

03 52 50  J2015+3710   15 30 47  39.6  78.1 -4.8     -47.6   -29      567   No stop
03 54 50  =2013+370    15 32 47  39.9  78.4 -4.7     -47.6    91      582   03 52 51
```

Schedule for TORUN (Code Tr) Page 4

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
03 54 50	J2032+4127	15 32 47	40.3	71.4	-5.0		-49.5	-29	582	No stop
03 58 50	---	15 36 48	40.8	72.1	-4.9		-49.7	211	613	03 54 51
03 59 50	J2015+3710	15 37 48	40.6	79.3	-4.6		-47.8	31	613	03 59 50
04 01 50	=2013+370	15 39 49	40.9	79.7	-4.6		-47.9	120	628	03 59 51
04 01 50	J2032+4127	15 39 49	41.3	72.6	-4.9		-49.9	-29	628	No stop
04 05 50	---	15 43 49	41.9	73.2	-4.8		-50.1	211	659	04 01 51
04 05 50	J2015+3710	15 43 49	41.5	80.4	-4.5		-48.0	-29	659	No stop
04 07 50	=2013+370	15 45 50	41.8	80.7	-4.5		-48.1	91	675	04 05 51
04 07 50	J2007+4029	15 45 50	45.1	78.6	-4.4		-50.8	-26	675	No stop
04 08 50	=2005+403	15 46 50	45.2	78.8	-4.4		-50.8	34	682	04 07 51
04 09 50	J2015+3710	15 47 50	42.1	81.1	-4.5		-48.2	34	682	04 09 50
04 11 50	=2013+370	15 49 50	42.4	81.5	-4.4		-48.2	120	698	04 09 51
04 11 50	J2032+4127	15 49 50	42.7	74.2	-4.7		-50.5	-29	698	No stop
04 15 50	---	15 53 51	43.3	74.8	-4.6		-50.7	211	728	04 11 51
04 15 50	J2015+3710	15 53 51	43.0	82.2	-4.4		-48.3	-30	728	No stop
04 17 50	=2013+370	15 55 51	43.3	82.5	-4.3		-48.4	90	744	04 15 51
04 17 50	J2032+4127	15 55 51	43.6	75.2	-4.6		-50.8	-30	744	No stop
04 21 50	---	15 59 52	44.2	75.8	-4.5		-51.0	210	774	04 17 51
04 22 50	J2015+3710	16 00 52	44.0	83.5	-4.3		-48.5	30	774	04 22 50
04 24 50	=2013+370	16 02 52	44.3	83.8	-4.2		-48.6	120	790	04 22 51
04 24 50	J2032+4127	16 02 52	44.6	76.3	-4.5		-51.2	-30	790	No stop
04 28 50	---	16 06 53	45.2	77.0	-4.4		-51.4	210	820	04 24 51
04 29 50	J2015+3710	16 07 53	45.1	84.8	-4.1		-48.7	30	820	04 29 50
04 31 50	=2013+370	16 09 54	45.4	85.1	-4.1		-48.7	120	836	04 29 51
04 31 50	J2032+4127	16 09 54	45.6	77.5	-4.4		-51.5	-30	836	No stop
04 35 50	---	16 13 54	46.2	78.2	-4.3		-51.7	210	867	04 31 51
04 35 50	J2015+3710	16 13 54	46.0	85.9	-4.0		-48.8	-31	867	No stop
04 37 50	=2013+370	16 15 55	46.3	86.3	-4.0		-48.8	89	882	04 35 51
04 37 50	J2032+4127	16 15 55	46.5	78.5	-4.3		-51.8	-30	882	No stop
04 41 50	---	16 19 55	47.1	79.2	-4.2		-52.0	210	913	04 37 51
04 42 50	J2015+3710	16 20 55	47.0	87.2	-3.9		-48.9	29	913	04 42 50
04 44 50	=2013+370	16 22 56	47.3	87.6	-3.9		-48.9	120	928	04 42 51

Schedule for TORUN (Code Tr) Page 5

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
04 44 50	J2032+4127	16 22 56	47.6	79.7	-4.2		-52.1	-31	928	No stop
04 48 50	---	16 26 56	48.1	80.4	-4.1		-52.2	209	959	04 44 51
04 48 50	J2015+3710	16 26 56	47.9	88.4	-3.8		-48.9	-31	959	No stop
04 50 50	=2013+370	16 28 57	48.2	88.8	-3.8		-48.9	89	974	04 48 51
04 50 50	J2032+4127	16 28 57	48.4	80.7	-4.1		-52.3	-31	974	No stop
04 54 50	---	16 32 57	49.0	81.4	-4.0		-52.4	209	1005	04 50 51
04 55 50	J2015+3710	16 33 57	49.0	89.8	-3.7		-48.9	29	1005	04 55 50
04 57 50	=2013+370	16 35 58	49.3	90.2	-3.7		-48.9	120	1020	04 55 51
04 57 50	J2032+4127	16 35 58	49.5	81.9	-3.9		-52.5	-31	1020	No stop
05 01 50	---	16 39 58	50.1	82.6	-3.9		-52.7	209	1051	04 57 51
05 01 50	J2015+3710	16 39 58	49.9	91.0	-3.6		-48.9	-32	1051	No stop
05 03 50	=2013+370	16 41 59	50.2	91.4	-3.6		-48.9	88	1066	05 01 51
05 03 50	J2007+4029	16 41 59	53.5	88.8	-3.4		-52.2	-26	1066	No stop
05 04 50	=2005+403	16 42 59	53.6	89.0	-3.4		-52.2	34	1074	05 03 51
05 05 50	J2015+3710	16 43 59	50.5	91.8	-3.5		-48.9	34	1074	05 05 50
05 07 50	=2013+370	16 45 59	50.8	92.2	-3.5		-48.9	120	1089	05 05 51
05 07 50	J2032+4127	16 45 59	51.0	83.7	-3.8		-52.8	-32	1089	No stop
05 11 50	---	16 50 00	51.6	84.4	-3.7		-52.9	208	1120	05 07 51
05 11 50	J2015+3710	16 50 00	51.4	93.0	-3.4		-48.9	-32	1120	No stop
05 13 50	=2013+370	16 52 00	51.7	93.5	-3.4		-48.8	88	1135	05 11 51
05 13 50	J2032+4127	16 52 00	51.9	84.8	-3.7		-53.0	-32	1135	No stop
05 17 50	---	16 56 01	52.5	85.5	-3.6		-53.1	208	1166	05 13 51
05 18 50	J2015+3710	16 57 01	52.4	94.5	-3.3		-48.7	27	1166	05 18 50
05 20 50	=2013+370	16 59 02	52.7	95.0	-3.3		-48.7	120	1181	05 18 51
05 20 50	J2032+4127	16 59 02	52.9	86.1	-3.6		-53.1	-33	1181	No stop
05 24 50	---	17 03 02	53.5	86.8	-3.5		-53.2	207	1212	05 20 51
05 25 50	J2015+3710	17 04 02	53.5	96.1	-3.2		-48.6	27	1212	05 25 50
05 27 50	=2013+370	17 06 03	53.8	96.5	-3.2		-48.5	120	1228	05 25 51
05 27 50	J2032+4127	17 06 03	54.0	87.4	-3.4		-53.2	-33	1228	No stop
05 31 50	---	17 10 03	54.6	88.2	-3.4		-53.3	207	1258	05 27 51
05 31 50	J2015+3710	17 10 03	54.4	97.4	-3.1		-48.4	-34	1258	No stop
05 33 50	=2013+370	17 12 04	54.7	97.9	-3.1		-48.3	86	1274	05 31 51

Schedule for TORUN (Code Tr) Page 6

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
05 33 50	J2032+4127	17 12 04	54.9	88.6	-3.3		-53.3	-33	1274	No stop
05 37 50	---	17 16 04	55.5	89.4	-3.3		-53.3	207	1304	05 33 51
05 38 50	J2015+3710	17 17 05	55.4	99.0	-3.0		-48.1	26	1304	05 38 50
05 40 50	=2013+370	17 19 05	55.7	99.5	-2.9		-48.1	120	1320	05 38 51
05 40 50	J2032+4127	17 19 05	55.9	90.0	-3.2		-53.3	-34	1320	No stop
05 44 50	---	17 23 06	56.5	90.8	-3.2		-53.3	206	1350	05 40 51
05 44 50	J2015+3710	17 23 06	56.3	100.5	-2.9		-47.9	-35	1350	No stop
05 46 50	=2013+370	17 25 06	56.6	100.9	-2.8		-47.8	85	1366	05 44 51
05 46 50	J2032+4127	17 25 06	56.8	91.2	-3.1		-53.3	-34	1366	No stop
05 50 50	---	17 29 07	57.4	92.0	-3.1		-53.3	206	1396	05 46 51
05 51 50	J2015+3710	17 30 07	57.4	102.2	-2.8		-47.5	25	1396	05 51 50
05 53 50	=2013+370	17 32 07	57.6	102.7	-2.7		-47.4	120	1412	05 51 51
05 53 50	J2032+4127	17 32 07	57.9	92.6	-3.0		-53.2	-35	1412	No stop
05 57 50	---	17 36 08	58.5	93.5	-2.9		-53.2	205	1443	05 53 51
05 57 50	J2015+3710	17 36 08	58.2	103.7	-2.7		-47.1	-36	1443	No stop
05 59 50	=2013+370	17 38 08	58.5	104.2	-2.6		-47.0	84	1458	05 57 51
05 59 50	J2007+4029	17 38 08	61.8	101.2	-2.5		-50.8	-27	1458	No stop
06 00 50	=2005+403	17 39 08	62.0	101.5	-2.5		-50.7	33	1466	05 59 51
06 01 50	J2015+3710	17 40 08	58.8	104.7	-2.6		-46.8	34	1466	06 01 50
06 03 50	=2013+370	17 42 09	59.1	105.3	-2.6		-46.7	120	1481	06 01 51
06 03 50	J2032+4127	17 42 09	59.4	94.8	-2.8		-53.0	-36	1481	No stop
06 07 50	---	17 46 09	60.0	95.7	-2.8		-52.9	204	1512	06 03 51
06 07 50	J2015+3710	17 46 09	59.7	106.4	-2.5		-46.4	-37	1512	No stop
06 09 50	=2013+370	17 48 10	60.0	106.9	-2.5		-46.2	83	1527	06 07 51
06 09 50	J2032+4127	17 48 10	60.3	96.2	-2.7		-52.9	-36	1527	No stop
06 13 50	---	17 52 10	60.9	97.1	-2.7		-52.7	204	1558	06 09 51
06 14 50	J2015+3710	17 53 10	60.7	108.3	-2.4		-45.7	23	1558	06 14 50
06 16 50	=2013+370	17 55 11	61.0	108.9	-2.3		-45.5	120	1573	06 14 51
06 16 50	J2032+4127	17 55 11	61.3	97.8	-2.6		-52.6	-37	1573	No stop
06 20 50	---	17 59 11	61.9	98.7	-2.6		-52.4	203	1604	06 16 51

Schedule for TORUN (Code Tr) Page 7

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
06 21 50	J2015+3710	18 00 12	61.7	110.3	-2.3		-45.0	22	1604	06 21 50
06 23 50	=2013+370	18 02 12	62.0	110.9	-2.2		-44.8	120	1619	06 21 51
06 26 50	3C345	18 05 12	70.7	234.5	1.4		39.5	-83	1619	06 26 50
06 31 50	---	18 10 13	70.1	236.7	1.4		40.8	217	1658	06 26 51
06 34 50	J2015+3710	18 13 14	63.5	114.4	-2.0		-43.4	-79	1658	06 34 50
06 36 50	=2013+370	18 15 14	63.8	115.0	-2.0		-43.1	41	1673	06 34 51
06 36 50	J2032+4127	18 15 14	64.3	102.8	-2.3		-51.4	-39	1673	No stop
06 40 50	---	18 19 15	64.9	103.9	-2.2		-51.1	201	1704	06 36 51
06 40 50	J2015+3710	18 19 15	64.3	116.4	-1.9		-42.5	-40	1704	No stop
06 42 50	=2013+370	18 21 15	64.6	117.1	-1.9		-42.2	80	1719	06 40 51
06 42 50	J2032+4127	18 21 15	65.2	104.5	-2.2		-50.9	-40	1719	No stop
06 46 50	---	18 25 16	65.8	105.6	-2.1		-50.5	200	1750	06 42 51
06 47 50	J2015+3710	18 26 16	65.2	118.8	-1.8		-41.4	19	1750	06 47 50
06 49 50	=2013+370	18 28 16	65.5	119.5	-1.8		-41.0	120	1765	06 47 51
06 49 50	J2032+4127	18 28 16	66.2	106.5	-2.1		-50.2	-41	1765	No stop
06 53 50	---	18 32 17	66.8	107.7	-2.0		-49.8	199	1796	06 49 51
06 53 50	J2015+3710	18 32 17	66.0	121.0	-1.7		-40.3	-42	1796	No stop
06 55 50	=2013+370	18 34 17	66.3	121.8	-1.7		-39.9	78	1811	06 53 51
06 55 50	J2032+4127	18 34 17	67.1	108.4	-2.0		-49.6	-41	1811	No stop
06 59 50	---	18 38 18	67.6	109.6	-1.9		-49.0	199	1842	06 55 51
07 00 50	J2015+3710	18 39 18	66.9	123.7	-1.6		-38.8	17	1842	07 00 50
07 02 50	=2013+370	18 41 18	67.2	124.5	-1.6		-38.4	120	1857	07 00 51
07 02 50	J2032+4127	18 41 18	68.1	110.6	-1.9		-48.6	-42	1857	No stop
07 06 40	---	18 45 09	68.6	111.9	-1.8		-48.1	188	1887	07 02 51
07 06 40	J2015+3710	18 45 09	67.6	126.1	-1.5		-37.5	-44	1887	No stop
07 08 40	=2013+370	18 47 09	67.9	126.9	-1.5		-37.1	76	1902	07 06 41
07 08 40	J2007+4029	18 47 09	71.4	124.3	-1.4		-40.7	-27	1902	No stop
07 09 40	=2005+403	18 48 09	71.5	124.8	-1.3		-40.5	33	1910	07 08 41
07 10 40	J2015+3710	18 49 10	68.1	127.8	-1.4		-36.6	33	1910	07 10 40
07 12 40	=2013+370	18 51 10	68.4	128.6	-1.4		-36.1	120	1925	07 10 41

Schedule for TORUN (Code Tr) Page 8

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
07 12 40	J2032+4127	18 51 10	69.4	114.0	-1.7		-47.1	-44	1925	No stop
07 16 40	---	18 55 11	70.0	115.5	-1.6		-46.4	196	1956	07 12 41
07 16 40	J2015+3710	18 55 11	68.8	130.4	-1.3		-35.0	-45	1956	No stop
07 18 40	=2013+370	18 57 11	69.1	131.3	-1.3		-34.5	75	1971	07 16 41
07 18 40	J2032+4127	18 57 11	70.2	116.3	-1.6		-46.0	-45	1971	No stop
07 22 40	---	19 01 12	70.8	117.8	-1.5		-45.2	195	2002	07 18 41
07 23 40	J2015+3710	19 02 12	69.6	133.7	-1.2		-33.0	14	2002	07 23 40
07 25 40	=2013+370	19 04 12	69.8	134.7	-1.2		-32.4	120	2017	07 23 41
07 25 40	J2032+4127	19 04 12	71.2	119.1	-1.5		-44.5	-46	2017	No stop
07 29 40	---	19 08 13	71.7	120.8	-1.4		-43.5	194	2048	07 25 41
07 30 40	J2015+3710	19 09 13	70.3	137.2	-1.1		-30.9	13	2048	07 30 40
07 32 40	=2013+370	19 11 13	70.5	138.2	-1.1		-30.2	120	2063	07 30 41
07 32 40	J2032+4127	19 11 13	72.1	122.1	-1.4		-42.8	-47	2063	No stop
07 36 40	---	19 15 14	72.6	123.9	-1.3		-41.7	193	2094	07 32 41
07 36 40	J2015+3710	19 15 14	70.9	140.3	-1.0		-28.8	-49	2094	No stop
07 38 40	=2013+370	19 17 14	71.1	141.4	-1.0		-28.1	71	2109	07 36 41
07 38 40	J2032+4127	19 17 14	72.8	124.9	-1.3		-41.1	-47	2109	No stop
07 42 40	---	19 21 15	73.3	126.8	-1.2		-39.9	193	2140	07 38 41
07 43 40	J2015+3710	19 22 15	71.6	144.1	-0.9		-26.2	11	2140	07 43 40
07 45 40	=2013+370	19 24 15	71.8	145.3	-0.9		-25.4	120	2156	07 43 41
07 45 40	J2032+4127	19 24 15	73.7	128.4	-1.1		-39.0	-48	2156	No stop
07 49 40	---	19 28 16	74.1	130.5	-1.1		-37.6	192	2186	07 45 41
07 49 40	J2015+3710	19 28 16	72.1	147.6	-0.8		-23.8	-50	2186	No stop
07 51 40	=2013+370	19 30 16	72.3	148.8	-0.8		-23.0	70	2202	07 49 41
07 51 40	J2032+4127	19 30 16	74.4	131.6	-1.0		-36.8	-49	2202	No stop
07 55 40	---	19 34 17	74.8	133.9	-1.0		-35.3	191	2232	07 51 41
07 56 40	J2015+3710	19 35 17	72.6	151.9	-0.7		-20.8	9	2232	07 56 40
07 58 40	=2013+370	19 37 18	72.8	153.2	-0.6		-19.9	120	2248	07 56 41
07 58 40	J2032+4127	19 37 18	75.1	135.7	-0.9		-34.1	-49	2248	No stop
08 02 30	---	19 41 08	75.5	138.0	-0.9		-32.4	181	2277	07 58 41

Schedule for TORUN (Code Tr) Page 9

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
08 02 30	J2015+3710	19 41 08	73.0	155.6	-0.6		-18.1	-51	2277	No stop
08 04 30	=2013+370	19 43 08	73.1	156.9	-0.5		-17.2	69	2292	08 02 31
08 04 30	J2007+4029	19 43 08	76.7	158.8	-0.4		-16.6	-27	2292	No stop
08 05 30	=2005+403	19 44 09	76.8	159.6	-0.4		-16.0	33	2300	08 04 31
08 06 30	J2015+3710	19 45 09	73.2	158.2	-0.5		-16.2	33	2300	08 06 30
08 08 30	=2013+370	19 47 09	73.4	159.6	-0.5		-15.3	120	2316	08 06 31
08 08 30	J2032+4127	19 47 09	76.1	142.0	-0.8		-29.6	-49	2316	No stop
08 12 30	---	19 51 10	76.5	144.8	-0.7		-27.6	191	2346	08 08 31
08 12 30	J2015+3710	19 51 10	73.6	162.3	-0.4		-13.3	-51	2346	No stop
08 14 30	=2013+370	19 53 10	73.6	163.7	-0.4		-12.2	69	2362	08 12 31
08 14 30	J2032+4127	19 53 10	76.6	146.2	-0.7		-26.5	-49	2362	No stop
08 18 30	---	19 57 11	77.0	149.2	-0.6		-24.3	191	2392	08 14 31
08 19 30	J2015+3710	19 58 11	73.8	167.2	-0.3		-9.6	9	2392	08 19 30
08 21 30	=2013+370	20 00 11	73.9	168.6	-0.3		-8.6	120	2408	08 19 31
08 21 30	J2032+4127	20 00 11	77.2	151.5	-0.5		-22.5	-48	2408	No stop
08 25 30	---	20 04 12	77.5	154.7	-0.5		-20.1	192	2438	08 21 31
08 26 30	J2015+3710	20 05 12	74.0	172.2	-0.2		-5.9	10	2438	08 26 30
08 28 30	=2013+370	20 07 12	74.1	173.6	-0.1		-4.8	120	2454	08 26 31
08 28 30	J2032+4127	20 07 12	77.6	157.1	-0.4		-18.2	-47	2454	No stop
08 32 30	---	20 11 13	77.9	160.5	-0.4		-15.5	193	2484	08 28 31
08 32 30	J2015+3710	20 11 13	74.1	176.5	-0.1		-2.6	-48	2484	No stop
08 34 30	=2013+370	20 13 13	74.1	178.0	-0.0		-1.5	72	2500	08 32 31
08 34 30	J2032+4127	20 13 13	78.0	162.3	-0.3		-14.1	-45	2500	No stop
08 38 30	---	20 17 14	78.1	165.8	-0.3		-11.4	195	2531	08 34 31
08 39 30	J2015+3710	20 18 14	74.1	181.6	0.0		1.2	14	2531	08 39 30
08 41 30	=2013+370	20 20 15	74.1	183.1	0.1		2.3	120	2546	08 39 31
08 41 30	J2032+4127	20 20 15	78.2	168.5	-0.2		-9.2	-43	2546	No stop
08 45 30	---	20 24 15	78.3	172.2	-0.1		-6.3	197	2577	08 41 31
08 45 30	J2015+3710	20 24 15	74.1	186.0	0.1		4.5	-44	2577	No stop
08 47 30	=2013+370	20 26 16	74.0	187.4	0.2		5.6	76	2592	08 45 31

Schedule for TORUN (Code Tr) Page 10

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
08 47 30	J2032+4127	20 26 16	78.4	174.0	-0.1		-4.8	-41	2592	No stop
08 51 30	---	20 30 16	78.4	177.7	-0.0		-1.8	199	2623	08 47 31
08 52 30	J2015+3710	20 31 16	73.9	191.0	0.3		8.3	19	2623	08 52 30
08 54 30	=2013+370	20 33 17	73.8	192.5	0.3		9.4	120	2638	08 52 31
08 54 30	J2032+4127	20 33 17	78.4	180.5	0.0		0.4	-38	2638	No stop
08 58 20	---	20 37 07	78.4	184.1	0.1		3.3	192	2668	08 54 31
08 58 20	J2015+3710	20 37 07	73.7	195.1	0.4		11.4	-38	2668	No stop
09 00 20	=2013+370	20 39 08	73.6	196.5	0.4		12.4	82	2683	08 58 21
09 00 20	J2007+4029	20 39 08	76.4	205.7	0.5		20.1	-34	2683	No stop
09 01 20	=2005+403	20 40 08	76.3	206.5	0.5		20.6	26	2691	09 00 21
09 02 20	J2015+3710	20 41 08	73.5	197.9	0.4		13.4	27	2691	09 02 20
09 04 20	=2013+370	20 43 08	73.4	199.3	0.5		14.4	120	2706	09 02 21
09 04 20	J2032+4127	20 43 08	78.3	189.7	0.2		7.7	-33	2706	No stop
09 08 20	---	20 47 09	78.2	193.3	0.2		10.6	207	2737	09 04 21
09 08 20	J2015+3710	20 47 09	73.2	202.0	0.5		16.4	-33	2737	No stop
09 10 20	=2013+370	20 49 09	73.1	203.3	0.6		17.3	87	2752	09 08 21
09 10 20	J2032+4127	20 49 09	78.1	195.1	0.3		12.0	-32	2752	No stop
09 14 20	---	20 53 10	77.9	198.6	0.3		14.8	208	2783	09 10 21
09 15 20	J2015+3710	20 54 10	72.8	206.5	0.6		19.7	27	2783	09 15 20
09 17 20	=2013+370	20 56 10	72.7	207.8	0.7		20.6	120	2798	09 15 21
09 17 20	J2032+4127	20 56 10	77.8	201.2	0.4		16.8	-33	2798	No stop
09 21 20	---	21 00 11	77.5	204.5	0.5		19.4	207	2829	09 17 21
09 22 20	J2015+3710	21 01 11	72.3	210.9	0.8		22.8	27	2829	09 22 20
09 24 20	=2013+370	21 03 12	72.1	212.1	0.8		23.6	120	2844	09 22 21
09 26 20	J2253+1608	21 05 12	47.3	139.4	-1.8		-24.0	-40	2844	09 26 20
09 31 20	=3C454.3	21 10 13	47.8	141.0	-1.7		-23.2	260	2883	09 26 21
09 34 10	J2015+3710	21 13 03	71.3	217.7	1.0		27.5	2	2883	09 34 10
09 36 10	=2013+370	21 15 04	71.1	218.8	1.0		28.2	120	2898	09 34 11
09 36 10	J2032+4127	21 15 04	76.4	215.8	0.7		28.0	-34	2898	No stop
09 40 10	---	21 19 04	76.0	218.6	0.8		30.0	206	2929	09 36 11

Schedule for TORUN (Code Tr) Page 11

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
09 40 10	J2015+3710	21 19 04	70.7	220.9	1.1		29.6	-34	2929	No stop
09 42 10	=2013+370	21 21 05	70.5	222.0	1.1		30.3	86	2944	09 40 11
09 42 10	J2032+4127	21 21 05	75.8	219.9	0.8		30.9	-34	2944	No stop
09 46 10	---	21 25 05	75.4	222.5	0.9		32.8	206	2975	09 42 11
09 47 10	J2015+3710	21 26 05	70.0	224.5	1.2		31.9	26	2975	09 47 10
09 49 10	=2013+370	21 28 06	69.8	225.5	1.2		32.5	120	2990	09 47 11
09 49 10	J2032+4127	21 28 06	75.1	224.3	0.9		34.1	-34	2990	No stop
09 53 10	---	21 32 06	74.7	226.7	1.0		35.7	206	3021	09 49 11
09 53 10	J2015+3710	21 32 06	69.4	227.4	1.3		33.7	-34	3021	No stop
09 55 10	=2013+370	21 34 07	69.1	228.3	1.3		34.3	86	3036	09 53 11
09 55 10	J2032+4127	21 34 07	74.5	227.8	1.0		36.5	-34	3036	No stop
09 59 10	---	21 38 07	74.0	230.0	1.1		37.9	206	3067	09 55 11
10 00 10	J2015+3710	21 39 07	68.6	230.6	1.4		35.6	26	3067	10 00 10
10 02 10	=2013+370	21 41 08	68.3	231.5	1.4		36.2	120	3082	10 00 11
10 02 10	J2032+4127	21 41 08	73.7	231.6	1.1		38.9	-34	3082	No stop
10 06 10	---	21 45 08	73.2	233.7	1.2		40.2	206	3113	10 02 11
10 06 10	J2015+3710	21 45 08	67.8	233.2	1.5		37.1	-34	3113	No stop
10 08 10	=2013+370	21 47 09	67.6	234.0	1.5		37.6	86	3128	10 06 11
10 08 10	J2007+4029	21 47 09	69.1	243.0	1.6		44.8	-33	3128	No stop
10 09 10	=2005+403	21 48 09	69.0	243.4	1.7		45.0	27	3136	10 08 11
10 10 10	J2015+3710	21 49 09	67.4	234.9	1.6		38.1	27	3136	10 10 10
10 12 10	=2013+370	21 51 09	67.1	235.7	1.6		38.5	120	3151	10 10 11
10 12 10	J2032+4127	21 51 09	72.5	236.5	1.3		42.0	-34	3151	No stop
10 16 10	---	21 55 10	72.0	238.3	1.4		43.0	206	3182	10 12 11
10 16 10	J2015+3710	21 55 10	66.6	237.3	1.7		39.4	-34	3182	No stop
10 18 10	=2013+370	21 57 10	66.4	238.0	1.7		39.8	86	3197	10 16 11
10 18 10	J2032+4127	21 57 10	71.7	239.2	1.4		43.5	-34	3197	No stop
10 22 10	---	22 01 11	71.2	240.9	1.5		44.5	206	3228	10 18 11
10 23 10	J2015+3710	22 02 11	65.7	239.9	1.8		40.7	26	3228	10 23 10
10 25 10	=2013+370	22 04 12	65.4	240.6	1.8		41.1	120	3244	10 23 11

Schedule for TORUN (Code Tr) Page 12

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
10 25 10	J2032+4127	22 04 12	70.8	242.1	1.5		45.1	-34	3244	No stop
10 29 10	---	22 08 12	70.2	243.7	1.6		46.0	206	3274	10 25 11
10 30 10	J2015+3710	22 09 12	64.8	242.4	1.9		41.9	26	3274	10 30 10
10 32 10	=2013+370	22 11 13	64.5	243.1	1.9		42.3	120	3290	10 30 11
10 32 10	J2032+4127	22 11 13	69.8	244.9	1.6		46.5	-34	3290	No stop
10 36 10	---	22 15 13	69.3	246.3	1.7		47.3	206	3320	10 32 11
10 36 10	J2015+3710	22 15 13	64.0	244.5	2.0		42.9	-34	3320	No stop
10 38 10	=2013+370	22 17 14	63.7	245.1	2.0		43.2	86	3336	10 36 11
10 38 10	J2032+4127	22 17 14	69.0	247.0	1.7		47.6	-34	3336	No stop
10 42 10	---	22 21 14	68.5	248.4	1.8		48.2	206	3366	10 38 11
10 43 10	J2015+3710	22 22 15	63.0	246.7	2.1		43.9	26	3366	10 43 10
10 45 10	=2013+370	22 24 15	62.7	247.4	2.1		44.1	120	3382	10 43 11
10 45 10	J2032+4127	22 24 15	68.0	249.4	1.9		48.7	-33	3382	No stop
10 49 10	---	22 28 16	67.5	250.7	1.9		49.2	207	3412	10 45 11
10 49 10	J2015+3710	22 28 16	62.2	248.6	2.2		44.6	-34	3412	No stop
10 51 10	=2013+370	22 30 16	61.9	249.2	2.2		44.8	86	3428	10 49 11
10 51 10	J2032+4127	22 30 16	67.2	251.4	2.0		49.4	-33	3428	No stop
10 55 10	---	22 34 17	66.6	252.6	2.0		49.9	207	3459	10 51 11
10 56 10	J2015+3710	22 35 17	61.2	250.7	2.3		45.4	26	3459	10 56 10
10 58 10	=2013+370	22 37 17	60.9	251.3	2.4		45.6	120	3474	10 56 11
10 58 10	J2032+4127	22 37 17	66.2	253.5	2.1		50.3	-33	3474	No stop
11 02 10	---	22 41 18	65.6	254.7	2.1		50.7	207	3505	10 58 11
11 02 10	J2015+3710	22 41 18	60.3	252.4	2.4		46.0	-34	3505	No stop
11 04 10	=2013+370	22 43 18	60.1	252.9	2.5		46.1	86	3520	11 02 11
11 04 10	J2007+4029	22 43 18	61.1	260.0	2.6		51.1	-29	3520	No stop
11 05 10	=2005+403	22 44 18	61.0	260.3	2.6		51.2	31	3528	11 04 11
11 06 10	J2015+3710	22 45 18	59.8	253.5	2.5		46.3	31	3528	11 06 10
11 08 10	=2013+370	22 47 19	59.5	254.0	2.5		46.5	120	3543	11 06 11
11 08 10	J2032+4127	22 47 19	64.7	256.4	2.2		51.2	-33	3543	No stop
11 12 10	---	22 51 19	64.1	257.5	2.3		51.5	207	3574	11 08 11

Schedule for TORUN (Code Tr) Page 13

Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
11 12 10	J2015+3710	22 51 19	58.9	255.1	2.6		46.8	-34	3574	No stop
11 14 10	=2013+370	22 53 20	58.6	255.6	2.6		46.9	86	3589	11 12 11
11 14 10	J2032+4127	22 53 20	63.8	258.0	2.3		51.7	-33	3589	No stop
11 18 10	---	22 57 20	63.3	259.0	2.4		51.9	207	3620	11 14 11
11 19 10	J2015+3710	22 58 20	57.9	256.9	2.7		47.3	26	3620	11 19 10
11 21 10	=2013+370	23 00 21	57.6	257.4	2.7		47.4	120	3635	11 19 11
11 21 10	J2032+4127	23 00 21	62.8	259.8	2.5		52.1	-33	3635	No stop
11 25 10	---	23 04 21	62.2	260.8	2.5		52.3	207	3666	11 21 11
11 26 10	J2015+3710	23 05 22	56.8	258.7	2.8		47.7	26	3666	11 26 10
11 28 10	=2013+370	23 07 22	56.5	259.2	2.9		47.8	120	3681	11 26 11
11 28 10	J2032+4127	23 07 22	61.8	261.5	2.6		52.5	-33	3681	No stop
11 32 10	---	23 11 23	61.2	262.5	2.6		52.6	207	3712	11 28 11
11 32 10	J2015+3710	23 11 23	56.0	260.1	2.9		48.0	-34	3712	No stop
11 34 10	=2013+370	23 13 23	55.7	260.6	3.0		48.1	86	3727	11 32 11
11 34 10	J2032+4127	23 13 23	60.9	263.0	2.7		52.7	-33	3727	No stop
11 38 10	---	23 17 24	60.3	263.9	2.7		52.9	207	3758	11 34 11
11 39 10	J2015+3710	23 18 24	54.9	261.8	3.0		48.3	26	3758	11 39 10
11 41 10	=2013+370	23 20 24	54.6	262.2	3.1		48.4	120	3773	11 39 11
11 41 10	J2032+4127	23 20 24	59.8	264.6	2.8		53.0	-33	3773	No stop
11 45 10	---	23 24 25	59.2	265.5	2.9		53.1	207	3804	11 41 11
11 45 10	J2015+3710	23 24 25	54.0	263.1	3.1		48.5	-34	3804	No stop
11 47 10	=2013+370	23 26 25	53.7	263.6	3.2		48.5	86	3820	11 45 11
11 47 10	J2032+4127	23 26 25	58.9	265.9	2.9		53.1	-33	3820	No stop
11 51 10	---	23 30 26	58.3	266.8	3.0		53.2	207	3850	11 47 11
11 52 10	J2015+3710	23 31 26	53.0	264.7	3.3		48.7	26	3850	11 52 10
11 54 10	=2013+370	23 33 26	52.7	265.1	3.3		48.7	120	3866	11 52 11
11 54 10	J2032+4127	23 33 26	57.9	267.4	3.0		53.2	-33	3866	No stop
11 58 10	---	23 37 27	57.3	268.2	3.1		53.3	207	3896	11 54 11
11 58 10	J2015+3710	23 37 27	52.1	266.0	3.4		48.8	-34	3896	No stop
12 00 10	=2013+370	23 39 27	51.8	266.4	3.4		48.8	86	3912	11 58 11

```
Schedule for TORUN     (Code Tr )                                  Page  14
               Unveiling the pulsar wind nebula behind the enigmatic source TeV J2032+4
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  26 Feb 2014   Day  57 ---

12 00 10  J2007+4029   23 39 27  52.7 272.2  3.5      52.1   -27     3912   No stop
12 01 10  =2005+403    23 40 27  52.6 272.4  3.5      52.1    33     3919   12 00 11

12 02 10  J2015+3710   23 41 28  51.5 266.8  3.4      48.9    34     3919   12 02 10
12 04 10  =2013+370    23 43 28  51.2 267.3  3.5      48.9   120     3935   12 02 11

12 04 10  J2032+4127   23 43 28  56.4 269.5  3.2      53.3   -33     3935   No stop
12 08 10  ---          23 47 29  55.8 270.3  3.2      53.3   207     3965   12 04 11

12 08 10  J2015+3710   23 47 29  50.6 268.1  3.5      48.9   -34     3965   No stop
12 10 10  =2013+370    23 49 29  50.3 268.5  3.6      48.9    86     3981   12 08 11

12 10 10  J2032+4127   23 49 29  55.5 270.7  3.3      53.3   -33     3981   No stop
12 14 10  ---          23 53 30  54.9 271.4  3.3      53.3   207     4012   12 10 11

12 15 10  J2015+3710   23 54 30  49.5 269.5  3.6      48.9    26     4012   12 15 10
12 17 10  =2013+370    23 56 30  49.2 269.9  3.7      48.9   120     4027   12 15 11

12 17 10  J2032+4127   23 56 30  54.4 272.0  3.4      53.3   -33     4027   No stop
12 21 10  ---          00 00 31  53.8 272.8  3.5      53.2   207     4058   12 17 11

12 22 10  J2015+3710   00 01 31  48.5 270.9  3.8      48.9    26     4058   12 22 10
12 24 10  =2013+370    00 03 31  48.2 271.3  3.8      48.9   120     4073   12 22 11

12 26 00  J2253+1608   00 05 21  50.6 207.3  1.2      16.7   -33     4073   12 26 00
12 30 00  =3C454.3     00 09 22  50.3 208.8  1.2      17.5   207     4104   12 26 01



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


 ======== Setup file: sess114.L1024
   Matching groups in /usr/local/sched/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    2         Station: TORUN             Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2         Sample rate: 32.000
   Number of channels: 16    DBE type:                  Speedup factor:   0.50

   Disk used to record data.
```

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

The following frequency sets based on these setups were used.

```
 Frequency Set:   6  Setup file default.  Used pcal sets:   1
 LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
           1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
 BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
            625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
 Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
             16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
  Matching frequency sets:   6
```

The following pulse cal sets were used with this setup:

```
 Pulse cal detection set:   1  PCAL = OFF
  PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
  PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
  PCALFR1=     0     0     0     0     0     0     0     0
  PCALFR2=     0     0     0     0     0     0     0     0

 Track assignments are:
  track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* J2032+4127        20 30 25.750981   * 20 32 13.070000     20 32 42.619714       0.00
                    41 17 08.83719    * 41 27 23.40000      41 30 15.60029        0.00

* J2015+3710        20 13 37.014509   * 20 15 28.729795     20 15 59.626270       0.35
  2013+370          37 01 44.45891    * 37 10 59.51479      37 13 34.45125        0.51

* J2007+4029        20 05 59.558884   * 20 07 44.944835     20 08 13.999581       0.56
  2005+403          40 21 01.80228    * 40 29 48.60413      40 32 14.99146        0.54

  J1642+3948        16 41 17.606228   * 16 42 58.809965     16 43 27.553905       0.77
* 3C345             39 54 10.81496    * 39 48 36.99402      39 46 51.46087        0.52

* J2253+1608        22 51 29.519738   * 22 53 57.747937     22 54 39.144873       0.68
  3C454.3           15 52 54.34810    * 16 08 53.56093      16 13 25.30105        0.72
```

n14l1tr

Network Monitoring Experiment

PI: *Dmitry Duev*

Address: JIVE Postbus 2 7990 AA Dwingeloo The Netherlands
Phone: +31-521-596521 EMAIL: duev@jive.nl
Phone during observation: +31-521-596521

Notes: 18cm NME for session 1/2014
512 Mbps, 2-bit sampling, 8 MHz filters
Send the disk pack by express to JIVE
DBBC testing data from Mc and Tr are expected.

COVER LETTER:

Dear EVN friends,

This is the schedule for the 18cm NME and ftp fringe-test on 26 February 2014, involving 16 antennas: Eb Wb Jb1 On25 Mc Nt Tr Ys Sv Zc Bd Ur Sh Hh Sr T6 (Md, Td). The NME uses a standard setup with 512 Mbps and consists of long integrations on strong calibrators 0234+285 and 0528+134 as well as phase-referencing cycles with continuum sources as targets.

Three ftp tests are scheduled:

(1) 13:39:00 UT (scan 2, 2 sec, 0234+285)
(2) 14:35:00 UT (scan 15, 2 sec, 0528+134)
(3) 15:24:00 UT (scan 30, 2 sec, 0528+134)
(4) 16:21:00 UT (scan 45, 2 sec, 0528+134)

Please make sure that the autoftp is set up correctly.

Good luck with the session and see you on Skype!

Dmitry
Skype account: oasis230987

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

 --- Wed  26 Feb 2014   Day  57 ---

 Next scan frequencies:  1634.49  1634.49  1634.49  1634.49  1650.49  1650.49  1650.49  1650.49
                         1666.49  1666.49  1666.49  1666.49  1682.49  1682.49  1682.49  1682.49
 Next BBC frequencies:    665.51   665.51   665.51   665.51   649.51   649.51   649.51   649.51
                          633.51   633.51   633.51   633.51   617.51   617.51   617.51   617.51
 Next scan bandwidths:      8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
                            8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00

13 30 00  0234+285     01 09 32  60.8 137.1 -1.5     -27.8     0        0   13 30 00
13 34 00  ---          01 13 33  61.2 138.7 -1.4     -26.9   240       15   13 30 01

13 36 00  0234+285     01 15 33  61.4 139.6 -1.4     -26.4   113       15   13 36 00
13 40 00  ---          01 19 34  61.7 141.2 -1.3     -25.4   240       31   13 36 01

13 40 30  0234+285     01 20 04  61.8 141.4 -1.3     -25.3    23       31   13 40 30
13 47 00  ---          01 26 35  62.4 144.2 -1.2     -23.6   390       56   13 40 31

13 48 00  0234+285     01 27 35  62.5 144.6 -1.2     -23.4    53       56   13 48 00
13 50 00  ---          01 29 35  62.6 145.5 -1.2     -22.8   120       64   13 48 01

13 50 30  0234+285     01 30 05  62.7 145.7 -1.1     -22.7    23       64   13 50 30
13 52 30  ---          01 32 06  62.9 146.6 -1.1     -22.2   120       72   13 50 31

13 53 00  J0232+2628   01 32 36  61.1 151.0 -1.0     -19.0     7       72   13 53 00
13 57 00  =0229+262    01 36 36  61.4 152.8 -0.9     -17.9   240       87   13 53 01

13 57 30  0234+285     01 37 06  63.3 148.9 -1.0     -20.8     7       87   13 57 30
13 59 30  ---          01 39 07  63.4 149.8 -1.0     -20.2   120       95   13 57 31

14 00 00  J0232+2628   01 39 37  61.6 154.1 -0.9     -17.0     7       95   14 00 00
14 04 00  =0229+262    01 43 38  61.9 155.9 -0.8     -15.9   240      110   14 00 01

14 04 30  0234+285     01 44 08  63.8 152.1 -0.9     -18.7     7      110   14 04 30
14 06 30  ---          01 46 08  63.9 153.1 -0.9     -18.1   120      118   14 04 31

14 07 00  J0232+2628   01 46 38  62.1 157.3 -0.8     -15.0     7      118   14 07 00
14 11 00  =0229+262    01 50 39  62.3 159.2 -0.7     -13.8   240      134   14 07 01

14 11 30  0234+285     01 51 09  64.2 155.5 -0.8     -16.5     8      134   14 11 30
14 13 30  ---          01 53 09  64.4 156.4 -0.8     -15.9   120      141   14 11 31

14 14 00  J0232+2628   01 53 39  62.4 160.6 -0.7     -12.9     7      141   14 14 00
14 18 00  =0229+262    01 57 40  62.6 162.5 -0.6     -11.7   240      157   14 14 01

14 18 30  0234+285     01 58 10  64.6 158.9 -0.7     -14.3     8      157   14 18 30
14 20 30  ---          02 00 10  64.8 159.9 -0.6     -13.6   120      165   14 18 31

14 21 00  J0232+2628   02 00 40  62.8 163.9 -0.5     -10.7     7      165   14 21 00
14 25 00  =0229+262    02 04 41  62.9 165.8 -0.5      -9.4   240      180   14 21 01
```

Schedule for TORUN (Code Tr) Page 3

Network Monitoring Experiment

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
14 28 00	0528+134	02 07 41	33.7	114.8	-3.4		-34.1	56	180	14 28 00
14 32 00	---	02 11 42	34.2	115.7	-3.3		-33.8	240	195	14 28 01
14 34 00	0528+134	02 13 42	34.5	116.2	-3.3		-33.6	114	195	14 34 00
14 36 00	---	02 15 43	34.8	116.7	-3.3		-33.5	120	203	14 34 01
14 37 00	0528+134	02 16 43	34.9	117.0	-3.3		-33.4	54	203	14 37 00
14 39 00	---	02 18 43	35.2	117.5	-3.2		-33.2	120	211	14 37 01
14 39 30	0528+134	02 19 13	35.2	117.6	-3.2		-33.2	24	211	14 39 30
14 41 30	---	02 21 14	35.5	118.1	-3.2		-33.0	120	219	14 39 31
14 42 00	J0539+1433	02 21 44	35.2	115.3	-3.3		-34.1	10	219	14 42 00
14 46 00	=0536+145	02 25 44	35.8	116.3	-3.2		-33.8	240	234	14 42 01
14 46 30	0528+134	02 26 15	36.2	119.3	-3.1		-32.6	10	234	14 46 30
14 48 30	---	02 28 15	36.4	119.9	-3.1		-32.4	120	242	14 46 31
14 49 00	J0539+1433	02 28 45	36.2	117.1	-3.2		-33.5	10	242	14 49 00
14 53 00	=0536+145	02 32 46	36.7	118.1	-3.1		-33.2	240	257	14 49 01
14 53 30	0528+134	02 33 16	37.1	121.1	-3.0		-31.9	10	257	14 53 30
14 55 30	---	02 35 16	37.3	121.7	-2.9		-31.7	120	265	14 53 31
14 56 00	J0539+1433	02 35 46	37.1	118.8	-3.1		-32.9	10	265	14 56 00
15 00 00	=0536+145	02 39 47	37.6	119.9	-3.0		-32.5	240	281	14 56 01
15 00 30	0528+134	02 40 17	38.0	123.0	-2.9		-31.2	9	281	15 00 30
15 02 30	---	02 42 17	38.2	123.5	-2.8		-31.0	120	288	15 00 31
15 03 00	J0539+1433	02 42 47	38.0	120.7	-3.0		-32.3	10	288	15 03 00
15 07 00	=0536+145	02 46 48	38.5	121.7	-2.9		-31.9	240	304	15 03 01
15 07 30	0528+134	02 47 18	38.8	124.8	-2.7		-30.5	9	304	15 07 30
15 09 30	---	02 49 18	39.1	125.4	-2.7		-30.2	120	312	15 07 31
15 10 00	J0539+1433	02 49 48	38.9	122.5	-2.8		-31.6	10	312	15 10 00
15 14 00	=0536+145	02 53 49	39.4	123.6	-2.8		-31.1	240	327	15 10 01
15 14 30	0528+134	02 54 19	39.7	126.8	-2.6		-29.7	9	327	15 14 30
15 16 30	---	02 56 19	39.9	127.3	-2.6		-29.4	120	335	15 14 31
15 17 00	J0539+1433	02 56 50	39.8	124.4	-2.7		-30.8	10	335	15 17 00
15 21 00	=0536+145	03 00 50	40.3	125.5	-2.7		-30.4	240	350	15 17 01
15 23 00	0528+134	03 02 51	40.7	129.1	-2.5		-28.6	99	350	15 23 00
15 25 00	---	03 04 51	40.9	129.7	-2.4		-28.4	120	358	15 23 01

Schedule for TORUN (Code Tr) Page 4

Network Monitoring Experiment

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
15 26 00	0528+134	03 05 51	41.0	130.0	-2.4		-28.3	54	358	15 26 00
15 30 00	---	03 09 52	41.5	131.1	-2.4		-27.7	240	374	15 26 01
15 31 00	0528+134	03 10 52	41.6	131.4	-2.3		-27.6	54	374	15 31 00
15 33 00	---	03 12 52	41.8	132.0	-2.3		-27.3	120	381	15 31 01
15 33 30	0528+134	03 13 22	41.9	132.1	-2.3		-27.3	24	381	15 33 30
15 35 30	---	03 15 23	42.1	132.7	-2.3		-27.0	120	389	15 33 31
15 36 00	J0539+1433	03 15 53	42.1	129.7	-2.4		-28.5	9	389	15 36 00
15 40 00	=0536+145	03 19 53	42.6	130.8	-2.3		-28.0	240	404	15 36 01
15 40 30	0528+134	03 20 23	42.7	134.2	-2.2		-26.3	9	404	15 40 30
15 42 30	---	03 22 24	42.9	134.8	-2.2		-26.0	120	412	15 40 31
15 43 00	J0539+1433	03 22 54	42.9	131.7	-2.3		-27.6	9	412	15 43 00
15 47 00	=0536+145	03 26 54	43.3	132.9	-2.2		-27.0	240	428	15 43 01
15 47 30	0528+134	03 27 25	43.4	136.3	-2.1		-25.3	9	428	15 47 30
15 49 30	---	03 29 25	43.6	136.9	-2.0		-25.0	120	435	15 47 31
15 50 00	J0539+1433	03 29 55	43.7	133.8	-2.2		-26.6	9	435	15 50 00
15 54 00	=0536+145	03 33 56	44.1	135.0	-2.1		-26.0	240	451	15 50 01
15 54 30	0528+134	03 34 26	44.1	138.4	-2.0		-24.2	9	451	15 54 30
15 56 30	---	03 36 26	44.3	139.1	-1.9		-23.9	120	459	15 54 31
15 57 00	J0539+1433	03 36 56	44.4	135.9	-2.1		-25.6	9	459	15 57 00
16 01 00	=0536+145	03 40 57	44.8	137.1	-2.0		-25.0	240	474	15 57 01
16 01 30	0528+134	03 41 27	44.8	140.6	-1.8		-23.1	8	474	16 01 30
16 03 30	---	03 43 27	45.0	141.3	-1.8		-22.7	120	482	16 01 31
16 04 00	J0539+1433	03 43 57	45.1	138.1	-1.9		-24.5	9	482	16 04 00
16 08 00	=0536+145	03 47 58	45.5	139.3	-1.9		-23.8	240	497	16 04 01
16 08 30	0528+134	03 48 28	45.5	142.9	-1.7		-21.9	8	497	16 08 30
16 10 30	---	03 50 28	45.6	143.5	-1.7		-21.5	120	505	16 08 31
16 11 00	J0539+1433	03 50 58	45.8	140.3	-1.8		-23.4	9	505	16 11 00
16 15 00	=0536+145	03 54 59	46.2	141.6	-1.8		-22.7	240	521	16 11 01
16 18 00	0528+134	03 58 00	46.3	146.0	-1.6		-20.2	158	521	16 18 00
16 22 00	---	04 02 00	46.6	147.3	-1.5		-19.5	240	536	16 18 01
16 24 00	0528+134	04 04 01	46.8	148.0	-1.5		-19.1	113	536	16 24 00
16 30 00	---	04 10 02	47.2	150.0	-1.4		-18.0	360	559	16 24 01

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


 ======== Setup file: sess114.L512
   Matching groups in ./SH65.freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    4         Station: TORUN            Total bit rate:  512
   Format: MKIV1:2           Bits per sample: 2        Sample rate: 16.000
   Number of channels: 16    DBE type:                 Speedup factor:   1.00

   Disk used to record data.

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

  The following frequency sets based on these setups were used.

   Frequency Set:   7  Setup file default.  Used pcal sets:   1
   LO sum=   1634.49  1634.49  1634.49  1634.49  1650.49  1650.49  1650.49  1650.49
             1666.49  1666.49  1666.49  1666.49  1682.49  1682.49  1682.49  1682.49
   BBC fr=    665.51   665.51   665.51   665.51   649.51   649.51   649.51   649.51
              633.51   633.51   633.51   633.51   617.51   617.51   617.51   617.51
   Bandwd=      8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
                8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
    Matching frequency sets:   7

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S5    S7    S9    S11   S13   S15
    PCALXB2=   S2    S4    S6    S8    S10   S12   S14   S16
    PCALFR1=   490   510   490   510   490   510   490   510
    PCALFR2=   490   510   490   510   490   510   490   510

   Track assignments are:
    track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
    barrel=roll_off
```

```
SOURCES USED IN RECORDING SCANS --       Network Monitoring Experiment
    Catalog positions marked with *.
    Precession of date coordinates is based on stop time of first scan.
    Names used in schedule marked with *.
    Short names used in VLA and SNAP files marked with +.
    Observation date used in B1950/J2000 coordinate conversion (PRECDATE):  1979.900
    No adjustments are made for rates (DRA, DDEC).
    Scan hours are for recording scans only.
    Baseline hours are only counted for scans above horizon at both ends.

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

* J0232+2628        02 29 33.593401   * 02 32 27.623262     02 33 17.252484       0.16
  0229+262          26 15 26.35179    * 26 28 38.59090      26 32 20.93794        0.26

  J0237+2848        02 34 55.589591   * 02 37 52.405678     02 38 42.876881       0.11
* 0234+285          28 35 11.40773    * 28 48 08.98998      28 51 47.78138        0.10

  J0530+1331        05 28 06.759218   * 05 30 56.416749     05 31 45.577747       0.10
* 0528+134          13 29 42.28877    * 13 31 55.14944      13 32 20.49424        0.10

* J0539+1433        05 36 51.361474   * 05 39 42.365992     05 40 31.956636       0.10
  0536+145          14 32 10.73036    * 14 33 45.56166      14 34 00.21883        0.10


 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)
  J0232+2628          66.9
  0234+285            68.9
  0528+134           104.9
  J0539+1433         107.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      327 MHz        117. deg
      610 MHz         81. deg
      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
     43.0 GHz          6. deg
```

eg080atr

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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Observing mode: Continuum L-band

Schedule for TORUN (Code Tr) Page 2
Is there a Binary Black Hole system in the BCG of RBS 797 ?
UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes 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 26 Feb 2014 Day 57 ---										
Next scan frequencies:		1610.49	1610.49	1610.49	1610.49		1642.49	1642.49	1642.49	1642.49
		1674.49	1674.49	1674.49	1674.49		1706.49	1706.49	1706.49	1706.49
Next BBC frequencies:		689.51	689.51	689.51	689.51		657.51	657.51	657.51	657.51
		625.51	625.51	625.51	625.51		593.51	593.51	593.51	593.51
Next scan bandwidths:		16.00	16.00	16.00	16.00		16.00	16.00	16.00	16.00
		16.00	16.00	16.00	16.00		16.00	16.00	16.00	16.00
21 00 00	J0954+7435	08 40 46	67.3	12.9	-1.3		-149.9	0	0	21 00 00
21 04 00	=0950+748	08 44 47	67.4	12.3	-1.2		-151.4	240	31	21 00 01
21 04 20	RBS797	08 45 07	66.0	9.2	-1.1		-156.1	-1	31	21 04 20
21 07 50	---	08 48 37	66.1	8.7	-1.0		-157.4	209	58	21 04 21
21 08 30	J0954+7435	08 49 17	67.5	11.6	-1.1		-153.1	20	58	21 08 30
21 09 30	=0950+748	08 50 17	67.6	11.4	-1.1		-153.5	60	65	21 08 31
21 09 50	RBS797	08 50 37	66.1	8.4	-1.0		-158.2	0	65	21 09 50
21 13 20	---	08 54 08	66.2	7.9	-0.9		-159.4	210	92	21 09 51
21 13 40	J0954+7435	08 54 28	67.7	10.8	-1.0		-155.1	0	92	21 13 40
21 14 40	=0950+748	08 55 28	67.7	10.6	-1.0		-155.5	60	100	21 13 41
21 15 00	RBS797	08 55 48	66.2	7.7	-0.9		-160.1	0	100	21 15 00
21 18 30	---	08 59 19	66.3	7.2	-0.8		-161.4	210	127	21 15 01
21 19 10	J0954+7435	08 59 59	67.8	9.9	-0.9		-157.3	20	127	21 19 10
21 20 10	=0950+748	09 00 59	67.9	9.7	-0.9		-157.7	60	134	21 19 11
21 20 30	RBS797	09 01 19	66.3	7.0	-0.8		-162.1	0	134	21 20 30
21 24 00	---	09 04 50	66.4	6.5	-0.7		-163.4	210	161	21 20 31
21 24 20	J0954+7435	09 05 10	68.0	9.0	-0.9		-159.3	1	161	21 24 20
21 25 20	=0950+748	09 06 10	68.0	8.9	-0.8		-159.7	60	169	21 24 21

Schedule for TORUN (Code Tr) Page 3

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
21 25 40	RBS797	09 06 30	66.4	6.2	-0.7		-164.0	1	169	21 25 40
21 29 10	---	09 10 01	66.5	5.7	-0.6		-165.3	210	196	21 25 41
21 29 50	J0954+7435	09 10 41	68.1	8.1	-0.8		-161.5	20	196	21 29 50
21 30 50	=0950+748	09 11 41	68.1	7.9	-0.7		-161.9	60	204	21 29 51
21 31 10	RBS797	09 12 01	66.5	5.4	-0.6		-166.1	0	204	21 31 10
21 34 40	---	09 15 32	66.6	4.9	-0.6		-167.4	210	230	21 31 11
21 35 00	J0954+7435	09 15 52	68.2	7.2	-0.7		-163.6	0	230	21 35 00
21 36 00	=0950+748	09 16 52	68.2	7.0	-0.7		-164.0	60	238	21 35 01
21 36 20	RBS797	09 17 12	66.6	4.7	-0.5		-168.0	0	238	21 36 20
21 39 50	---	09 20 42	66.6	4.2	-0.5		-169.4	210	265	21 36 21
21 40 30	J0954+7435	09 21 23	68.3	6.3	-0.6		-165.8	20	265	21 40 30
21 41 30	=0950+748	09 22 23	68.3	6.1	-0.6		-166.2	60	273	21 40 31
21 41 50	RBS797	09 22 43	66.6	3.9	-0.4		-170.1	0	273	21 41 50
21 45 20	---	09 26 13	66.7	3.4	-0.4		-171.4	210	300	21 41 51
21 45 40	J0954+7435	09 26 33	68.4	5.3	-0.5		-167.9	0	300	21 45 40
21 46 40	=0950+748	09 27 34	68.4	5.2	-0.5		-168.3	60	307	21 45 41
21 47 00	RBS797	09 27 54	66.7	3.1	-0.3		-172.1	0	307	21 47 00
21 50 30	---	09 31 24	66.7	2.6	-0.3		-173.4	210	334	21 47 01
21 51 10	J0954+7435	09 32 04	68.4	4.4	-0.4		-170.1	20	334	21 51 10
21 52 10	=0950+748	09 33 04	68.4	4.2	-0.4		-170.5	60	342	21 51 11
21 52 30	RBS797	09 33 25	66.7	2.3	-0.3		-174.2	0	342	21 52 30
21 56 00	---	09 36 55	66.7	1.8	-0.2		-175.5	210	369	21 52 31
21 56 20	J0954+7435	09 37 15	68.5	3.4	-0.3		-172.2	0	369	21 56 20
21 57 20	=0950+748	09 38 15	68.5	3.3	-0.3		-172.6	60	376	21 56 21
21 57 40	RBS797	09 38 35	66.8	1.5	-0.2		-176.1	0	376	21 57 40
22 01 10	---	09 42 06	66.8	1.0	-0.1		-177.5	210	403	21 57 41
22 01 50	J0954+7435	09 42 46	68.5	2.4	-0.2		-174.5	20	403	22 01 50
22 02 50	=0950+748	09 43 46	68.5	2.3	-0.2		-174.9	60	411	22 01 51
22 03 10	RBS797	09 44 06	66.8	0.7	-0.1		-178.2	0	411	22 03 10
22 06 40	---	09 47 37	66.8	0.2	-0.0		-179.6	210	438	22 03 11
22 07 00	J0954+7435	09 47 57	68.5	1.5	-0.1		-176.6	0	438	22 07 00
22 08 00	=0950+748	09 48 57	68.6	1.3	-0.1		-177.0	60	445	22 07 01

Schedule for TORUN (Code Tr) Page 4

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
22 08 20	RBS797	09 49 17	66.8	-0.1	0.0		179.8	0	445	22 08 20
22 11 50	---	09 52 48	66.8	-0.6	0.1		178.5	210	472	22 08 21
22 12 30	J0954+7435	09 53 28	68.6	0.5	-0.0		-178.9	20	472	22 12 30
22 13 30	=0950+748	09 54 28	68.6	0.3	-0.0		-179.3	60	480	22 12 31
22 13 50	RBS797	09 54 48	66.8	-0.9	0.1		177.7	0	480	22 13 50
22 17 20	---	09 58 19	66.8	-1.4	0.2		176.4	210	507	22 13 51
22 17 40	J0954+7435	09 58 39	68.6	-0.4	0.0		179.0	-1	507	22 17 40
22 18 40	=0950+748	09 59 39	68.6	-0.6	0.1		178.6	59	515	22 17 41
22 19 00	RBS797	09 59 59	66.8	-1.7	0.2		175.7	-1	515	22 19 00
22 22 30	---	10 03 29	66.7	-2.2	0.2		174.4	209	541	22 19 01
22 23 10	J0954+7435	10 04 10	68.6	-1.5	0.1		176.7	19	541	22 23 10
22 24 10	=0950+748	10 05 10	68.5	-1.6	0.1		176.3	60	549	22 23 11
22 24 30	RBS797	10 05 30	66.7	-2.5	0.3		173.6	-1	549	22 24 30
22 28 00	---	10 09 00	66.7	-3.0	0.3		172.3	209	576	22 24 31
22 28 20	J0954+7435	10 09 20	68.5	-2.4	0.2		174.6	-1	576	22 28 20
22 29 20	=0950+748	10 10 21	68.5	-2.6	0.2		174.2	59	584	22 28 21
22 29 40	RBS797	10 10 41	66.7	-3.3	0.4		171.7	-1	584	22 29 40
22 33 10	---	10 14 11	66.6	-3.8	0.4		170.3	209	611	22 29 41
22 33 50	J0954+7435	10 14 51	68.5	-3.4	0.3		172.3	19	611	22 33 50
22 34 50	=0950+748	10 15 51	68.5	-3.6	0.3		171.9	60	618	22 33 51
22 35 10	RBS797	10 16 12	66.6	-4.1	0.5		169.6	-1	618	22 35 10
22 38 40	---	10 19 42	66.6	-4.6	0.5		168.3	209	645	22 35 11
22 39 00	J0954+7435	10 20 02	68.4	-4.3	0.4		170.2	-1	645	22 39 00
22 40 00	=0950+748	10 21 02	68.4	-4.5	0.4		169.8	59	653	22 39 01
22 40 20	RBS797	10 21 22	66.6	-4.8	0.5		167.6	-1	653	22 40 20
22 43 50	---	10 24 53	66.5	-5.4	0.6		166.3	209	680	22 40 21
22 44 30	J0954+7435	10 25 33	68.4	-5.3	0.5		168.0	19	680	22 44 30
22 45 30	=0950+748	10 26 33	68.3	-5.5	0.5		167.6	60	687	22 44 31
22 45 50	RBS797	10 26 53	66.5	-5.6	0.6		165.6	-1	687	22 45 50
22 49 20	---	10 30 24	66.4	-6.1	0.7		164.2	209	714	22 45 51
22 49 40	J0954+7435	10 30 44	68.3	-6.2	0.6		165.9	-1	714	22 49 40
22 50 40	=0950+748	10 31 44	68.3	-6.4	0.6		165.5	59	722	22 49 41

Schedule for TORUN (Code Tr) Page 5

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 26 Feb 2014 Day 57 ---										
22 51 00	RBS797	10 32 04	66.4	-6.4	0.7		163.6	-1	722	22 51 00
22 54 30	---	10 35 35	66.4	-6.9	0.8		162.3	209	749	22 51 01
22 55 10	J0954+7435	10 36 15	68.2	-7.2	0.7		163.7	19	749	22 55 10
22 56 10	=0950+748	10 37 15	68.2	-7.3	0.7		163.3	60	756	22 55 11
22 56 30	RBS797	10 37 35	66.3	-7.2	0.8		161.6	-1	756	22 56 30
23 00 00	---	10 41 06	66.2	-7.6	0.9		160.3	209	783	22 56 31
23 00 20	J0954+7435	10 41 26	68.1	-8.1	0.8		161.6	-1	783	23 00 20
23 01 20	=0950+748	10 42 26	68.1	-8.2	0.8		161.2	59	791	23 00 21
23 01 40	RBS797	10 42 46	66.2	-7.9	0.9		159.6	-1	791	23 01 40
23 05 10	---	10 46 16	66.1	-8.4	1.0		158.4	209	818	23 01 41
23 05 50	J0954+7435	10 46 57	68.0	-9.0	0.8		159.4	19	818	23 05 50
23 06 50	=0950+748	10 47 57	67.9	-9.2	0.9		159.0	60	826	23 05 51
23 07 10	RBS797	10 48 17	66.1	-8.6	1.0		157.6	-1	826	23 07 10
23 10 40	---	10 51 47	66.0	-9.1	1.1		156.3	209	852	23 07 11
23 11 00	J0954+7435	10 52 07	67.8	-9.8	0.9		157.4	-1	852	23 11 00
23 12 00	=0950+748	10 53 08	67.8	-10.0	0.9		157.0	59	860	23 11 01
23 12 20	RBS797	10 53 28	66.0	-9.3	1.1		155.7	-1	860	23 12 20
23 15 50	---	10 56 58	65.9	-9.8	1.1		154.5	209	887	23 12 21
23 16 30	J0954+7435	10 57 38	67.7	-10.7	1.0		155.2	19	887	23 16 30
23 17 30	=0950+748	10 58 38	67.7	-10.9	1.0		154.8	60	895	23 16 31
23 17 50	RBS797	10 58 59	65.8	-10.0	1.2		153.7	-1	895	23 17 50
23 21 20	---	11 02 29	65.7	-10.5	1.2		152.5	209	922	23 17 51
23 21 40	J0954+7435	11 02 49	67.5	-11.5	1.1		153.2	0	922	23 21 40
23 22 40	=0950+748	11 03 49	67.5	-11.7	1.1		152.8	60	929	23 21 41
23 23 00	RBS797	11 04 09	65.7	-10.7	1.3		151.9	-1	929	23 23 00
23 26 30	---	11 07 40	65.6	-11.1	1.3		150.6	209	956	23 23 01
23 27 10	J0954+7435	11 08 20	67.4	-12.4	1.2		151.1	20	956	23 27 10
23 28 10	=0950+748	11 09 20	67.3	-12.5	1.2		150.7	60	964	23 27 11
23 28 30	RBS797	11 09 40	65.5	-11.4	1.3		149.9	0	964	23 28 30
23 32 00	---	11 13 11	65.4	-11.8	1.4		148.7	210	991	23 28 31
23 32 20	J0954+7435	11 13 31	67.2	-13.2	1.3		149.1	0	991	23 32 20
23 33 20	=0950+748	11 14 31	67.2	-13.3	1.3		148.8	60	998	23 32 21

```
Schedule for TORUN     (Code Tr )                                  Page   6
               Is there a Binary Black Hole system in the BCG of RBS 797 ?
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  26 Feb 2014   Day  57 ---

23 33 40  RBS797       11 14 51  65.4 -12.0  1.4     148.1     0      998   23 33 40
23 37 10  ---          11 18 22  65.3 -12.4  1.5     146.8   210     1025   23 33 41

23 37 50  J0954+7435   11 19 02  67.0 -14.0  1.4     147.1    20     1025   23 37 50
23 38 50  =0950+748    11 20 02  67.0 -14.1  1.4     146.7    60     1033   23 37 51

23 44 41  3C345        11 25 54  36.6  70.3 -5.3     -47.3   168     1033   23 44 41
23 49 28  ---          11 30 42  37.3  71.0 -5.2     -47.6   287     1070   23 44 42

23 55 30  J0954+7435   11 36 44  66.3 -16.4  1.7     140.6   172     1070   23 55 30
23 57 00  =0950+748    11 38 15  66.2 -16.6  1.7     140.1    90     1081   23 55 31

 --- Start: Wed  26 Feb 2014   Day  57 -- Stop: Thu  27 Feb 2014   Day  58 ---

23 57 20  RBS797       11 38 35  64.6 -14.7  1.8     139.9     0     1081   23 57 20
00 00 50  ---          11 42 05  64.4 -15.1  1.9     138.7   210     1108   23 57 21

00 01 30  J0954+7435   11 42 45  66.0 -17.1  1.8     138.5    20     1108   00 01 30
00 02 30  =0950+748    11 43 45  66.0 -17.3  1.8     138.1    60     1116   00 01 31

00 02 50  RBS797       11 44 06  64.3 -15.3  1.9     138.0     0     1116   00 02 50
00 06 20  ---          11 47 36  64.2 -15.6  2.0     136.9   210     1143   00 02 51

00 06 40  J0954+7435   11 47 56  65.8 -17.8  1.9     136.6     0     1143   00 06 40
00 07 40  =0950+748    11 48 56  65.8 -17.9  1.9     136.3    60     1150   00 06 41

00 08 00  RBS797       11 49 16  64.1 -15.8  2.0     136.3     0     1150   00 08 00
00 11 30  ---          11 52 47  64.0 -16.1  2.1     135.1   210     1177   00 08 01

00 12 10  J0954+7435   11 53 27  65.5 -18.4  2.0     134.7    20     1177   00 12 10
00 13 10  =0950+748    11 54 27  65.5 -18.5  2.0     134.4    60     1185   00 12 11

00 13 30  RBS797       11 54 47  63.9 -16.3  2.1     134.5     0     1185   00 13 30
00 17 00  ---          11 58 18  63.7 -16.6  2.2     133.3   210     1212   00 13 31

00 17 20  J0954+7435   11 58 38  65.3 -19.0  2.0     133.0     1     1212   00 17 20
00 18 20  =0950+748    11 59 38  65.3 -19.1  2.1     132.6    60     1219   00 17 21

00 18 40  RBS797       11 59 58  63.7 -16.8  2.2     132.8     1     1219   00 18 40
00 22 10  ---          12 03 29  63.5 -17.1  2.2     131.7   210     1246   00 18 41

00 22 50  J0954+7435   12 04 09  65.0 -19.6  2.1     131.1    21     1246   00 22 50
00 23 50  =0950+748    12 05 09  65.0 -19.7  2.1     130.8    60     1254   00 22 51

00 24 10  RBS797       12 05 29  63.4 -17.3  2.3     131.0     1     1254   00 24 10
00 27 40  ---          12 09 00  63.3 -17.6  2.3     129.9   210     1281   00 24 11
```

Schedule for TORUN (Code Tr) Page 7

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 27 Feb 2014 Day 58 ---										
00 28 00	J0954+7435	12 09 20	64.8	-20.1	2.2		129.4	1	1281	00 28 00
00 29 00	=0950+748	12 10 20	64.7	-20.2	2.2		129.0	60	1289	00 28 01
00 29 20	RBS797	12 10 40	63.2	-17.7	2.4		129.4	1	1289	00 29 20
00 32 50	---	12 14 10	63.0	-18.0	2.4		128.3	210	1315	00 29 21
00 33 30	J0954+7435	12 14 51	64.5	-20.6	2.3		127.6	21	1315	00 33 30
00 34 30	=0950+748	12 15 51	64.4	-20.7	2.3		127.2	60	1323	00 33 31
00 34 50	RBS797	12 16 11	62.9	-18.2	2.5		127.6	1	1323	00 34 50
00 38 20	---	12 19 41	62.8	-18.5	2.5		126.5	210	1350	00 34 51
00 38 40	J0954+7435	12 20 01	64.2	-21.1	2.4		125.9	0	1350	00 38 40
00 39 40	=0950+748	12 21 02	64.1	-21.2	2.4		125.6	60	1358	00 38 41
00 40 00	RBS797	12 21 22	62.7	-18.6	2.5		126.0	1	1358	00 40 00
00 43 30	---	12 24 52	62.5	-18.8	2.6		124.9	210	1385	00 40 01
00 44 10	J0954+7435	12 25 32	63.9	-21.6	2.5		124.1	20	1385	00 44 10
00 45 10	=0950+748	12 26 32	63.8	-21.7	2.5		123.8	60	1392	00 44 11
00 45 30	RBS797	12 26 53	62.4	-19.0	2.6		124.3	0	1392	00 45 30
00 49 00	---	12 30 23	62.3	-19.2	2.7		123.2	210	1419	00 45 31
00 49 20	J0954+7435	12 30 43	63.6	-22.0	2.6		122.5	0	1419	00 49 20
00 50 20	=0950+748	12 31 43	63.6	-22.1	2.6		122.2	60	1427	00 49 21
00 50 40	RBS797	12 32 03	62.2	-19.4	2.7		122.7	0	1427	00 50 40
00 54 10	---	12 35 34	62.0	-19.6	2.8		121.7	210	1454	00 50 41
00 54 50	J0954+7435	12 36 14	63.3	-22.4	2.7		120.8	20	1454	00 54 50
00 55 50	=0950+748	12 37 14	63.2	-22.5	2.7		120.5	60	1461	00 54 51
00 56 10	RBS797	12 37 34	61.9	-19.7	2.8		121.1	0	1461	00 56 10
00 59 40	---	12 41 05	61.7	-19.9	2.9		120.0	210	1488	00 56 11
01 00 00	J0954+7435	12 41 25	63.0	-22.8	2.8		119.2	0	1488	01 00 00
01 01 00	=0950+748	12 42 25	62.9	-22.9	2.8		118.9	60	1496	01 00 01
01 01 20	RBS797	12 42 45	61.6	-20.0	2.9		119.5	0	1496	01 01 20
01 04 50	---	12 46 16	61.5	-20.3	3.0		118.5	210	1523	01 01 21
01 05 30	J0954+7435	12 46 56	62.7	-23.2	2.8		117.5	20	1523	01 05 30
01 06 30	=0950+748	12 47 56	62.6	-23.3	2.9		117.2	60	1530	01 05 31

Schedule for TORUN (Code Tr) Page 8

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 27 Feb 2014 Day 58 ---										
01 06 50	RBS797	12 48 16	61.4	-20.4	3.0		117.9	0	1530	01 06 50
01 10 20	---	12 51 47	61.2	-20.6	3.1		116.9	210	1557	01 06 51
01 10 40	J0954+7435	12 52 07	62.4	-23.5	2.9		116.0	0	1557	01 10 40
01 11 40	=0950+748	12 53 07	62.3	-23.6	2.9		115.7	60	1565	01 10 41
01 12 00	RBS797	12 53 27	61.1	-20.7	3.1		116.4	0	1565	01 12 00
01 15 30	---	12 56 57	60.9	-20.8	3.1		115.4	210	1592	01 12 01
01 16 10	J0954+7435	12 57 38	62.0	-23.9	3.0		114.3	20	1592	01 16 10
01 17 10	=0950+748	12 58 38	62.0	-23.9	3.0		114.1	60	1600	01 16 11
01 17 30	RBS797	12 58 58	60.8	-21.0	3.2		114.8	0	1600	01 17 30
01 21 00	---	13 02 28	60.6	-21.1	3.2		113.8	210	1626	01 17 31
01 21 20	J0954+7435	13 02 48	61.7	-24.2	3.1		112.8	-1	1626	01 21 20
01 22 20	=0950+748	13 03 49	61.7	-24.2	3.1		112.5	59	1634	01 21 21
01 22 40	RBS797	13 04 09	60.5	-21.2	3.3		113.3	-1	1634	01 22 40
01 26 10	---	13 07 39	60.3	-21.4	3.3		112.3	209	1661	01 22 41
01 26 50	J0954+7435	13 08 19	61.4	-24.5	3.2		111.3	19	1661	01 26 50
01 27 50	=0950+748	13 09 19	61.3	-24.5	3.2		111.0	60	1669	01 26 51
01 28 10	RBS797	13 09 40	60.2	-21.5	3.3		111.7	-1	1669	01 28 10
01 31 40	---	13 13 10	60.0	-21.6	3.4		110.8	209	1696	01 28 11
01 32 00	J0954+7435	13 13 30	61.1	-24.7	3.3		109.8	-1	1696	01 32 00
01 33 00	=0950+748	13 14 30	61.0	-24.8	3.3		109.5	59	1703	01 32 01
01 33 20	RBS797	13 14 50	59.9	-21.7	3.4		110.3	-1	1703	01 33 20
01 36 50	---	13 18 21	59.7	-21.8	3.5		109.3	209	1730	01 33 21
01 37 30	J0954+7435	13 19 01	60.7	-25.0	3.4		108.2	19	1730	01 37 30
01 38 30	=0950+748	13 20 01	60.6	-25.0	3.4		108.0	60	1738	01 37 31
01 38 50	RBS797	13 20 21	59.6	-21.9	3.5		108.8	-1	1738	01 38 50
01 42 20	---	13 23 52	59.4	-22.0	3.6		107.8	209	1765	01 38 51
01 42 40	J0954+7435	13 24 12	60.4	-25.2	3.5		106.8	-1	1765	01 42 40
01 43 40	=0950+748	13 25 12	60.3	-25.2	3.5		106.5	59	1772	01 42 41
01 44 00	RBS797	13 25 32	59.3	-22.1	3.6		107.3	-1	1772	01 44 00
01 47 30	---	13 29 03	59.1	-22.2	3.7		106.4	209	1799	01 44 01

Schedule for TORUN (Code Tr) Page 9

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 27 Feb 2014 Day 58 ---										
01 48 10	J0954+7435	13 29 43	60.0	-25.4	3.6		105.3	19	1799	01 48 10
01 49 10	=0950+748	13 30 43	60.0	-25.4	3.6		105.0	60	1807	01 48 11
01 49 30	RBS797	13 31 03	59.0	-22.3	3.7		105.9	-1	1807	01 49 30
01 53 00	---	13 34 34	58.8	-22.4	3.8		104.9	209	1834	01 49 31
01 53 20	J0954+7435	13 34 54	59.7	-25.5	3.6		103.9	-1	1834	01 53 20
01 54 20	=0950+748	13 35 54	59.6	-25.6	3.7		103.6	59	1842	01 53 21
01 54 40	RBS797	13 36 14	58.7	-22.4	3.8		104.5	-1	1842	01 54 40
01 58 10	---	13 39 44	58.5	-22.5	3.9		103.5	209	1868	01 54 41
01 58 50	J0954+7435	13 40 25	59.3	-25.7	3.7		102.4	19	1868	01 58 50
01 59 50	=0950+748	13 41 25	59.3	-25.7	3.8		102.2	60	1876	01 58 51
02 00 10	RBS797	13 41 45	58.4	-22.6	3.9		103.0	-1	1876	02 00 10
02 03 40	---	13 45 15	58.2	-22.7	3.9		102.1	209	1903	02 00 11
02 04 00	J0954+7435	13 45 35	59.0	-25.8	3.8		101.1	-1	1903	02 04 00
02 05 00	=0950+748	13 46 36	58.9	-25.9	3.8		100.8	59	1911	02 04 01
02 05 20	RBS797	13 46 56	58.1	-22.7	4.0		101.6	-1	1911	02 05 20
02 08 50	---	13 50 26	57.9	-22.8	4.0		100.7	209	1938	02 05 21
02 09 30	J0954+7435	13 51 06	58.6	-26.0	3.9		99.6	19	1938	02 09 30
02 10 30	=0950+748	13 52 07	58.6	-26.0	3.9		99.4	60	1945	02 09 31
02 17 42	3C345	13 59 20	59.3	98.9	-2.7		-50.5	168	1945	02 17 42
02 21 42	---	14 03 20	59.9	99.9	-2.7		-50.3	240	1976	02 17 43
02 29 02	J0954+7435	14 10 42	57.3	-26.3	4.2		94.6	173	1976	02 29 02
02 30 32	=0950+748	14 12 12	57.2	-26.3	4.3		94.3	90	1987	02 29 03
02 30 52	RBS797	14 12 32	56.6	-23.1	4.4		95.1	-1	1987	02 30 52
02 34 22	---	14 16 03	56.4	-23.1	4.5		94.2	209	2014	02 30 53
02 35 02	J0954+7435	14 16 43	56.9	-26.3	4.3		93.2	19	2014	02 35 02
02 36 02	=0950+748	14 17 43	56.9	-26.3	4.4		92.9	60	2022	02 35 03
02 36 22	RBS797	14 18 03	56.3	-23.1	4.5		93.7	-1	2022	02 36 22
02 39 52	---	14 21 34	56.1	-23.2	4.5		92.8	209	2049	02 36 23
02 40 12	J0954+7435	14 21 54	56.6	-26.4	4.4		91.9	-1	2049	02 40 12
02 41 12	=0950+748	14 22 54	56.5	-26.4	4.4		91.6	59	2057	02 40 13

Schedule for TORUN (Code Tr) Page 10

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 27 Feb 2014 Day 58 ---										
02 41 32	RBS797	14 23 14	56.0	-23.2	4.6		92.4	-1	2057	02 41 32
02 45 02	---	14 26 45	55.8	-23.2	4.6		91.5	209	2083	02 41 33
02 45 42	J0954+7435	14 27 25	56.2	-26.4	4.5		90.5	19	2083	02 45 42
02 46 42	=0950+748	14 28 25	56.2	-26.4	4.5		90.3	60	2091	02 45 43
02 47 02	RBS797	14 28 45	55.6	-23.2	4.7		91.1	-1	2091	02 47 02
02 50 32	---	14 32 16	55.4	-23.2	4.7		90.2	209	2118	02 47 03
02 50 52	J0954+7435	14 32 36	55.9	-26.4	4.6		89.3	-1	2118	02 50 52
02 51 52	=0950+748	14 33 36	55.8	-26.4	4.6		89.1	59	2126	02 50 53
02 52 12	RBS797	14 33 56	55.3	-23.2	4.8		89.8	-1	2126	02 52 12
02 55 42	---	14 37 26	55.1	-23.2	4.8		88.9	209	2153	02 52 13
02 56 22	J0954+7435	14 38 07	55.5	-26.4	4.7		88.0	19	2153	02 56 22
02 57 22	=0950+748	14 39 07	55.4	-26.4	4.7		87.7	60	2160	02 56 23
02 57 42	RBS797	14 39 27	55.0	-23.2	4.8		88.5	-1	2160	02 57 42
03 01 12	---	14 42 57	54.8	-23.2	4.9		87.6	209	2187	02 57 43
03 01 32	J0954+7435	14 43 17	55.2	-26.3	4.8		86.8	-1	2187	03 01 32
03 02 32	=0950+748	14 44 18	55.1	-26.3	4.8		86.5	59	2195	03 01 33
03 02 52	RBS797	14 44 38	54.7	-23.2	4.9		87.2	-1	2195	03 02 52
03 06 22	---	14 48 08	54.5	-23.1	5.0		86.4	209	2222	03 02 53
03 07 02	J0954+7435	14 48 48	54.8	-26.3	4.9		85.5	19	2222	03 07 02
03 08 02	=0950+748	14 49 48	54.7	-26.3	4.9		85.2	60	2229	03 07 03
03 08 22	RBS797	14 50 09	54.4	-23.1	5.0		85.9	-1	2229	03 08 22
03 11 52	---	14 53 39	54.2	-23.1	5.1		85.1	209	2256	03 08 23
03 12 12	J0954+7435	14 53 59	54.4	-26.2	5.0		84.3	-1	2256	03 12 12
03 13 12	=0950+748	14 54 59	54.4	-26.2	5.0		84.0	59	2264	03 12 13
03 13 32	RBS797	14 55 19	54.1	-23.1	5.1		84.7	-1	2264	03 13 32
03 17 02	---	14 58 50	53.9	-23.1	5.2		83.9	209	2291	03 13 33
03 17 42	J0954+7435	14 59 30	54.1	-26.2	5.1		83.0	19	2291	03 17 42
03 18 42	=0950+748	15 00 30	54.0	-26.1	5.1		82.8	60	2298	03 17 43
03 19 02	RBS797	15 00 50	53.7	-23.0	5.2		83.4	-1	2298	03 19 02
03 22 32	---	15 04 21	53.5	-23.0	5.3		82.6	209	2325	03 19 03

Schedule for TORUN (Code Tr) Page 11

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 27 Feb 2014 Day 58 ---										
03 22 52	J0954+7435	15 04 41	53.7	-26.1	5.1		81.8	-1	2325	03 22 52
03 23 52	=0950+748	15 05 41	53.7	-26.1	5.2		81.6	59	2333	03 22 53
03 24 12	RBS797	15 06 01	53.4	-23.0	5.3		82.2	-1	2333	03 24 12
03 27 42	---	15 09 32	53.2	-22.9	5.3		81.4	209	2360	03 24 13
03 28 22	J0954+7435	15 10 12	53.4	-26.0	5.2		80.5	19	2360	03 28 22
03 29 22	=0950+748	15 11 12	53.3	-26.0	5.3		80.3	60	2368	03 28 23
03 29 42	RBS797	15 11 32	53.1	-22.9	5.4		80.9	-1	2368	03 29 42
03 33 12	---	15 15 03	52.9	-22.8	5.4		80.1	209	2394	03 29 43
03 33 32	J0954+7435	15 15 23	53.0	-25.9	5.3		79.4	-1	2394	03 33 32
03 34 32	=0950+748	15 16 23	53.0	-25.9	5.3		79.2	59	2402	03 33 33
03 34 52	RBS797	15 16 43	52.8	-22.8	5.5		79.7	-1	2402	03 34 52
03 38 22	---	15 20 13	52.6	-22.7	5.5		78.9	209	2429	03 34 53
03 39 02	J0954+7435	15 20 54	52.7	-25.8	5.4		78.1	19	2429	03 39 02
03 40 02	=0950+748	15 21 54	52.6	-25.7	5.4		77.9	60	2437	03 39 03
03 40 22	RBS797	15 22 14	52.5	-22.7	5.6		78.5	-1	2437	03 40 22
03 43 52	---	15 25 44	52.3	-22.6	5.6		77.7	209	2464	03 40 23
03 44 12	J0954+7435	15 26 04	52.3	-25.6	5.5		77.0	-1	2464	03 44 12
03 45 12	=0950+748	15 27 05	52.3	-25.6	5.5		76.8	59	2471	03 44 13
03 45 32	RBS797	15 27 25	52.2	-22.6	5.6		77.3	-1	2471	03 45 32
03 49 02	---	15 30 55	52.0	-22.5	5.7		76.5	209	2498	03 45 33
03 49 42	J0954+7435	15 31 35	52.0	-25.5	5.6		75.8	20	2498	03 49 42
03 50 42	=0950+748	15 32 35	51.9	-25.5	5.6		75.6	60	2506	03 49 43
03 51 02	RBS797	15 32 56	51.9	-22.5	5.7		76.0	-1	2506	03 51 02
03 54 32	---	15 36 26	51.7	-22.4	5.8		75.3	209	2533	03 51 03
03 54 52	J0954+7435	15 36 46	51.6	-25.4	5.7		74.6	0	2533	03 54 52
03 55 52	=0950+748	15 37 46	51.6	-25.3	5.7		74.4	60	2540	03 54 53
03 56 12	RBS797	15 38 06	51.6	-22.3	5.8		74.9	0	2540	03 56 12
03 59 42	---	15 41 37	51.4	-22.3	5.9		74.1	210	2567	03 56 13
04 00 22	J0954+7435	15 42 17	51.3	-25.2	5.8		73.4	20	2567	04 00 22
04 01 22	=0950+748	15 43 17	51.2	-25.2	5.8		73.2	60	2575	04 00 23

Schedule for TORUN (Code Tr) Page 12

Is there a Binary Black Hole system in the BCG of RBS 797 ?

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 27 Feb 2014 Day 58 ---										
04 01 42	RBS797	15 43 37	51.3	-22.2	5.9		73.6	0	2575	04 01 42
04 05 12	---	15 47 08	51.1	-22.1	6.0		72.9	210	2602	04 01 43
04 05 32	J0954+7435	15 47 28	51.0	-25.0	5.9		72.3	0	2602	04 05 32
04 06 32	=0950+748	15 48 28	50.9	-25.0	5.9		72.1	60	2610	04 05 33
04 06 52	RBS797	15 48 48	51.0	-22.1	6.0		72.5	0	2610	04 06 52
04 10 22	---	15 52 19	50.8	-22.0	6.1		71.7	210	2636	04 06 53
04 11 02	J0954+7435	15 52 59	50.6	-24.9	5.9		71.1	20	2636	04 11 02
04 12 02	=0950+748	15 53 59	50.6	-24.8	6.0		70.9	60	2644	04 11 03
04 12 22	RBS797	15 54 19	50.7	-21.9	6.1		71.3	0	2644	04 12 22
04 15 52	---	15 57 50	50.5	-21.8	6.2		70.5	210	2671	04 12 23
04 16 12	J0954+7435	15 58 10	50.3	-24.7	6.0		70.0	0	2671	04 16 12
04 17 12	=0950+748	15 59 10	50.2	-24.6	6.0		69.8	60	2679	04 16 13
04 17 32	RBS797	15 59 30	50.4	-21.7	6.2		70.2	0	2679	04 17 32
04 21 02	---	16 03 00	50.2	-21.6	6.2		69.4	210	2706	04 17 33
04 21 42	J0954+7435	16 03 41	49.9	-24.5	6.1		68.8	20	2706	04 21 42
04 22 42	=0950+748	16 04 41	49.9	-24.4	6.1		68.6	60	2713	04 21 43
04 23 02	RBS797	16 05 01	50.1	-21.6	6.3		68.9	0	2713	04 23 02
04 26 32	---	16 08 31	49.9	-21.4	6.3		68.2	210	2740	04 23 03
04 26 52	J0954+7435	16 08 51	49.6	-24.3	6.2		67.7	0	2740	04 26 52
04 27 52	=0950+748	16 09 52	49.6	-24.2	6.2		67.5	60	2748	04 26 53
04 28 12	RBS797	16 10 12	49.8	-21.4	6.4		67.8	0	2748	04 28 12
04 31 42	---	16 13 42	49.6	-21.3	6.4		67.1	210	2775	04 28 13
04 32 22	J0954+7435	16 14 22	49.3	-24.1	6.3		66.6	20	2775	04 32 22
04 33 22	=0950+748	16 15 22	49.2	-24.0	6.3		66.4	60	2782	04 32 23
04 33 42	RBS797	16 15 43	49.5	-21.2	6.4		66.6	0	2782	04 33 42
04 37 12	---	16 19 13	49.3	-21.1	6.5		65.9	210	2809	04 33 43
04 37 32	J0954+7435	16 19 33	49.0	-23.8	6.4		65.5	0	2809	04 37 32
04 38 32	=0950+748	16 20 33	48.9	-23.8	6.4		65.3	60	2817	04 37 33
04 38 52	RBS797	16 20 53	49.2	-21.0	6.5		65.5	0	2817	04 38 52
04 42 22	---	16 24 24	49.0	-20.9	6.6		64.8	210	2844	04 38 53
04 43 02	J0954+7435	16 25 04	48.6	-23.6	6.5		64.4	20	2844	04 43 02
04 44 02	=0950+748	16 26 04	48.6	-23.6	6.5		64.1	60	2851	04 43 03

```
Schedule for TORUN     (Code Tr )                                  Page  13
               Is there a Binary Black Hole system in the BCG of RBS 797 ?
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  27 Feb 2014   Day  58 ---

04 44 22  RBS797       16 26 24  48.9 -20.8  6.6      64.3     0     2851   04 44 22
04 47 52  ---          16 29 55  48.7 -20.7  6.7      63.6   210     2878   04 44 23

04 48 12  J0954+7435   16 30 15  48.3 -23.4  6.6      63.3     0     2878   04 48 12
04 49 12  =0950+748    16 31 15  48.3 -23.3  6.6      63.1    60     2886   04 48 13

04 49 32  RBS797       16 31 35  48.6 -20.6  6.7      63.2     0     2886   04 49 32
04 53 02  ---          16 35 06  48.5 -20.4  6.8      62.5   210     2913   04 49 33

04 53 42  J0954+7435   16 35 46  48.0 -23.1  6.7      62.1    20     2913   04 53 42
04 54 42  =0950+748    16 36 46  47.9 -23.1  6.7      61.9    60     2921   04 53 43

04 55 02  RBS797       16 37 06  48.3 -20.4  6.8      62.1     0     2921   04 55 02
04 58 32  ---          16 40 37  48.2 -20.2  6.9      61.3   210     2947   04 55 03

04 58 52  J0954+7435   16 40 57  47.7 -22.9  6.7      61.1     0     2947   04 58 52
04 59 52  =0950+748    16 41 57  47.6 -22.8  6.8      60.9    60     2955   04 58 53



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


 ======== Setup file: sess114.L1024
   Matching groups in /irasoft/sched-11.1beta/catalogs/freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   Setup group:    1         Station: TORUN             Total bit rate:  1024
   Format: MKIV1:2           Bits per sample: 2         Sample rate: 32.000
   Number of channels: 16    DBE type:                  Speedup factor:   0.50

   Disk used to record data.

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

```
 The following frequency sets based on these setups were used.

  Frequency Set:   5  Setup file default.  Used pcal sets:   1
  LO sum=   1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
            1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
  BBC fr=    689.51   689.51   689.51   689.51   657.51   657.51   657.51   657.51
             625.51   625.51   625.51   625.51   593.51   593.51   593.51   593.51
  Bandwd=     16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
              16.00    16.00    16.00    16.00    16.00    16.00    16.00    16.00
   Matching frequency sets:   5

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = OFF
   PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
   PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
   PCALFR1=     0     0     0     0     0     0     0     0
   PCALFR2=     0     0     0     0     0     0     0     0

  Track assignments are:
   track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
   barrel=roll_off


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* RBS797            09 42 04.064047   * 09 47 12.760000     09 48 43.616187       0.00
                    76 37 05.87934    * 76 23 13.74000      76 19 09.27095        0.00

* J0954+7435        09 50 04.561123   * 09 54 47.442227     09 56 10.759660       4.94
  0950+748          74 50 07.76577    * 74 35 57.14561      74 31 47.02051        0.94

  J1642+3948        16 41 17.606228   * 16 42 58.809965     16 43 27.583363       0.77
* 3C345             39 54 10.81496    * 39 48 36.99402      39 46 51.37192        0.52


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)
  RBS797             111.8
  J0954+7435         113.6
  3C345               94.7

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      327 MHz        117. deg
      610 MHz         81. deg
      1.6 GHz         45. deg
      2.3 GHz         36. deg
      5.0 GHz         23. deg
      8.4 GHz         17. deg
```

f14m1tr

Network Monitoring Experiment

PI: *Gabriele Surcis*


```
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Phone:    +31-521-596508                   EMAIL:    surcis@jive.nl
Phone during observation: +31-521-596508
```


```
Notes:    Ftp fringe test for session 1/2014
          512 Mbps, L+R, 2-bit sampling, 8 MHz filters
          Please send the disk pack by express to JIVE
```

COVER LETTER:

This is the schedule for the 5cm ftp fringe-test F13M1 on 27 Feb 2014
involving 9 antennas: Eb Wb Jb2 On25 Mc Nt Tr Sh Ys Sr (Td, Md, Yd).

Two ftp-fringe tests are scheduled throughout the experiment:

13:09 UT (scan 2, 2 sec, 3C48)
13:59 UT (scan 8, 2 sec, DA193)

Please make sure that the autoftp is set up correctly. Thanks!

Good luck with the session!
 Gabriele
 Support Scientist, JIVE

Schedule for TORUN (Code Tr) Page 2

Network Monitoring Experiment

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

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

--- Thu 27 Feb 2014 Day 58 ---

Next scan frequencies:	6644.52	6644.52	6644.52	6644.52	6660.52	6660.52	6660.52	6660.52
	6676.52	6676.52	6676.52	6676.52	6692.52	6692.52	6692.52	6692.52
Next BBC frequencies:	744.52	744.52	744.52	744.52	760.52	760.52	760.52	760.52
	776.52	776.52	776.52	776.52	792.52	792.52	792.52	792.52
Next scan bandwidths:	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00

12 00 00	3C48	23 43 14	61.4	122.5	-1.9	-37.3	0	0	12 00 00
12 05 00	---	23 48 15	62.1	124.3	-1.8	-36.4	300	19	12 00 01
12 06 00	3C48	23 49 15	62.2	124.6	-1.8	-36.2	53	19	12 06 00
12 10 00	---	23 53 15	62.7	126.1	-1.8	-35.4	240	35	12 06 01
12 14 00	3C48	23 57 16	63.2	127.6	-1.7	-34.7	233	35	12 14 00
12 20 00	---	00 03 17	63.9	130.0	-1.6	-33.4	360	58	12 14 01
12 22 00	DA193	00 05 17	32.0	64.8	-5.9	-45.0	-25	58	12 22 00
12 30 00	---	00 13 19	33.1	66.1	-5.7	-45.6	455	89	12 22 01

```
12 32 00  DA193        00 15 19  33.4  66.4 -5.7     -45.8   114       89   12 32 00
12 40 00  ---          00 23 20  34.5  67.7 -5.6     -46.3   480      120   12 32 01

12 42 00  DA193        00 25 21  34.7  68.0 -5.5     -46.5   114      120   12 42 00
12 50 00  ---          00 33 22  35.9  69.3 -5.4     -47.0   480      151   12 42 01

12 52 00  DA193        00 35 22  36.1  69.6 -5.4     -47.1   114      151   12 52 00
13 00 00  ---          00 43 24  37.3  70.9 -5.2     -47.6   480      182   12 52 01



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

 ======== Setup file: sess114.M512
   Matching groups in ./SH65.freq.dat:
     tr5cm           Values confirmed by E-mail Borkowski (JFD 26Oct98)

   Setup group:    4         Station: TORUN             Total bit rate:  512
   Format: MKIV1:2           Bits per sample: 2         Sample rate: 16.000
   Number of channels: 16    DBE type:                  Speedup factor:   1.00

   Disk used to record data.

   1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
             5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
   Net SB=         L         L         U         U         L         L         U         U
                   L         L         U         U         L         L         U         U
   Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
                 RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
   BBC   =         1         2         1         2         3         4         3         4
                   5         6         5         6         7         8         7         8
   BBC SB=         L         L         U         U         L         L         U         U
                   L         L         U         U         L         L         U         U
   IF    =         C         A         C         A         C         A         C         A
                   C         A         C         A         C         A         C         A

  The following frequency sets based on these setups were used.

   Frequency Set:   7  Setup file default.  Used pcal sets:   1
   LO sum=   6644.52  6644.52  6644.52  6644.52  6660.52  6660.52  6660.52  6660.52
             6676.52  6676.52  6676.52  6676.52  6692.52  6692.52  6692.52  6692.52
   BBC fr=    744.52   744.52   744.52   744.52   760.52   760.52   760.52   760.52
              776.52   776.52   776.52   776.52   792.52   792.52   792.52   792.52
   Bandwd=      8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
                8.00     8.00     8.00     8.00     8.00     8.00     8.00     8.00
    Matching frequency sets:   7

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = OFF
    PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
    PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
    PCALFR1=     0     0     0     0     0     0     0     0
    PCALFR2=     0     0     0     0     0     0     0     0

   Track assignments are:
    track1=   2, 10, 18, 26,  3, 11, 19, 27, 66, 74, 82, 90, 67, 75, 83, 91
    barrel=roll_off
```

```
SOURCES USED IN RECORDING SCANS --          Network Monitoring Experiment
    Catalog positions marked with *.
    Precession of date coordinates is based on stop time of first scan.
    Names used in schedule marked with *.
    Short names used in VLA and SNAP files marked with +.
    Observation date used in B1950/J2000 coordinate conversion (PRECDATE):  1979.900
    No adjustments are made for rates (DRA, DDEC).
    Scan hours are for recording scans only.
    Baseline hours are only counted for scans above horizon at both ends.

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

  J0137+3309        01 34 49.826374   * 01 37 41.299440     01 38 29.959329       0.52
* 3C48              32 54 20.25881    * 33 09 35.13299      33 13 55.41232        0.50

  J0555+3948        05 52 01.407174   * 05 55 30.805616     05 56 31.625055       0.13
* DA193             39 48 21.94578    * 39 48 49.16493      39 48 52.17836        0.10


 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)
  3C48                59.0
  DA193              109.6

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg F^(-0.6) where F is in GHz.
 For common VLBI bands, this is:
      327 MHz        117. deg
      610 MHz         81. deg
      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
     43.0 GHz          6. deg
```

rk01uqtr

RadioAstron AGN survey

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```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: C-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  27 Feb 2014   Day  58 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

05 10 00  1253-055     16 52 06  13.2 240.9  3.9      31.8     0         0   05 10 00
05 19 30  ---          17 01 38  11.9 243.0  4.1      32.5   570        18   05 10 01

05 20 00  1253-055     17 02 08  11.8 243.1  4.1      32.6    24        18   05 20 00
05 29 30  ---          17 11 40  10.6 245.1  4.2      33.2   570        36   05 20 01

05 30 00  1253-055     17 12 10  10.5 245.2  4.3      33.2    24        36   05 30 00
05 39 30  ---          17 21 41   9.2 247.2  4.4      33.8   570        55   05 30 01

05 40 00  1253-055     17 22 11   9.1 247.3  4.4      33.8    24        55   05 40 00
05 49 30  ---          17 31 43   7.8 249.3  4.6      34.4   570        73   05 40 01

05 50 00  1253-055     17 32 13   7.7 249.4  4.6      34.4    24        73   05 50 00
06 00 00  ---          17 42 15   6.3 251.5  4.8      34.9   600        92   05 50 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
   Matching groups in ./rk01uq_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1253-055          12 53 35.831289   * 12 56 11.166557     12 56 56.869361       0.00
  J1256-0547       -05 31 07.99603    *-05 47 21.52489     -05 52 05.14478        0.00


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1253-055           143.2

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

rk01urtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: 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  27 Feb 2014   Day  58 ---

 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

19 10 00  0748+126     06 54 24  47.8 158.9 -1.0     -12.8     0         0   19 10 00
19 24 30  ---          07 08 57  48.5 164.1 -0.7      -9.7   870        28   19 10 01

19 25 00  0748+126     07 09 27  48.5 164.3 -0.7      -9.6    24        28   19 25 00
19 39 30  ---          07 23 59  49.0 169.7 -0.5      -6.3   870        56   19 25 01

19 40 00  0748+126     07 24 29  49.0 169.8 -0.5      -6.2    24        56   19 40 00
19 54 30  ---          07 39 02  49.3 175.3 -0.2      -2.9   870        84   19 40 01

19 55 00  0748+126     07 39 32  49.3 175.4 -0.2      -2.8    24        84   19 55 00
20 00 00  ---          07 44 33  49.4 177.3 -0.1      -1.6   300        93   19 55 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 ./rk01ur_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

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

The following frequency sets based on these setups were used.

 Frequency Set:   7  Setup file default.  Used pcal sets:   1
 LO sum=   22236.00  22236.00  22236.00  22236.00
 BBC fr=     736.00    736.00    736.00    736.00
 Bandwd=      16.00     16.00     16.00     16.00
  Matching frequency sets:   7

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0748+126          07 48 05.060493   * 07 50 52.045731     07 51 40.947505       0.00
  J0750+1231        12 38 45.47747    * 12 31 04.82815      12 28 39.02889        0.00


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)
  3C147              106.0
  0748+126           137.7

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

rk01ustr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: C-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  28 Feb 2014   Day  59 ---

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

00 00 00  0805-077     11 45 12  13.8 235.7  3.6      30.0     0         0   00 00 00
00 09 30  ---          11 54 44  12.6 237.8  3.8      30.9   570        18   00 00 01

00 10 00  0805-077     11 55 14  12.6 237.9  3.8      30.9    24        18   00 10 00
00 19 30  ---          12 04 45  11.4 239.9  3.9      31.6   570        36   00 10 01

00 20 00  0805-077     12 05 15  11.3 240.0  3.9      31.7    24        36   00 20 00
00 29 30  ---          12 14 47  10.0 242.1  4.1      32.4   570        55   00 20 01

00 30 00  0805-077     12 15 17  10.0 242.2  4.1      32.4    24        55   00 30 00
00 40 00  ---          12 25 19   8.6 244.3  4.3      33.1   600        74   00 30 01



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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01us_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
 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 pcal sets:   1
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    636.00   636.00   636.00   636.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0805-077          08 05 49.552833   * 08 08 15.536034     08 08 58.558049       0.00
  J0808-0751       -07 42 22.40698    *-07 51 09.88656     -07 53 58.47102        0.00


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)
  0805-077           138.3

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

rk01uttr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: L-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  28 Feb 2014   Day  59 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

02 00 00  0754+100     13 45 32   9.8 273.5  5.8      37.5     0         0   02 00 00
02 09 30  ---          13 55 03   8.3 275.4  6.0      37.4   570        18   02 00 01

02 10 00  0754+100     13 55 33   8.3 275.5  6.0      37.4    24        18   02 10 00
02 19 30  ---          14 05 05   6.8 277.4  6.1      37.2   570        36   02 10 01

02 20 00  0754+100     14 05 35   6.8 277.5  6.1      37.2    24        36   02 20 00
02 29 30  ---          14 15 07   5.3 279.4  6.3      37.0   570        55   02 20 01

02 30 00  0754+100     14 15 37   5.3 279.5  6.3      37.0    24        55   02 30 00
02 40 00  ---          14 25 38   3.8 281.5  6.5      36.7   600        74   02 30 01



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


 ======== Setup file: ra18cm2.set
   Matching groups in ./rk01ut_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 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 pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   3

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0754+100          07 54 22.579229   * 07 57 06.642950     07 57 54.726156       0.00
  J0757+0956        10 04 39.66684    * 09 56 34.85224      09 54 01.61361        0.00


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)
  0754+100           139.0

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

rk01uutr

RadioAstron AGN survey

PI: *Yuri Kovalev*


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Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: L-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  28 Feb 2014   Day  59 ---

 Next scan frequencies:  1668.00  1668.00  1668.00  1668.00
 Next BBC frequencies:    632.00   632.00   632.00   632.00
 Next scan bandwidths:     16.00    16.00    16.00    16.00

04 00 00  1442+101     15 45 51  45.2 201.2  1.0      12.7     0         0   04 00 00
04 09 30  ---          15 55 23  44.6 204.4  1.2      14.6   570        18   04 00 01

04 10 00  1442+101     15 55 53  44.6 204.5  1.2      14.7    24        18   04 10 00
04 19 30  ---          16 05 25  44.0 207.7  1.3      16.5   570        36   04 10 01

04 20 00  1442+101     16 05 55  43.9 207.9  1.3      16.6    24        36   04 20 00
04 29 30  ---          16 15 26  43.2 210.9  1.5      18.3   570        55   04 20 01

04 30 00  1442+101     16 15 56  43.2 211.1  1.5      18.4    24        55   04 30 00
04 39 30  ---          16 25 28  42.4 214.1  1.7      20.0   570        73   04 30 01

04 40 00  1442+101     16 25 58  42.4 214.3  1.7      20.1    24        73   04 40 00
04 49 30  ---          16 35 30  41.5 217.2  1.8      21.6   570        91   04 40 01

04 50 00  1442+101     16 36 00  41.5 217.4  1.8      21.7    24        91   04 50 00
05 00 00  ---          16 46 01  40.5 220.4  2.0      23.3   600       110   04 50 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
   Matching groups in ./rk01uu_freq.dat:
     tr18cm          E-mail Borkowski 12Mar98, preferred alternative

   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=   2300.00   2300.00   2300.00   2300.00
 Net SB=         L         L         U         U
 IF SB =         L         L         L         L
 Pol.  =       RCP       LCP       RCP       LCP
 BBC   =         1         2         1         2
 BBC SB=         U         U         L         L
 IF    =         C         A         C         A

The following frequency sets based on these setups were used.

 Frequency Set:   8  Setup file default.  Used pcal sets:   1
 LO sum=   1668.00  1668.00  1668.00  1668.00
 BBC fr=    632.00   632.00   632.00   632.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   8

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 1442+101          14 42 50.483804   * 14 45 16.465253     14 45 58.901515       0.00
  J1445+0958        10 11 12.14439    * 09 58 36.07265      09 54 54.56351        0.00


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           120.4

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

es071btr

3D velocity field of the methanol gas around Cepheus A HW2

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Schedule for TORUN (Code Tr) Page 2
3D velocity field of the methanol gas around Cepheus A HW2

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

--- Fri 28 Feb 2014 Day 59 ---

Next scan frequencies:			6665.58	6665.58	6665.58	6665.58	6669.58	6669.58	6669.58	6669.58					
			6673.58	6673.58	6673.58	6673.58	6677.58	6677.58	6677.58	6677.58					
Next BBC frequencies:			765.58	765.58	765.58	765.58	769.58	769.58	769.58	769.58					
			773.58	773.58	773.58	773.58	777.58	777.58	777.58	777.58					
Next scan bandwidths:			2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00					
			2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00					
Start UT	Source	LST	Start / Stop EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC					
Stop UT															
07 00 00	J1331+3030	18 46 21	30.5	-78.7	5.2		43.1	0	0	07 00 00					
07 10 00	---	18 56 23	29.0	-76.9	5.4		42.7	600	10	07 00 01					
07 19 00	J2202+4216	19 05 24	58.8	91.9	-3.0		-54.3	189	10	07 19 00					
07 27 00	---	19 13 25	60.0	93.6	-2.8		-54.2	480	17	07 19 01					
07 36 00	CEPHEUSA	19 22 27	60.9	50.7	-3.6		-83.0	439	17	07 36 00					
07 38 00	---	19 24 27	61.1	50.7	-3.5		-83.4	120	19	07 36 01					
07 38 00	J2302+6405	19 24 27	60.6	46.3	-3.6		-85.8	-24	19	No stop					
07 39 30	---	19 25 57	60.7	46.4	-3.6		-86.1	66	21	07 38 01					
07 39 45	J2302+6405	19 26 13	60.8	46.4	-3.6		-86.2	9	21	07 39 45					
07 41 15	---	19 27 43	60.9	46.4	-3.6		-86.5	90	22	07 39 46					
07 41 15	CEPHEUSA	19 27 43	61.5	50.8	-3.5		-84.1	-24	22	No stop					
07 43 15	---	19 29 43	61.7	50.8	-3.5		-84.5	96	24	07 41 16					
07 43 15	J2302+6405	19 29 43	61.1	46.4	-3.6		-86.9	-24	24	No stop					
07 46 15	---	19 32 44	61.5	46.5	-3.5		-87.6	156	27	07 43 16					
07 46 15	CEPHEUSA	19 32 44	62.1	50.9	-3.4		-85.1	-24	27	No stop					
07 48 15	---	19 34 44	62.3	51.0	-3.4		-85.5	96	29	07 46 16					
07 48 15	J2302+6405	19 34 44	61.7	46.5	-3.5		-88.0	-24	29	No stop					
07 51 15	---	19 37 44	62.0	46.5	-3.4		-88.7	156	32	07 48 16					

Schedule for TORUN (Code Tr) Page 3

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
07 51 15	CEPHEUSA	19 37 44	62.6	51.0	-3.3		-86.1	-24	32	No stop
07 53 15	---	19 39 45	62.9	51.0	-3.3		-86.5	96	34	07 51 16
07 53 15	J2302+6405	19 39 45	62.2	46.5	-3.4		-89.1	-24	34	No stop
07 54 45	---	19 41 15	62.4	46.5	-3.4		-89.4	66	35	07 53 16
07 55 00	J2302+6405	19 41 30	62.4	46.5	-3.4		-89.5	9	35	07 55 00
07 56 30	---	19 43 00	62.6	46.5	-3.3		-89.8	90	37	07 55 01
07 56 30	CEPHEUSA	19 43 00	63.3	51.1	-3.2		-87.2	-24	37	No stop
07 58 30	---	19 45 01	63.5	51.1	-3.2		-87.6	96	39	07 56 31
07 58 30	J2302+6405	19 45 01	62.8	46.5	-3.3		-90.3	-24	39	No stop
08 01 30	---	19 48 01	63.1	46.5	-3.3		-91.0	156	42	07 58 31
08 01 30	CEPHEUSA	19 48 01	63.8	51.1	-3.1		-88.2	-24	42	No stop
08 03 30	---	19 50 01	64.1	51.2	-3.1		-88.7	96	44	08 01 31
08 03 30	J2302+6405	19 50 01	63.4	46.5	-3.2		-91.4	-24	44	No stop
08 06 30	---	19 53 02	63.7	46.5	-3.2		-92.1	156	46	08 03 31
08 06 30	CEPHEUSA	19 53 02	64.4	51.2	-3.1		-89.3	-24	46	No stop
08 08 30	---	19 55 02	64.7	51.2	-3.0		-89.8	96	48	08 06 31
08 08 30	J2302+6405	19 55 02	63.9	46.4	-3.1		-92.6	-24	48	No stop
08 10 00	---	19 56 33	64.1	46.4	-3.1		-93.0	66	50	08 08 31
08 10 15	J2302+6405	19 56 48	64.1	46.4	-3.1		-93.0	9	50	08 10 15
08 11 45	---	19 58 18	64.3	46.4	-3.1		-93.4	90	51	08 10 16
08 11 45	CEPHEUSA	19 58 18	65.0	51.2	-3.0		-90.5	-25	51	No stop
08 13 45	---	20 00 18	65.3	51.2	-2.9		-90.9	95	53	08 11 46
08 13 45	J2302+6405	20 00 18	64.5	46.4	-3.0		-93.9	-25	53	No stop
08 16 45	---	20 03 19	64.8	46.3	-3.0		-94.6	155	56	08 13 46
08 16 45	CEPHEUSA	20 03 19	65.6	51.1	-2.9		-91.6	-25	56	No stop
08 18 45	---	20 05 19	65.9	51.1	-2.9		-92.1	95	58	08 16 46
08 18 45	J2302+6405	20 05 19	65.0	46.3	-3.0		-95.1	-25	58	No stop
08 21 45	---	20 08 19	65.3	46.2	-2.9		-95.8	155	61	08 18 46
08 21 45	CEPHEUSA	20 08 19	66.2	51.1	-2.8		-92.8	-25	61	No stop
08 23 45	---	20 10 20	66.5	51.1	-2.8		-93.2	95	63	08 21 46
08 23 45	J2302+6405	20 10 20	65.6	46.1	-2.9		-96.3	-25	63	No stop
08 25 15	---	20 11 50	65.7	46.1	-2.9		-96.7	65	64	08 23 46

Schedule for TORUN (Code Tr) Page 4

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
08 25 30	J2302+6405	20 12 05	65.7	46.1	-2.9		-96.8	9	64	08 25 30
08 27 00	---	20 13 35	65.9	46.0	-2.8		-97.1	90	66	08 25 31
08 27 00	CEPHEUSA	20 13 35	66.8	51.0	-2.7		-94.0	-25	66	No stop
08 29 00	---	20 15 36	67.1	51.0	-2.7		-94.5	95	68	08 27 01
08 31 24	J2202+4216	20 18 00	69.5	110.9	-1.8		-49.4	9	68	08 31 24
08 39 24	---	20 26 01	70.6	113.8	-1.6		-48.0	480	75	08 31 25
08 41 50	CEPHEUSA	20 28 28	68.6	50.5	-2.5		-97.7	5	75	08 41 50
08 43 50	---	20 30 28	68.8	50.4	-2.4		-98.3	120	77	08 41 51
08 43 50	J2302+6405	20 30 28	67.7	45.3	-2.5		-101.6	-25	77	No stop
08 45 20	---	20 31 59	67.9	45.2	-2.5		-102.1	65	79	08 43 51
08 45 35	J2302+6405	20 32 14	67.9	45.2	-2.5		-102.1	9	79	08 45 35
08 47 05	---	20 33 44	68.1	45.1	-2.5		-102.6	90	80	08 45 36
08 47 05	CEPHEUSA	20 33 44	69.2	50.3	-2.4		-99.1	-25	80	No stop
08 49 05	---	20 35 44	69.4	50.2	-2.4		-99.7	95	82	08 47 06
08 49 05	J2302+6405	20 35 44	68.3	44.9	-2.5		-103.1	-25	82	No stop
08 52 05	---	20 38 45	68.6	44.7	-2.4		-104.0	155	85	08 49 06
08 52 05	CEPHEUSA	20 38 45	69.7	50.0	-2.3		-100.5	-25	85	No stop
08 54 05	---	20 40 45	70.0	49.9	-2.3		-101.1	95	87	08 52 06
08 54 05	J2302+6405	20 40 45	68.8	44.6	-2.4		-104.6	-26	87	No stop
08 57 05	---	20 43 46	69.1	44.4	-2.3		-105.5	154	90	08 54 06
08 57 05	CEPHEUSA	20 43 46	70.3	49.7	-2.2		-101.9	-26	90	No stop
08 59 05	---	20 45 46	70.6	49.5	-2.2		-102.5	94	92	08 57 06
08 59 05	J2302+6405	20 45 46	69.3	44.2	-2.3		-106.1	-26	92	No stop
09 00 35	---	20 47 16	69.5	44.1	-2.3		-106.6	64	93	08 59 06
09 00 50	J2302+6405	20 47 31	69.5	44.0	-2.3		-106.6	9	93	09 00 50
09 02 20	---	20 49 02	69.7	43.9	-2.2		-107.1	90	95	09 00 51
09 02 20	CEPHEUSA	20 49 02	70.9	49.3	-2.1		-103.5	-26	95	No stop
09 04 20	---	20 51 02	71.2	49.1	-2.1		-104.1	94	97	09 02 21
09 04 20	J2302+6405	20 51 02	69.9	43.7	-2.2		-107.7	-26	97	No stop
09 07 20	---	20 54 02	70.2	43.4	-2.2		-108.7	154	100	09 04 21
09 07 20	CEPHEUSA	20 54 02	71.5	48.8	-2.0		-105.0	-26	100	No stop
09 09 20	---	20 56 03	71.7	48.6	-2.0		-105.6	94	102	09 07 21

Schedule for TORUN (Code Tr) Page 5

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
09 09 20	J2302+6405	20 56 03	70.4	43.2	-2.1		-109.3	-26	102	No stop
09 12 20	---	20 59 03	70.7	42.9	-2.1		-110.3	154	105	09 09 21
09 12 20	CEPHEUSA	20 59 03	72.1	48.3	-2.0		-106.6	-26	105	No stop
09 14 20	---	21 01 03	72.3	48.1	-1.9		-107.3	94	106	09 12 21
09 14 20	J2302+6405	21 01 03	70.9	42.6	-2.0		-111.0	-26	106	No stop
09 15 50	---	21 02 34	71.1	42.4	-2.0		-111.5	64	108	09 14 21
09 16 05	J2302+6405	21 02 49	71.1	42.4	-2.0		-111.6	9	108	09 16 05
09 17 35	---	21 04 19	71.3	42.2	-2.0		-112.1	90	109	09 16 06
09 17 35	CEPHEUSA	21 04 19	72.6	47.7	-1.9		-108.4	-26	109	No stop
09 19 35	---	21 06 19	72.9	47.4	-1.8		-109.0	94	111	09 17 36
09 19 35	J2302+6405	21 06 19	71.5	42.0	-1.9		-112.8	-26	111	No stop
09 22 35	---	21 09 20	71.8	41.6	-1.9		-113.9	154	114	09 19 36
09 22 35	CEPHEUSA	21 09 20	73.2	47.0	-1.8		-110.1	-26	114	No stop
09 24 35	---	21 11 20	73.4	46.7	-1.8		-110.8	94	116	09 22 36
09 24 35	J2302+6405	21 11 20	72.0	41.3	-1.9		-114.6	-26	116	No stop
09 27 35	---	21 14 21	72.2	40.8	-1.8		-115.7	154	119	09 24 36
09 27 35	CEPHEUSA	21 14 21	73.7	46.3	-1.7		-111.9	-26	119	No stop
09 29 35	---	21 16 21	74.0	46.0	-1.7		-112.7	94	121	09 27 36
09 29 35	J2302+6405	21 16 21	72.4	40.5	-1.8		-116.5	-26	121	No stop
09 31 05	---	21 17 51	72.6	40.2	-1.8		-117.0	64	122	09 29 36
09 31 20	J2302+6405	21 18 06	72.6	40.2	-1.8		-117.1	9	122	09 31 20
09 32 50	---	21 19 37	72.8	40.0	-1.7		-117.7	90	124	09 31 21
09 32 50	CEPHEUSA	21 19 37	74.3	45.4	-1.6		-113.9	-26	124	No stop
09 34 50	---	21 21 37	74.5	45.1	-1.6		-114.7	94	126	09 32 51
09 38 26	J2202+4216	21 25 13	77.5	145.6	-0.6		-27.3	0	126	09 38 26
09 46 26	---	21 33 15	78.1	152.0	-0.5		-22.5	480	134	09 38 27
09 50 22	CEPHEUSA	21 37 11	76.1	41.7	-1.3		-121.4	0	134	09 50 22
09 52 22	---	21 39 11	76.3	41.2	-1.3		-122.4	120	135	09 50 23
09 52 22	J2302+6405	21 39 11	74.6	36.0	-1.4		-126.0	-26	135	No stop
09 53 52	---	21 40 41	74.7	35.6	-1.4		-126.7	64	137	09 52 23
09 54 07	J2302+6405	21 40 56	74.7	35.5	-1.4		-126.8	9	137	09 54 07
09 55 37	---	21 42 27	74.9	35.1	-1.3		-127.5	90	138	09 54 08

Schedule for TORUN (Code Tr) Page 6

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
09 55 37	CEPHEUSA	21 42 27	76.7	40.3	-1.2		-123.9	-25	138	No stop
09 57 37	---	21 44 27	76.8	39.7	-1.2		-125.0	95	140	09 55 38
09 57 37	J2302+6405	21 44 27	75.0	34.6	-1.3		-128.4	-25	140	No stop
10 00 37	---	21 47 27	75.3	33.8	-1.3		-129.9	155	143	09 57 38
10 00 37	CEPHEUSA	21 47 27	77.1	38.8	-1.2		-126.5	-25	143	No stop
10 02 37	---	21 49 28	77.3	38.1	-1.1		-127.6	95	145	10 00 38
10 02 37	J2302+6405	21 49 28	75.4	33.3	-1.2		-130.9	-25	145	No stop
10 05 37	---	21 52 28	75.7	32.4	-1.2		-132.4	155	148	10 02 38
10 05 37	CEPHEUSA	21 52 28	77.6	37.1	-1.1		-129.2	-24	148	No stop
10 07 37	---	21 54 29	77.8	36.4	-1.0		-130.4	96	150	10 05 38
10 07 37	J2302+6405	21 54 29	75.9	31.8	-1.1		-133.4	-24	150	No stop
10 09 07	---	21 55 59	76.0	31.3	-1.1		-134.2	66	151	10 07 38
10 09 22	J2302+6405	21 56 14	76.0	31.2	-1.1		-134.4	9	151	10 09 22
10 10 52	---	21 57 44	76.1	30.8	-1.1		-135.2	90	153	10 09 23
10 10 52	CEPHEUSA	21 57 44	78.1	35.2	-1.0		-132.2	-24	153	No stop
10 12 52	---	21 59 44	78.2	34.4	-1.0		-133.4	96	155	10 10 53
10 12 52	J2302+6405	21 59 44	76.3	30.1	-1.1		-136.3	-24	155	No stop
10 15 52	---	22 02 45	76.5	29.1	-1.0		-137.9	156	158	10 12 53
10 15 52	CEPHEUSA	22 02 45	78.5	33.2	-0.9		-135.3	-23	158	No stop
10 17 52	---	22 04 45	78.6	32.4	-0.9		-136.6	97	160	10 15 53
10 17 52	J2302+6405	22 04 45	76.6	28.4	-1.0		-139.1	-23	160	No stop
10 20 52	---	22 07 46	76.8	27.3	-0.9		-140.8	157	163	10 17 53
10 20 52	CEPHEUSA	22 07 46	78.9	31.0	-0.8		-138.6	-22	163	No stop
10 22 52	---	22 09 46	79.0	30.1	-0.8		-139.9	98	165	10 20 53
10 22 52	J2302+6405	22 09 46	77.0	26.5	-0.9		-142.0	-22	165	No stop
10 24 22	---	22 11 16	77.1	26.0	-0.9		-142.9	68	166	10 22 53
10 24 37	J2302+6405	22 11 31	77.1	25.9	-0.9		-143.0	9	166	10 24 37
10 26 07	---	22 13 02	77.2	25.3	-0.8		-143.9	90	167	10 24 38
10 26 07	CEPHEUSA	22 13 02	79.3	28.5	-0.7		-142.2	-22	167	No stop
10 28 07	---	22 15 02	79.4	27.5	-0.7		-143.6	98	169	10 26 08
10 28 07	J2302+6405	22 15 02	77.3	24.5	-0.8		-145.2	-22	169	No stop
10 31 07	---	22 18 02	77.5	23.2	-0.8		-147.1	158	172	10 28 08

Schedule for TORUN (Code Tr) Page 7

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
10 31 07	CEPHEUSA	22 18 02	79.6	25.9	-0.6		-145.8	-22	172	No stop
10 33 07	---	22 20 03	79.8	24.9	-0.6		-147.4	98	174	10 31 08
10 33 07	J2302+6405	22 20 03	77.6	22.4	-0.7		-148.4	-22	174	No stop
10 36 07	---	22 23 03	77.8	21.0	-0.7		-150.3	158	177	10 33 08
10 36 07	CEPHEUSA	22 23 03	79.9	23.2	-0.6		-149.7	-22	177	No stop
10 38 07	---	22 25 04	80.1	22.0	-0.5		-151.3	98	179	10 36 08
10 38 07	J2302+6405	22 25 04	77.9	20.1	-0.6		-151.7	-22	179	No stop
10 39 37	---	22 26 34	78.0	19.4	-0.6		-152.7	68	180	10 38 08
10 39 52	J2302+6405	22 26 49	78.0	19.3	-0.6		-152.9	9	180	10 39 52
10 41 22	---	22 28 19	78.1	18.6	-0.6		-153.9	90	182	10 39 53
10 41 22	CEPHEUSA	22 28 19	80.2	20.0	-0.5		-154.0	-22	182	No stop
10 43 22	---	22 30 19	80.3	18.7	-0.4		-155.6	98	184	10 41 23
10 52 55	J2202+4216	22 39 54	77.6	213.3	0.6		26.5	174	184	10 52 55
11 00 55	---	22 47 56	76.9	219.2	0.7		30.9	480	192	10 52 56
11 09 42	CEPHEUSA	22 56 44	81.0	360.1	-0.0		-179.9	225	192	11 09 42
11 11 42	---	22 58 44	81.0	358.6	0.0		178.2	120	194	11 09 43
11 11 42	J2302+6405	22 58 44	78.9	362.5	-0.1		-176.5	-22	194	No stop
11 13 12	---	23 00 15	78.9	361.7	-0.0		-177.7	68	195	11 11 43
11 13 27	J2302+6405	23 00 30	78.9	361.5	-0.0		-177.9	8	195	11 13 27
11 14 57	---	23 02 00	78.9	360.7	-0.0		-179.0	90	196	11 13 28
11 14 57	CEPHEUSA	23 02 00	81.0	356.2	0.1		175.1	-25	196	No stop
11 16 57	---	23 04 00	80.9	354.7	0.1		173.2	95	198	11 14 58
11 16 57	J2302+6405	23 04 00	78.9	359.6	0.0		179.4	-24	198	No stop
11 19 57	---	23 07 01	78.9	357.9	0.1		177.0	156	201	11 16 58
11 19 57	CEPHEUSA	23 07 01	80.9	352.5	0.2		170.3	-26	201	No stop
11 21 57	---	23 09 01	80.8	351.0	0.2		168.4	94	203	11 19 58
11 21 57	J2302+6405	23 09 01	78.9	356.7	0.1		175.5	-26	203	No stop
11 24 57	---	23 12 02	78.9	355.0	0.1		173.1	154	206	11 21 58
11 24 57	CEPHEUSA	23 12 02	80.8	348.9	0.3		165.7	-28	206	No stop
11 26 57	---	23 14 02	80.7	347.5	0.3		163.8	92	208	11 24 58

Schedule for TORUN (Code Tr) Page 8

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
11 26 57	J2302+6405	23 14 02	78.8	353.9	0.2		171.6	-27	208	No stop
11 28 27	---	23 15 32	78.8	353.1	0.2		170.4	63	210	11 26 58
11 28 42	J2302+6405	23 15 47	78.8	352.9	0.2		170.3	8	210	11 28 42
11 30 12	---	23 17 17	78.8	352.1	0.2		169.1	90	211	11 28 43
11 30 12	CEPHEUSA	23 17 17	80.6	345.2	0.3		160.9	-29	211	No stop
11 32 12	---	23 19 18	80.5	343.9	0.4		159.1	91	213	11 30 13
11 32 12	J2302+6405	23 19 18	78.7	351.0	0.3		167.6	-29	213	No stop
11 35 12	---	23 22 18	78.7	349.4	0.3		165.3	151	216	11 32 13
11 35 12	CEPHEUSA	23 22 18	80.4	341.9	0.4		156.5	-30	216	No stop
11 37 12	---	23 24 19	80.3	340.7	0.5		154.8	90	218	11 35 13
11 37 12	J2302+6405	23 24 19	78.6	348.3	0.4		163.8	-30	218	No stop
11 40 12	---	23 27 19	78.5	346.8	0.4		161.6	150	221	11 37 13
11 40 12	CEPHEUSA	23 27 19	80.1	338.8	0.5		152.3	-31	221	No stop
11 42 12	---	23 29 19	80.0	337.6	0.5		150.7	89	223	11 40 13
11 42 12	J2302+6405	23 29 19	78.4	345.7	0.4		160.1	-31	223	No stop
11 43 42	---	23 30 50	78.4	345.0	0.5		159.0	59	224	11 42 13
11 43 57	J2302+6405	23 31 05	78.4	344.8	0.5		158.9	9	224	11 43 57
11 45 27	---	23 32 35	78.3	344.1	0.5		157.8	90	225	11 43 58
11 45 27	CEPHEUSA	23 32 35	79.8	335.7	0.6		148.2	-32	225	No stop
11 47 27	---	23 34 35	79.7	334.6	0.6		146.6	88	227	11 45 28
11 47 27	J2302+6405	23 34 35	78.2	343.1	0.5		156.4	-31	227	No stop
11 50 27	---	23 37 36	78.1	341.6	0.6		154.3	149	230	11 47 28
11 50 27	CEPHEUSA	23 37 36	79.5	333.0	0.7		144.4	-33	230	No stop
11 52 27	---	23 39 36	79.4	332.0	0.7		142.9	87	232	11 50 28
11 52 27	J2302+6405	23 39 36	78.0	340.7	0.6		152.9	-32	232	No stop
11 53 57	---	23 41 06	77.9	340.0	0.6		151.9	58	234	11 52 28
11 54 12	J2302+6405	23 41 21	77.9	339.9	0.6		151.7	9	234	11 54 12
11 55 42	---	23 42 52	77.8	339.2	0.7		150.7	90	235	11 54 13
11 55 42	CEPHEUSA	23 42 52	79.1	330.4	0.8		140.6	-33	235	No stop
11 57 42	---	23 44 52	79.0	329.4	0.8		139.3	87	237	11 55 43
12 07 08	J2202+4216	23 54 19	68.7	251.0	1.9		50.2	389	237	12 07 08
12 15 08	---	00 02 20	67.5	253.5	2.0		51.2	480	245	12 07 09

Schedule for TORUN (Code Tr) Page 9

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
12 25 49	CEPHEUSA	00 13 04	76.5	319.2	1.3		123.0	491	245	12 25 49
12 27 49	---	00 15 04	76.3	318.7	1.3		122.1	120	247	12 25 50
12 27 49	J2302+6405	00 15 04	75.6	327.3	1.2		131.8	-32	247	No stop
12 29 19	---	00 16 35	75.5	326.9	1.2		131.1	58	248	12 27 50
12 29 34	J2302+6405	00 16 50	75.5	326.8	1.2		131.0	9	248	12 29 34
12 31 04	---	00 18 20	75.3	326.4	1.3		130.2	90	250	12 29 35
12 31 04	CEPHEUSA	00 18 20	75.9	317.9	1.4		120.6	-32	250	No stop
12 33 04	---	00 20 20	75.7	317.4	1.4		119.7	88	252	12 31 05
12 33 04	J2302+6405	00 20 20	75.2	325.8	1.3		129.2	-32	252	No stop
12 36 04	---	00 23 21	74.9	325.0	1.3		127.8	148	255	12 33 05
12 36 04	CEPHEUSA	00 23 21	75.4	316.7	1.4		118.3	-32	255	No stop
12 38 04	---	00 25 21	75.2	316.3	1.5		117.5	88	256	12 36 05
12 38 04	J2302+6405	00 25 21	74.7	324.5	1.4		126.9	-31	256	No stop
12 41 04	---	00 28 22	74.5	323.8	1.4		125.5	149	259	12 38 05
12 41 04	CEPHEUSA	00 28 22	74.9	315.7	1.5		116.2	-31	259	No stop
12 43 04	---	00 30 22	74.7	315.3	1.6		115.4	89	261	12 41 05
12 43 04	J2302+6405	00 30 22	74.3	323.3	1.5		124.6	-31	261	No stop
12 44 34	---	00 31 52	74.2	323.0	1.5		123.9	59	263	12 43 05
12 44 49	J2302+6405	00 32 07	74.1	322.9	1.5		123.8	9	263	12 44 49
12 46 19	---	00 33 37	74.0	322.6	1.5		123.1	90	264	12 44 50
12 46 19	CEPHEUSA	00 33 37	74.4	314.7	1.6		114.1	-31	264	No stop
12 48 19	---	00 35 38	74.1	314.3	1.6		113.3	89	266	12 46 20
12 48 19	J2302+6405	00 35 38	73.8	322.2	1.5		122.3	-31	266	No stop
12 51 19	---	00 38 38	73.5	321.6	1.6		121.0	149	269	12 48 20
12 51 19	CEPHEUSA	00 38 38	73.8	313.8	1.7		112.2	-31	269	No stop
12 53 19	---	00 40 39	73.6	313.5	1.7		111.4	89	271	12 51 20
12 53 19	J2302+6405	00 40 39	73.4	321.2	1.6		120.2	-30	271	No stop
12 56 19	---	00 43 39	73.1	320.6	1.7		119.0	150	274	12 53 20
12 56 19	CEPHEUSA	00 43 39	73.3	313.1	1.8		110.3	-30	274	No stop
12 58 19	---	00 45 39	73.1	312.8	1.8		109.6	90	276	12 56 20

Schedule for TORUN (Code Tr) Page 10

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
12 58 19	J2302+6405	00 45 39	72.9	320.3	1.7		118.2	-30	276	No stop
12 59 49	---	00 47 10	72.7	320.0	1.7		117.6	60	277	12 58 20
13 00 04	J2302+6405	00 47 25	72.7	320.0	1.7		117.5	9	277	13 00 04
13 01 34	---	00 48 55	72.6	319.7	1.8		116.9	90	279	13 00 05
13 01 34	CEPHEUSA	00 48 55	72.7	312.4	1.9		108.5	-30	279	No stop
13 03 34	---	00 50 55	72.5	312.1	1.9		107.8	90	281	13 01 35
13 17 20	J2202+4216	01 04 43	58.3	268.8	3.0		54.3	719	281	13 17 20
13 25 20	---	01 12 44	57.1	270.4	3.2		54.3	480	288	13 17 21
13 29 32	CEPHEUSA	01 16 57	69.5	309.9	2.3		100.0	158	288	13 29 32
13 31 32	---	01 18 57	69.3	309.8	2.4		99.4	120	290	13 29 33
13 31 32	J2302+6405	01 18 57	69.5	316.0	2.3		106.6	-27	290	No stop
13 33 02	---	01 20 28	69.4	315.8	2.3		106.2	63	292	13 31 33
13 33 17	J2302+6405	01 20 43	69.3	315.8	2.3		106.1	9	292	13 33 17
13 34 47	---	01 22 13	69.2	315.7	2.3		105.6	90	293	13 33 18
13 34 47	CEPHEUSA	01 22 13	68.9	309.6	2.4		98.5	-27	293	No stop
13 36 47	---	01 24 13	68.7	309.5	2.5		98.0	93	295	13 34 48
13 36 47	J2302+6405	01 24 13	69.0	315.5	2.3		105.0	-27	295	No stop
13 39 47	---	01 27 14	68.7	315.3	2.4		104.1	153	298	13 36 48
13 39 47	CEPHEUSA	01 27 14	68.3	309.4	2.5		97.2	-27	298	No stop
13 41 47	---	01 29 14	68.1	309.3	2.5		96.7	93	300	13 39 48
13 41 47	J2302+6405	01 29 14	68.4	315.2	2.4		103.6	-27	300	No stop
13 44 47	---	01 32 14	68.1	315.0	2.5		102.7	153	303	13 41 48
13 44 47	CEPHEUSA	01 32 14	67.7	309.2	2.6		95.9	-27	303	No stop
13 46 47	---	01 34 15	67.5	309.1	2.6		95.4	93	305	13 44 48
13 46 47	J2302+6405	01 34 15	67.9	314.8	2.5		102.1	-26	305	No stop
13 48 17	---	01 35 45	67.8	314.7	2.5		101.7	64	306	13 46 48
13 48 32	J2302+6405	01 36 00	67.7	314.7	2.5		101.6	9	306	13 48 32
13 50 02	---	01 37 30	67.6	314.6	2.6		101.2	90	308	13 48 33
13 50 02	CEPHEUSA	01 37 30	67.1	309.1	2.7		94.6	-26	308	No stop
13 52 02	---	01 39 31	66.9	309.0	2.7		94.2	94	310	13 50 03
13 52 02	J2302+6405	01 39 31	67.3	314.5	2.6		100.7	-26	310	No stop
13 55 02	---	01 42 31	67.0	314.4	2.7		99.9	154	313	13 52 03

Schedule for TORUN (Code Tr) Page 11

3D velocity field of the methanol gas around Cepheus A HW2

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

Start UT Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 28 Feb 2014 Day 59 ---										
13 55 02	CEPHEUSA	01 42 31	66.5	309.0	2.8		93.4	-26	313	No stop
13 57 02	---	01 44 31	66.3	308.9	2.8		93.0	94	314	13 55 03
13 57 02	J2302+6405	01 44 31	66.8	314.3	2.7		99.3	-26	314	No stop
14 00 02	---	01 47 32	66.5	314.2	2.7		98.5	154	317	13 57 03
14 00 02	CEPHEUSA	01 47 32	66.0	308.9	2.8		92.3	-26	317	No stop
14 02 02	---	01 49 32	65.7	308.9	2.9		91.8	94	319	14 00 03
14 02 02	J2302+6405	01 49 32	66.3	314.1	2.8		98.0	-25	319	No stop
14 03 32	---	01 51 03	66.1	314.0	2.8		97.6	65	321	14 02 03
14 03 47	J2302+6405	01 51 18	66.1	314.0	2.8		97.5	9	321	14 03 47
14 05 17	---	01 52 48	65.9	314.0	2.8		97.2	90	322	14 03 48
14 05 17	CEPHEUSA	01 52 48	65.3	308.8	2.9		91.1	-25	322	No stop
14 07 17	---	01 54 48	65.1	308.8	3.0		90.6	95	324	14 05 18
14 07 17	J2302+6405	01 54 48	65.7	313.9	2.9		96.7	-25	324	No stop
14 10 17	---	01 57 49	65.4	313.8	2.9		95.9	155	327	14 07 18
14 10 17	CEPHEUSA	01 57 49	64.8	308.8	3.0		89.9	-25	327	No stop
14 12 17	---	01 59 49	64.5	308.8	3.0		89.5	95	329	14 10 18
14 12 17	J2302+6405	01 59 49	65.2	313.8	2.9		95.4	-25	329	No stop
14 15 17	---	02 02 49	64.8	313.7	3.0		94.7	155	332	14 12 18
14 15 17	CEPHEUSA	02 02 49	64.2	308.8	3.1		88.9	-25	332	No stop
14 17 17	---	02 04 50	63.9	308.9	3.1		88.4	95	334	14 15 18
14 17 17	J2302+6405	02 04 50	64.6	313.7	3.0		94.2	-25	334	No stop
14 18 47	---	02 06 20	64.5	313.6	3.1		93.8	65	335	14 17 18
14 19 02	J2302+6405	02 06 35	64.4	313.6	3.1		93.8	9	335	14 19 02
14 20 32	---	02 08 05	64.3	313.6	3.1		93.4	90	337	14 19 03
14 20 32	CEPHEUSA	02 08 05	63.6	308.9	3.2		87.7	-24	337	No stop
14 22 32	---	02 10 06	63.3	308.9	3.2		87.3	96	339	14 20 33
14 22 32	J2302+6405	02 10 06	64.0	313.6	3.1		92.9	-24	339	No stop
14 25 32	---	02 13 06	63.7	313.5	3.2		92.2	156	342	14 22 33
14 25 32	CEPHEUSA	02 13 06	63.0	308.9	3.3		86.7	-24	342	No stop
14 27 32	---	02 15 06	62.7	309.0	3.3		86.3	96	344	14 25 33
14 27 32	J2302+6405	02 15 06	63.5	313.5	3.2		91.7	-24	344	No stop
14 29 02	---	02 16 37	63.3	313.5	3.2		91.4	66	345	14 27 33

```
Schedule for TORUN     (Code Tr )                                  Page  12
               3D velocity field of the methanol gas around Cepheus A HW2
  UP:  D => Below limits;  H => Below horizon mask;  W => still slewing at end;  blank => Up.
  Early: Seconds between end of slew and start.   Dwell: On source seconds.
  Disk: GBytes 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  28 Feb 2014   Day  59 ---

14 29 17  J2302+6405   02 16 52  63.3 313.5  3.2      91.3     9      345   14 29 17
14 30 47  ---          02 18 22  63.1 313.5  3.3      91.0    90      346   14 29 18

14 30 47  CEPHEUSA     02 18 22  62.4 309.0  3.4      85.6   -24      346   No stop
14 32 47  ---          02 20 22  62.1 309.1  3.4      85.2    96      348   14 30 48

14 49 07  J2202+4216   02 36 45  44.6 285.2  4.6      51.6   909      348   14 49 07
14 57 07  ---          02 44 47  43.5 286.5  4.7      51.2   480      356   14 49 08



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


 ======== Setup file: sess114.M128
   Matching groups in /aps3/sched10.2/catalogs/freq.dat:
     tr5cm           Values confirmed by E-mail Borkowski (JFD 26Oct98)

   Setup group:    4         Station: TORUN             Total bit rate:  128
   Format: MKIV1:1           Bits per sample: 2         Sample rate:  4.000
   Number of channels: 16    DBE type:                  Speedup factor:   2.00

   Disk used to record data.

   1st LO=   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
             5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00   5900.00
   Net SB=         L         L         U         U         L         L         U         U
                   L         L         U         U         L         L         U         U
   Pol.  =       RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
                 RCP       LCP       RCP       LCP       RCP       LCP       RCP       LCP
   BBC   =         1         2         1         2         3         4         3         4
                   5         6         5         6         7         8         7         8
   BBC SB=         L         L         U         U         L         L         U         U
                   L         L         U         U         L         L         U         U
   IF    =         C         A         C         A         C         A         C         A
                   C         A         C         A         C         A         C         A

  The following frequency sets based on these setups were used.

  Frequency Set:   7  Based on FREQ, BW, and/or DOPPLER in schedule.  Used pcal sets:   1
   LO sum=   6665.58  6665.58  6665.58  6665.58  6669.58  6669.58  6669.58  6669.58
             6673.58  6673.58  6673.58  6673.58  6677.58  6677.58  6677.58  6677.58
   BBC fr=    765.58   765.58   765.58   765.58   769.58   769.58   769.58   769.58
              773.58   773.58   773.58   773.58   777.58   777.58   777.58   777.58
   Bandwd=      2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
                2.00     2.00     2.00     2.00     2.00     2.00     2.00     2.00
    Matching frequency sets:   7
```

```
 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = OFF
   PCALXB1=   S1    S2    S3    S4    S5    S6    S7    S8
   PCALXB2=   M1    M2    M3    M4    M5    M6    M7    M8
   PCALFR1=     0     0     0     0     0     0     0     0
   PCALFR2=     0     0     0     0     0     0     0     0

  Track assignments are:
   track1=   2,  6, 10, 14, 18, 22, 26, 30,  3,  7, 11, 15, 19, 23, 27, 31
   barrel=roll_off


SOURCES USED IN RECORDING SCANS --     3D velocity field of the methanol gas around Cepheus A HW2
    Catalog positions marked with *.
    Precession of date coordinates is based on stop time of first scan.
    Names used in schedule marked with *.
    Short names used in VLA and SNAP files marked with +.
    Observation date used in B1950/J2000 coordinate conversion (PRECDATE):  1979.900
    No adjustments are made for rates (DRA, DDEC).
    Scan hours are for recording scans only.
    Baseline hours are only counted for scans above horizon at both ends.

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

* CEPHEUSA          22 54 18.964445   * 22 56 17.905100     22 56 50.372489       0.00
                    61 45 47.36537    * 62 01 49.58400      62 06 27.06513        0.00

* J2302+6405        23 00 41.944885   * 23 02 41.314960     23 03 13.824899       0.00
                    63 49 43.23614    * 64 05 52.84888      64 10 32.97835        0.00

* J1331+3030        13 28 49.657778   * 13 31 08.288070     13 31 48.839456       0.00
                    30 45 58.64060    * 30 30 32.95924      30 25 56.99117        0.00

* J2202+4216        22 00 39.362504   * 22 02 43.291371     22 03 17.600074       0.00
                    42 02 08.59073    * 42 16 39.97987      42 20 47.72270        0.00


 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)
  CEPHEUSA            70.0
  J2302+6405          72.2
  J1331+3030         135.1
  J2202+4216          51.2

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

rk01uvtr

RadioAstron AGN survey

PI: *Yuri Kovalev*


```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
Observing mode: 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  28 Feb 2014   Day  59 ---

 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

18 10 00  0727-115     05 58 11  22.2 155.4 -1.5     -14.8     0         0   18 10 00
18 24 30  ---          06 12 43  23.0 159.1 -1.3     -12.6   870        28   18 10 01

18 25 00  0727-115     06 13 14  23.1 159.2 -1.3     -12.6    24        28   18 25 00
18 39 30  ---          06 27 46  23.8 163.0 -1.1     -10.3   870        56   18 25 01

18 40 00  0727-115     06 28 16  23.8 163.2 -1.0     -10.2    24        56   18 40 00
18 54 30  ---          06 42 48  24.4 167.0 -0.8      -7.9   870        84   18 40 01

18 55 00  0727-115     06 43 18  24.4 167.2 -0.8      -7.8    24        84   18 55 00
19 10 00  ---          06 58 21  24.8 171.2 -0.5      -5.4   900       112   18 55 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 ./rk01uv_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

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

   Disk used to record data.
```

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

The following frequency sets based on these setups were used.

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

The following pulse cal sets were used with this setup:

 Pulse cal detection set:   1  PCAL = 1MHZ
  PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
  PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
  PCALFR1=  1000  1000 13000 13000     0     0     0     0
  PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0727-115          07 27 58.097813   * 07 30 19.112473     07 31 00.580264       0.00
  J0730-1141       -11 34 52.58107    *-11 41 12.60063     -11 43 20.66147        0.00


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)
  3C147              105.2
  0727-115           127.6

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

rk01uwtr

RadioAstron AGN survey

PI: *Yuri Kovalev*

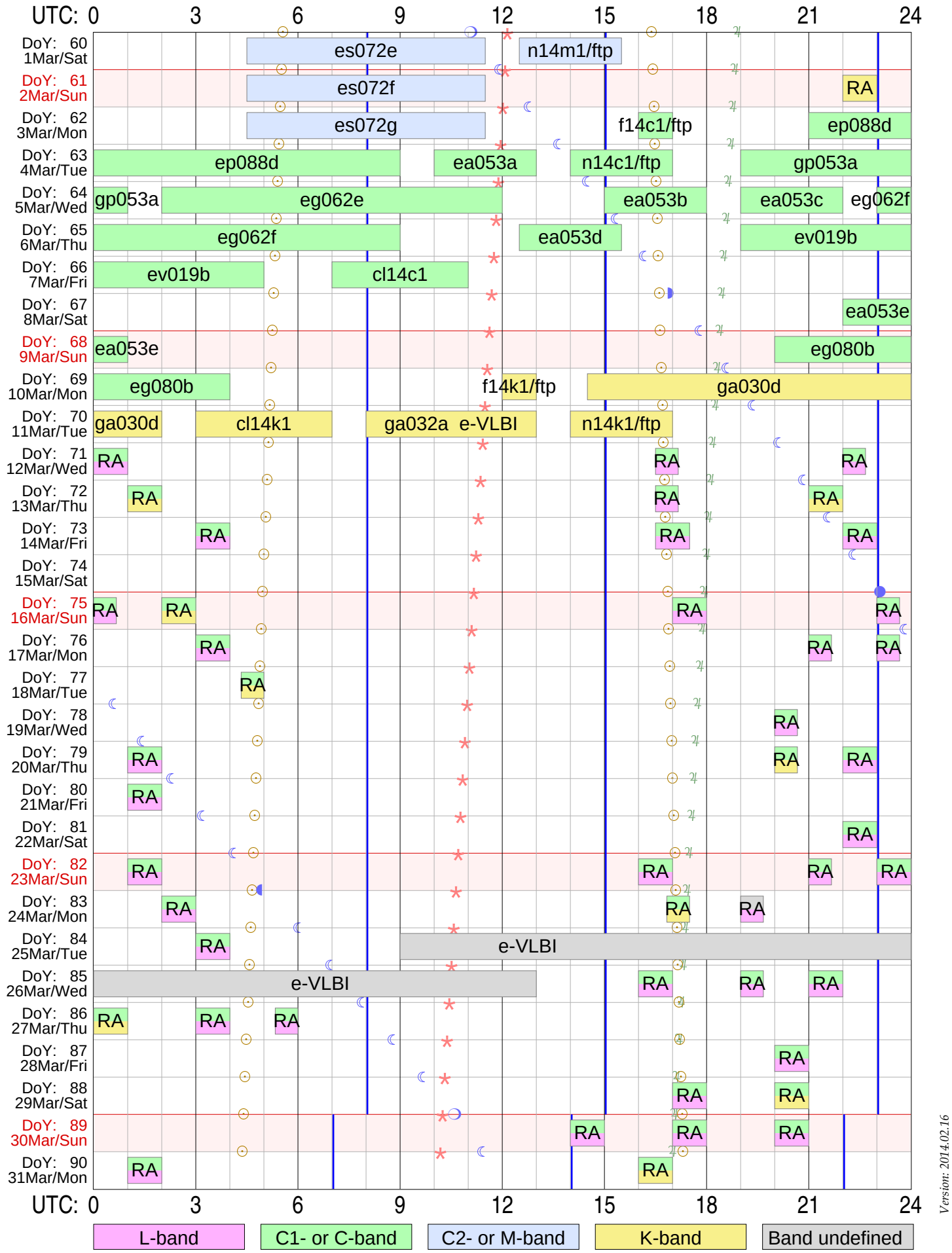

```
Address:  ASC Lebedev          Profsoyuznaya 84/32          117997 Moscow, Russia
Phone:    +7-495-3332512           EMAIL:    kirx@scan.sai.msu.ru
Fax:      +7-495-3332378           Phone during observation: +7-903-6614865
```


```
                UWAGA: zmiana pasma w czasie tego eksperymentu!!!

##########################################################################################
#######################  Observing mode: K&C-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  28 Feb 2014   Day  59 ---

 ---------- 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

23 00 00  0808+019     10 48 59  29.3 226.4  2.6      25.8     0        0   23 00 00
23 19 30  ---          11 08 32  27.1 231.4  2.9      28.0  1170       37   23 00 01

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

 Next scan frequencies:  4836.00  4836.00  4836.00  4836.00
 Next BBC frequencies:    636.00   636.00   636.00   636.00

23 20 00  0808+019     11 09 02  27.0 231.5  2.9      28.0    24       37   23 20 00
23 35 00  ---          11 24 04  25.2 235.1  3.2      29.5   900       66   23 20 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 ./rk01uw_freq.dat:
     tr1cm           Values from Bob Campbell by email (23-04-2013)

   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 pcal sets:   1
   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

  The following pulse cal sets were used with this setup:

   Pulse cal detection set:   1  PCAL = 1MHZ
    PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
    PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
    PCALFR1=  1000  1000 13000 13000     0     0     0     0
    PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


 ======== Setup file: ra6cm2.set
   Matching groups in ./rk01uw_freq.dat:
     tr6cm           E-mail Borkowski 23Apr03 (CR 1May03)

   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=   4200.00   4200.00   4200.00   4200.00
   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 pcal sets:   1
  LO sum=   4836.00  4836.00  4836.00  4836.00
  BBC fr=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   6

 The following pulse cal sets were used with this setup:

  Pulse cal detection set:   1  PCAL = 1MHZ
   PCALXB1=   S1    S3    S1    S3    S1    S2    S3    S4
   PCALXB2=   S2    S4    S2    S4    M1    M2    M3    M4
   PCALFR1=  1000  1000 13000 13000     0     0     0     0
   PCALFR2=  1000  1000 13000 13000     0     0     0     0

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


POSITIONS OF SOURCES USED IN RECORDING SCANS

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

* 0808+019          08 08 51.138133   * 08 11 26.707316     08 12 12.415180       0.00
  J0811+0146        01 55 51.17945    * 01 46 52.22014      01 44 02.03492        0.00


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)
  0808+019           140.9

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

Tr VLBI plan for Mar 2014



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: 196.5 hours in 70 experiments scheduled

Version: 2014.02.16

Plan użycia disk-packów na Mark5A w sesji EVN 1/2014

(*wersja 1.0*, 2014.02.16)

```
            Zapotrze- =========== Packi ============
Projekt      bowanie     Bank A           Bank B       Uwagi
      Corr. ----GB--- -----VSN/GB--    -----VSN/GB--
   **L-band**
f14l1  EVN      205   HART+507/8000                  ftp, tez Mark5B
em111  EVN     4255   HART+507/8000
ef025  eEVN       0    ------------------------------   e-VLBI
ep088c EVN     5079   HART+507/8000    H0B+0019/6000  ~1440
eh028b EVN      245                    H0B+0019/6000
ev019a EVN     4132                    H0B+0019/[~170] (zostaje ~170 GB)
em110  EVN     4104   J0D-0046/6000
n14l1  EVN      559   J0D-0046/6000[1337]            ftp, tez Mark5B
eg080a EVN     2955   MPI-0530/4000
   **M-band**
f14m1  EVN      182   MPI-0530/4000                  ftp, tez Mark5B
es071b EVN     ~460   MPI-0530/4000
es072e EVN       80   MPI-0530/4000
n14m1  EVN      133   MPI-0530/4000                  ftp, tez Mark5B
es072f EVN       81   MPI-0530/4000
es072g EVN       81   MPI-0530/4000[~028]
   **C-band**
f14c1  EVN      174   IAAE-020/8000                  ftp, tez Mark5B
ep088d EVN     5079   IAAE-020/8000
ea053a EVN     1236   J0D-0046/6000[101]
n14c1  EVN      523   J0D-0050/6000                  ftp, tez Mark5B
gp053a EVN     2586   IAAE-020/8000[161]
eg062e EVN     4282   NRAO+261/6000
ea053b EVN     1229   NRAO+261/6000
ea053c EVN     1213   J0D-0050/6000
eg062f EVN     4225   J0D-0050/6000[39]
ea053d EVN     1240   SHAO-032/4000
ev019b EVN     3825   TR+00041/8000
ea053e EVN     1248   TR+00041/8000
eg080b EVN     2890   TR+00041/8000[37]
   **K-band**
f14k1  EVN      408   NRAO+261/6000[81]              ftp, tez Mark5B
ga030d Bonn    1320   JIVE-055/2000                 <==== Korelator Bonn !!!
ga032a eEVN       0    ------------------------------   e-VLBI
n14k1  EVN      813   SHAO-032/4000[1939]            ftp, tez Mark5B
```

`XAO-1005/4000`	— **sesja EVN na Mark5B** (bank A); potrzeba 2977 GB
`OSOD-066/2000`	— **dedykowany do testow Mark5B + DBBC**
`TR-00002/1600`	— **dedykowany do RadioAstronu** (Mark5A, bank A)

Rezerwa: `TR-00008/2000`, `UAO-0016/2000` i `USN-0203/2000`

Contents