

EVN Session Overview — OCT05

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The following information is mainly drawn from station feedback. Please refer to the EVN feedback pages for more details (<http://www.evlbi.org/session/feedback.html>). Stations scheduled and observed successfully (sometimes with minor failures) are indicated by \checkmark . Stations scheduled but failed to observe, or produced no fringes for some reasons are indicated by a dash (-), no feedback from a station by the date of this report is indicated by a black dot (\bullet). Abbreviations for the most common failures are listed below. Please send suggestions or additional info to Zsolt Paragi (zparagi@jive.nl).

A list of abbreviations:

ANT	– antenna control or mechanical failures
FORM	– formatter failure
FS	– Field System errors/crash
HIGH	– T_{sys} higher than usual (e.g. because of weather)
LATE	– late start of observation
LO	– incorrect LO frequency
LOCK	– VCs/BBCs unlocked to maser
LINK	– problems with the microwave link between Cm and Jb
LT	– Lovell Telescope was used in Jb
MkII	– MkII was used in Jb
PCAL	– various problems with phasecal (unstable, high, missing)
PHAS	– problems with phasing up some of the telescopes at Wb, mostly RTC and RTD (longest baselines)
POIN	– pointing problems, some data may be affected or lost
POLS	– wrong polarization setup: polarizations swapped, or leakage high
RECE	– receiver fault
RECO	– problems with recorder, some data may be lost
RFI	– RFI reported
SCHE	– scheduling related problems (inadequate slewing time, HA-EL limitations etc.)
SD	– a single dish was used in Wb
TSYS	– T_{sys} data are corrupted or missing in one or more channels
WIND,	– part of the experiment missed due to severe weather
SNOW ...	conditions (e.g. gusting winds, snowstorm etc.)

6cm	Ef	Wb	Jb2 ⁽¹⁾	On25	Mc	Nt ⁽²⁾	Tr	Ur	Sh	Hh
F05C1	✓	✓ ⁽³⁾ _{RECO}	✓	✓	✓		✓	✓	✓ ⁽⁴⁾	✓
N05C3	✓ ⁽⁵⁾ _{FORM}	✓	✓	✓ ⁽⁶⁾ _{WIND}	✓		✓	✓	✓ ⁽⁷⁾ _{HIGH}	✓ ⁽⁸⁾ _{RECE}
CL05C3	✓	✓	✓	✓	—RAIN		✓	✓	✓ ^{HIGH}	✓
GB055A	✓	✓	✓ ⁽⁹⁾ _{ANT}	✓	✓		✓			
GM057A	✓	✓ ⁽¹⁰⁾ _{HA-E}	✓ ⁽¹¹⁾ _{RECE}	✓	✓		✓			
EL033A	✓ ⁽¹²⁾ _{HIGH}	✓ ⁽¹³⁾	✓	✓	✓		✓	✓	✓ ^{HIGH}	
EP053	✓ ⁽¹⁴⁾ _{HIGH}	— ⁽¹⁵⁾	✓ ⁽¹⁶⁾ _{ANT}	✓	✓		✓	✓	— ⁽¹⁵⁾	✓
GB052	✓ ⁽¹⁷⁾ _{SCHE}	✓ ^(17,18) _{SCHE}	✓ ⁽¹⁷⁾ _{SCHE}	✓ ^{WIND}	✓ ⁽¹⁷⁾ _{SCHE}		✓ ⁽¹⁹⁾			

Comments on the 6cm session:

1. Jb in 6cm session: Lovell Telescope is not ready. Used MkII.
2. Nt: The azimuth drive was fixed, but due to a communication problem schedules could not be run. Could not participate in session 3/2005.
3. Wb in F05C1: Trouble with playing back Mk5 data from the disk pack (track_check, scan_check errors etc.). Replaced Mk5 immediately with a JIVE spare. Data could be played back in JIVE — produced ftp fringes.
4. Sh in F05C1: Ftp fringes only in channels #1–8 (BBCs #1–4). There were no fringes in the upper half of the band, channels #9–16 (BBCs #5–8). It was related to a sampler — fixed before next experiment, N05C3.
5. Ef in N05C3: Formatter problems between 19:24–19:35 UT.
6. On in N05C3: Short antenna communication problem around UT 18:40. Rather bad weather (some rain) and high wind speeds.
7. Sh in N05C3: The cryogenic system stopped working before the experiment. As a result, the system temperature increased by a factor of two.
8. Hh in N05C3: Started late due to secondary reflector controller failure. RCP receiver went unstable some 2.5 hours into the experiment, LCP seemed OK.
9. Jb in GB055A: Telescope was taken offline between 11:27 UT and scan at 13:33 UT to check reason for low sensitivity. One minute azimuth drive trips at 07:57 UT and 15:57 UT.

10. Wb in GM057A: Late start because of file server failure a few hours before the experiment. Lost data between 09:40–09:54 UT. All scans after 13:25 UT are out of hour angle range.
11. Jb in GM057A: Vacuum failed repeatedly from about 19:01 UT. Finally going again on scan at 20:14 UT.
12. Ef in EL033A: Some measurements of T_{sys} in the beginning were bad, because of low elevation (the telescope was pointing towards the surrounding hills).
13. Wb in EL033A: The file server died again. Lost data from 04:29 to 04:54 UT.
14. Ef in EP053: Some measurements of T_{sys} in the beginning were bad, because of low elevation (the telescope was pointing towards the surrounding hills).
15. Wb and Sh in EP053: Observed the wrong version of the schedule.
16. Jb in EP053: Antenna off source for approximately 1 minute at 06:47 UT and 06:51 UT due to Azimuth drive glitch.
17. Tape stations in GB052: The pass length did not match the tape length. The last scan of each pass is lost in most cases.
18. Wb in GB052: Started late. Missed almost all of the first two passes.
19. Tr in GB052: First ~ 0.5 hour lost due to accidental duplicate mk5 process.

1.3cm	Ef	Jb2	On20	Mc	Ur	Sh	Mh
N05K2	✓	✓ ⁽¹⁾ _{RECO}	✓	✓ ⁽²⁾	✓ ⁽³⁾ _{RECE}	✓ ⁽⁴⁾ _{ANT}	— ⁽⁵⁾ _{WIND}
EM059A	✓	✓ ⁽⁶⁾ _{ANT}	✓ ⁽⁷⁾ _{ANT}	✓	✓ ⁽⁸⁾ _{ANT}	✓ ⁽⁹⁾ _{HIGH}	✓ ⁽¹⁰⁾ _{WIND}
CL05K2	✓	— _{RAIN}	✓	✓	✓ ^{HIGH}	✓ ^{HIGH}	✓

Comments on the 1.3cm session:

1. Jb in N05K2: Communication problems with Mk5 unit at start of experiment. Rebooted and restarted Field System at 08:07 UT. Data good from 08:15 UT.
2. Mc in N05K2: Produced first ever ftp fringes in the K-band; had to work around a bug in the software correlator.
3. Ur in N05K2: trouble with the receiver. Started recording at 07:38 UT. Lost the first two scans. T_{sys} was high (about 460 K).
4. Sh in N05K2: Trouble with antenna at around 09:15 UT. At 09:36 UT lost scan no0035 because of antenna problem.
5. Mh in N05K2: Before the experiment had massive power outages due to sudden snow, rain, and heavy winds. The K-band receiver was warm.
6. Jb in EM059A: Azimuth drive trips at 19:28 UT, data invalid for several minutes.
7. On in EM059A: Antenna tracking problem between 21:35–22:30 UT. This also hanged the FS.
8. Ur in EM059A: Lost the scan no0001 because of antenna problem. T_{sys} was high (464 K).
9. Sh in EM059A: T_{sys} was high (150–376 K).
10. Mh in EM059A: Missed the experiment start (10:30–12:30 UT) because of warm RX needing vacuum pumping (see N05K2 note). RX completely cooled only after approximately 13:30 UT. Off-source flagging will reflect start of antenna tracking correctly. Weather was in general bad, snowing/raining most of the time. The last 3–6h was slightly better.

18cm	Ef	Wb ⁽¹⁾	Jb1	On25	Mc	Tr	Ur	Sh	Hh	Ar	Other
N05L5	√ ⁽²⁾ _{FORM}	√	√	√ ^{RFI}	√	√	√ ⁽³⁾ _{POLS}	√ ⁽⁴⁾ _{POLS}	√ ^{RFI}	√	√ ^(5,6) _{LOCK,RFI}
EP051	√ ⁽⁷⁾ _{FORM}	√ ⁽⁸⁾	√	√ ⁽⁹⁾ _{WIND}	√ ⁽¹⁰⁾ _{ANT}	√ ⁽¹¹⁾ _{LOCK}					√ ^(12,13) _{LOCK,RFI}
CL05L3	√	√	√	√	√	√	√				
EK022A	√ ⁽¹⁴⁾ _{RECO}	√ ⁽¹⁵⁾ _{RFI}	√	√	√	√	√ ⁽¹⁶⁾ _{LATE}	√ ⁽¹⁷⁾ _{POLS}			
GL028A	√	√ ^{RFI}	– ⁽¹⁸⁾ _{ANT}								√ ⁽¹⁹⁾
EK022B	√	√ ^{RFI}	√ ⁽²⁰⁾ _{ANT}	√	√	√	√	√ ⁽²¹⁾ _{RECO}			
GL028B	√	√ ^{RFI}	√								√ ⁽¹⁹⁾
GL028C	√	√ ^{RFI}	√								√ ⁽¹⁹⁾
GL028D	√	√ ^{RFI}	√								√ ⁽¹⁹⁾
GL028E	√	√ ^{RFI}	√								√ ⁽¹⁹⁾
EK022C	√ ^{RFI}	√ ⁽²²⁾ _{RFI}	√	√ ^{RAIN} _{RFI}	√	√	√ ^{SNOW} _{RFI}	√			
ES055	√ ⁽²³⁾	√	√ ⁽²⁴⁾ _{WIND}	√ ⁽²³⁾ _{SCHE}	√ ⁽²³⁾ _{SCHE}	√ ⁽²⁵⁾	√	√			
GV017B	√	√ ⁽²⁶⁾	√	√ ⁽²⁷⁾ _{WIND}	√ ⁽²⁸⁾	– ⁽²⁹⁾					√ ⁽³⁰⁾
GB055B	√	√ ⁽³¹⁾	√ ⁽³²⁾ _{ANT}	√ ⁽³³⁾ _{RFI}	√	– ⁽³⁴⁾					
EA035A	√ ⁽³⁵⁾ _{POIN}	√	√	√ ⁽³⁶⁾ _{WIND}	√	√	√				– ⁽³⁷⁾
GM057B	√	√ ⁽³⁸⁾ _{HA-E}	√	√ ⁽³⁹⁾ _{RFI}	√ ⁽⁴⁰⁾	– ⁽⁴¹⁾ _{RECO}					√ ⁽⁴²⁾ _{RFI}

Comments on the 18/21cm session:

1. Wb in 18/21cm session: VERY bad RFI at about 1620–1630MHz. Seemed to cause problems in the tied-array software or hardware.
2. Ef in N05L5: First scans was lost due to trouble with the formatter. OK from 17:18 UT.
3. Ur in N05L5: High polarization leakage seen on ftp fringe plots.
4. SH in N05L5: Used a new, cryogenically cooled receiver. Fringes were found in the ftp test, but the polarizations were swapped.
5. Cm in N05L5: Mk5 kept dropping communications throughout experiment. Unit was restarted several times, resulting in data loss. Rack PSU was nearing failure which may have resulted in BBC unlocks, though FTP scans had fringes.

6. Ro in N05L5: VC#7 (281.99 MHz) degraded by L-band known RFI. VC#5 (273.99 MHz) was less affected. Due to an encoder problem, the antenna was operated in computer mode instead of the usual mode. Pointing was checked before the observation. First ever ftp fringes for Robledo.
7. Ef in N05L5: Severe formatter communication problems all through the experiment (this happened in all high bitrate experiments in the session). Several attempts to improve the situation (check communication or use spare formatter) did not work (but led to a loss of a few minutes of data each time). Due to a Mark5 failure, no recording was done between 23:26–23:46 UT (reboot was necessary). Some RFI in the lower bands. Quick check with the software correlator showed fringes for the station, the formatter communication problem did not seem to be serious.
8. Wb in EP051: Bad RFI about 1620 MHz. System restart lost array from 01:43–01:50 UT.
9. On in EP051: Had to stop observing at 07:40 UT due to high wind speeds.
10. Mc in EP051: Antenna was not tracking the sources due to an error in Antenna Control Unit configuration. Problem fixed at 0:30 UT.
11. Tr in EP051: Around 1:30 UT BBC#5 lost 1pps and remained so throughout the rest of the experiment (later this BBC unit was replaced for a spare one, the following experiments were not affected).
12. Cm in EP051: VLBA rack was running with failing PSU from the start, which may have resulted in unlocked BBCs. It was almost certainly dead by 09:30 UT and was taken offline at 11:43 UT for repair. Schedule was left to run with no valid data.
13. Ro in EP051: VC#5 (294.49 MHz) degraded by L-band known RFI. VC#1 (230.49 MHz) and VC#3 (262.49 MHz) were less affected. Due to an encoder problem, the antenna was operated in computer mode instead of the usual mode. Pointing was checked before the observation.
14. Ef in EK022A: Data lost between 11:50–12:00 UT due to a problem with the antenna control computer. MK5 problems led to the loss of data between 11:17–11:34 UT and 14:52–15:52.
15. Wb in EK022A: Very bad RFI about 1620 MHz. Central file server down from 09:03–10:15 UT, array losr. Mark5 system froze up, and needed a reboot. Lost 14:51–15:16 UT.
16. Ur in EK022A: Started recording at 10:42 UT because of trouble with the power supply.
17. Sh in EK022A: Polarizations were still swapped.

18. Jb in GL028A: Lovell azimuth drive failed completely prior to this experiment. It was not returned to service before the end of the experiment. The schedule was not run.
19. Ar in GL028A–E: The lower-sideband of BBC#8 had fluctuating level and bad sampler statistics.
20. Jb in EK022B: The antenna was off-line at the start of the experiment for repairs to the azimuth drive. It was back on-line at 12:31 UT, data was good from 12:39 UT scan.
21. Sh in EK022B: Lost scans No0027 and No0028 because of a Mk5A error.
22. Wb in EK022C: RFI between 1620-1630 MHz. Online array control rebooted shortly before the start of observations, because some software tests needed to be made.
23. Schedule for ES055: the whole experiment was scheduled as a single scan. Some stations had trouble with that, disk pack change had to be forced manually at Onsala and Medicina. At other stations the experiment luckily fit to a single disk pack. In Effelsberg the only scheduled T_{sys} was bad because the telescope was looking at the hills. Another one was done at the end. Also in Effelsberg the disk bank change was not smooth. Data were lost between 04:32–06:41 UT.
24. Jb in ES055: The telescope parked due to high winds between 02:52 and 04:41 UT. Telescope was not making source changes in time during zenith transits.
25. Tr in ES055: Off source from 12:17 UT to 12:31 UT due to an electricity outage.
26. Wb in GV017B: Some scans at the end out of hourangle range. Also lost data between 11:48–12:12 UT when tried to restart after a gap (replaced some array IF hardware giving problems).
27. On in GV017B: Antenna stowed between 07:30–10:30 UT due to high winds. Bad weather, rain, high winds (tracking problems). Source at very low elevation at the end, high T_{sys} .
28. Mc in GV017B: Some scans lost due to errors in positioning in schedule.
29. Tr in GV017B: Observation was successful, but the data were lost later due to a Mk5 recording problem that occurred in GM057B.
30. Ar in GV017B: BBC#8 had lower-sideband level-setting problem (see note on GL028A–E runs). It was physically interchanged with BBC#5. The levels of the IF signals to all BBCs were lowered. BBC#5 (containing the faulty unit at that point) was monitored during the entire run —levels seemed more stable. All bands were probably OK in this run.
31. Wb in GB055B: RT9 removed from the array as there were delay hardware problems for this telescope in one band. Hence 13 telescopes.

32. Jb in GB055B: A serious azimuth drive failure occurred at about 13:11 UT. It was repaired and back on source at about 18:19 UT.
33. On in GB055B: Very strong RFI affected (overflow) two BBCs (5&6) from around 18:10 UT.
34. Tr in GB055B: Not observed due to lack of disk capacity. One of the 8-packs provided by JIVE proved defective. New disks purchased by the station (to fill an empty module) arrived last minute, but were found to be a wrong type. (The remaining GM057B and 0.16 TB EA035A could be recorded as scheduled.)
35. Ef in EA035A: Not on source between 17:06–17:19 UT because of pointing problems.
36. On in EA035A: Antenna stowed between 13:30–18:40 UT due to high winds. Rather bad weather, including rain. A few bad T_{sys} after restart.
37. Cm in EA035A: The Cambridge schedule was not run due to power supply failure on the VLBA rack.
38. Wb in GM057B: LARGE part of the schedule (everything after 12:30 UT) was out of hourangle range. Removed RT9 from array, because of delay hardware problems in one band. Also the formatter was out of sync while recabing from disk to tape—it was re-synced shortly before GM057B.
39. On in GM057B: Data affected by RFI (VC1 and VC2) a few times.
40. Mc in GM057B: Power outage from about 15:00 till 17:25 UT. After restart the tape footage counter was no longer synchronized with the schedule.
41. Tr in GM057B: About an hour after start Mk5 stopped recording for unknown reason (could be a problem with disk-pack). After sstest and restart it work for another hour and then stopped again. The use of sstest was a mistake by the operator because it erased the earlier recorded experiment GV017B which most probably was subsequently overwritten during the second approach to record GM057B.
42. Ro in GM057B: Success. RFI (known at this frequency) in VC#3 USB.

90cm	Wb	Jb1	Nt	Ur	Ar
F05P1	√ ⁽¹⁾	√ ⁽¹⁾			- ⁽¹⁾
GW017	√ ⁽²⁾	√			
GB057	√ ⁽²⁾	√			√

Comments on the 90cm session:

1. Ftp test: In the 90cm ftp test just before GW017, Jodrell Bank and Westerbork produced fringes. One of these telescopes swapped polarizations. Arecibo did not produce fringes. They missed their first target (that turned out to be an excellent fringe-finder). The second target may have been resolved for Arecibo. Spectra did not show Arecibo phasecalcs (they were on).
2. Wb in 90cm session: There was no stop to the recording of the GW017 schedule, had to do it by hand. This caused a little delay in starting GB057.