EVN Session Overview — MAY04

Prepared by Zsolt Paragi

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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 $\surd$. 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 (•). 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:

FS – Field System errors/crash
HA-E – some scans missed due to to HA or elevation limit
HIGH – $T_{\rm sys}$ 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
PARI – high parity errors
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
RECE – receiver fault
RECO – problems with recorder, some data may be lost
RFI – RFI reported
SD – a single dish was used in Wb
SLEW – data loss due to limitations in slewing the telescope
TSYS – $T_{\rm sys}$ data are corrupted or missing in one or more channels
WIND – part of the experiment missed due to severe weather conditions (e.g. gusting winds, snowstorm etc.)

6cm	Cm	Ef	Wb	Jb1/2	On25	Mc	Nt	Tr	Ur[1]	Sh	Hh
F04C2	–[2]		√[3]	√$_{\mathrm{LT}}$	√	√	√	√		√	√
N04C2	√	√	√	√$_{\mathrm{MKII}}$	√	√	√	√		√	√
EB029		√	√	√$_{\mathrm{MKII}}$	√	√	√	√[4]$_{\mathrm{HA-E}}$		√[5]$_{\mathrm{HA-E}}$	√[6]$_{\mathrm{HA-E}}$
CL04C2		√		√	√	√	√	√		√	√
EB028A	√	√	√[7]	√$_{\mathrm{MKII}}$	√	√	√[8]$_{\mathrm{RECO}}$	√		√	
GK029		√	√[9]$_{\mathrm{RECO}}$	√$_{\mathrm{MKII}}$	√	√	√	√			
GS021A		√	√[10]$_{\mathrm{RECE}}$	√[11]$_{\mathrm{LT}}$	√	√	√	√			
GB049A		√$^{\mathrm{PCAL}}$	–[12]$_{\mathrm{RECO}}$	√[13]$_{\mathrm{MKII}}$	√$^{\mathrm{PARI}}$	√	–[14]$_{\mathrm{RECO}}$	√[15]			
F04C4		√[16]		√$^{\mathrm{LT}}_{\mathrm{MKII}}$	√	√	√[17]				
EC022		√	√[18]$_{\mathrm{HA-E}}$	√$_{\mathrm{LT}}$	√	√	√	√[19]		√[20]$_{\mathrm{HA-E}}$	
F04C3	√	√[21]$_{\mathrm{RECO}}$	√[22]	√$_{\mathrm{MKII}}$	√	√	√	√		√	√

Comments on the 6cm session:

1. Ur in 6cm session: Ur did not participate because of installation of a new 6cm receiver.
2. Cm in F04C2: Did not run since formatter could not be synced just prior to experiment. The problem turned out to be a dodgy cable carrying the 1pps signal. Repaired prior to start of user experiments.
3. Wb in F04C2: The whole array was dead until 15 minutes before the observations. Had to swap units because one of the real-time processors in the array failed over the weekend. Produced fringes in the correlator.
4. Tr in EB029: After 8:39 (on day 142) the sources were below the telescope horizon.
5. Sh in EB029: Stopped at UT 1:37, because of antenna limitations.
6. Hh in EB029: Recorded on Mark5A. All sources set after 07:53 UT.
7. Wb in EB028A: Had to remove RT1 from array as one polarization was dead (power supply for LNA in frontend was broken).
8. Nt in EB028A: Mk5 recorder problems from 21:33 to 01:00 UT.

9. Wb in GK029: Problem with switching Mark5A disk packs from 17:09 to 17:37UT on Sunday (possibly operator error with loading the pack- as it worked fine on Monday during a break in observing).
10. Wb in GS021A: RT9-X had one bad polarization and RTC-X had a problem in the IF. Both switched out of the array to leave 12 telescopes.
11. Jb in GS021A: Telescope off source from 18:20 to 18:53 UT in order to unwrap azimuth limit.
12. Wb in GB049A: Tape recorder was not connected up properly.
13. Jb in GB049A: Missed scan 218 on OQ208 at 02:13 UT since target was on far side of telescope wrap limit. Back on M81 at 02:24 UT.
14. Nt in GB049A: The tape recorder was broken. Socorro cannot do Mk5 yet.
15. Tr in GB049A: Tr observed, according to the schedule files, for only about 2 first hours. However, now it seems it wasn't what the PI intended for this station.
16. Ef in F04C4: Problems with the formatter. Data lost until UT0935.
17. Nt in F04C4: The whole observation was carried out without problems, but the active surface was not turned on. Possible bad data.
18. Wb in EC022: Some scans out of HA range at start replaced with local calibration.
19. Tr in EC022: Operators noted that several scans were recorded with Tcal on.
20. Sh in EC022: Lost scan No021 because of antenna control PC problem. Stopped at UT:148.01:43, because the sources were out of antenna limitation.
21. Ef in F04C3: First scan lost due to problems with receiver frontend control.
22. Wb in F04C3: 256 and 512Mbit/s believed OK, but mixing setups give problems for the hightest frequencies (used in 1024Mbit/s). Also had to swap around BBCs before F04C3 as 1 would not lock properly above 220MHz.

30cm	Ef	Wb	On25	Nt	Tr	Ur
EP046A	$\surd^{(1)}_{\mathrm{RFI}}$	$\surd^{(2)}$	$\surd^{(5)}_{\mathrm{RFI}}$	$\surd^{(6)}_{\mathrm{RFI}}$	$\surd^{(4)}$	$-^{(3)}_{\mathrm{TSYS}}$
EP046B	$\surd^{(1)}_{\mathrm{RFI}}$	$\surd^{(2)}$	$\surd$	$\surd^{(6)}_{\mathrm{RFI}}$	$\surd^{(4)}$	$-^{(3)}_{\mathrm{TSYS}}$
N04U1	$\surd^{(1,8)}_{\mathrm{RECO}}$	$\surd^{(2)}_{\mathrm{RFI}}$	$\surd^{\mathrm{RFI}}$	$\surd^{(9)}_{\mathrm{RECO}}$	$-^{(4,10)}$	$-^{(3,11)}_{\mathrm{TSYS}}$
EP046C	$\surd^{(1)}_{\mathrm{RFI}}$	$\surd^{(2)}_{\mathrm{RFI}}$	$\surd^{\mathrm{RFI}}$	$\surd^{\mathrm{RFI}}$	$-^{(4,7)}$	$-^{(3,12)}_{\mathrm{TSYS}}$
CL04U1	$\surd^{\mathrm{RFI}}$		$\surd$	$-^{(13)}_{\mathrm{RFI}}$	$\surd$	

Comments on the 30cm session:

1. Ef in 30cm session: polarizations were swapped. There were many bad T_{sys} points due to the RFI.
2. Wb in 30cm session: 30cm was done with a modified version of the online tied-array software. This is less sensitive to EMI, in that it uses fixed gain tables rather than using the noise source step to calculate gain. This will affect X,Y to LCP,RCP conversion slightly but it makes the tied array output much more robust.
3. Ur in 30cm session: There were no fringes found in the correlator.
4. Tr in 30cm session: The new Tr UHF receiving system worked with two LINEAR polarizations.
5. On in EP046A: Antenna problem. Problem solved on second source. Some high Tsys in the data. Could be RFI.
6. Nt in EP046A, EP046B: There was severe interference and the Tsys was not stable. Might be a failure due to RFI.
7. Ef in N04U1: Had some problems with the mk5 system, the operator had to change the disk pack by hand. The first 5 minutes of the 6th scan was lost.
8. Nt in N04U1: The observation began at 9:45 UT, due to problems with the MK5 recorder. There was severe interference in band.
9. Tr in N04U1: tape did not head peak.
10. Ur in N04U1: Recorded on Mk5.
11. Tr in EP046C: there were no fringes found at the correlator.
12. Ur in EP046C: Troubles with the power supply of the fs computer from UT 2:10 to 3:00. Communication between the fs computer and the antenna control computer was problematic during the observations. See the logfile for more details.

13. Nt in CL04U1: It was impossible to determine a reliable gain curve due to the severe interference. Even a simple measurement of the DPFU, considering a flat gain curve, was impossible.

18cm	Cm	Ef	Wb	Jb1/2	On25	Mc	Nt	Tr	Ur	Sh	Hh	Other
GM051		$\surd^{(2)}_{\mathrm{LATE}}$	$\surd^{(3)}_{\mathrm{RFI}}$		$\surd^{(4)}_{\mathrm{RFI}}$							
N04L2	$\surd$	$\surd^{(5)}_{\mathrm{LATE}}$	$\surd^{(6)}_{\mathrm{RFI}}$	$\surd^{(1)}_{\mathrm{MKII}}$	$\surd^{\mathrm{PCAL}}$	$\surd$	$\surd^{(1)}$	$\surd$	$-^{(7)}$	$\surd$	$\surd^{(8)}_{\mathrm{POIN}}$	$\surd^{(9)}$
EG030	$\surd^{(10)}$	$\surd$	$\surd$	$\surd_{\mathrm{MKII}}$	$\surd^{(11)}_{\mathrm{PCAL}}$	$\surd^{(12)}_{\mathrm{RFI}}$	$\surd^{(1)}$	$\surd^{(13)}_{\mathrm{RECO}}$				$\surd^{(14)}$
CL04L2		$\surd$		$\surd$	$\surd$	$\surd$	$\surd$	$\surd$		$\surd$		
GM053		$\surd$	$\surd^{(15)}_{\mathrm{HA-E}}$	$\surd_{\mathrm{MKII}}$	$\surd$	$\surd^{(16)}_{\mathrm{TSYS}}$	$\surd^{(1)}$	$\surd$				
GS021B		$\surd^{(17)}_{\mathrm{LATE}}$	$\surd^{(18)}_{\mathrm{RECO}}$	$\surd_{\mathrm{LT}}$	$\surd$	$\surd^{\mathrm{RFI}}$	$\surd^{(1)}$	$\surd$				$\surd^{(19)}$
GB049B		$\surd$	$\surd^{(20)}_{\mathrm{PARI}}$	$\surd_{\mathrm{MKII}}$	$\surd^{\mathrm{PARI}}$	$\surd$	$\surd^{(1)}$	$\surd$				$\surd^{(21)}_{\mathrm{RECO}}$
GI001B		$\surd^{(22)}_{\mathrm{RFI}}$	$\surd^{(23)}_{\mathrm{RFI}}$	$\surd_{\mathrm{LT}}$		$\surd$	$\surd^{(1)}$	$\surd$			$\surd^{(24)}_{\mathrm{RFI}}$	
EB028B	$\surd$	$\surd$	$\surd^{(25)}_{\mathrm{WIND}}$	$\surd_{\mathrm{MKII}}$	$\surd$	$\surd$	$-^{(26)}$	$\surd$	$\surd$	$\surd$		$\surd^{(27)}_{\mathrm{RFI}}$
GV017		$\surd^{(28)}_{\mathrm{WIND}}$	$-^{(29)}_{\mathrm{WIND}}$	$\surd_{\mathrm{LT}}$	$\surd^{(30)}_{\mathrm{HA-E}}$	$\surd^{(31)}_{\mathrm{HA-E}}$		$\surd$				$\bullet^{(32)}$

Comments on the 18/21cm session:

1. Nt in 18/21cm session: MASER started giving problems from 2 June. This may have resulted in clock-offsets during the session.
2. Ef in GM051: Accidentally, a wrong setup was chosen. All data before UT0336 lost. Due to severe RFI and insufficient slewing times, many tsys measurements were bad.
3. Wb in GM051: Had to stop at 06:08UT as all sources after that are out of Hour Angle limits. Severe RFI at about 1242MHz - it took several attempts to phase that part of the band up.
4. On in GM051: Failure?? Severe RFI across the IF-band. Large changes on the VC levels. Very strong RFI at 1298 MHz. Bad Tsys values.
5. Ef in N04L2: First 4 mins lost due to mk5 problems.
6. Wb in N04L2: Missing RTB (defective cable - was replaced during the observation). Some RFI – mostly in BBCs 1 and 2.
7. Ur in N04L2: Did not observe because of installation of the 6cm receiver.
8. Hh in N04L2: Four panels missing due to surface setting procedure. Intermittent sever RFI near 1643.03 MHz. Telescope drive interface failure during gap in schedule 13:47-14:32 UT.

9. Ar in N04L2: Power level of the IFs going to the VLBI rack were set to the optimum level at 14:02 (2 mins late) UT. This may not cause any problems as the AGC were working by then anyway.

10. Cm in EG030: Telescope control fault between 02:04 and 02:08 UT. Possibly 1 or 2 scans lost. Signal only present in BBC01 and BBC02, as requested.

11. On in EG030: Success OR Failure? During the previous experiment (N04L2) lost phasecal. It could be a problem with the 5MHz distribution which means that the system was unlocked (failure). But it can also be due to a problem with the phasecal itself (success).

12. Mc in EG030: VC01 and VC02 frequency is out of IF band; RFI on VC03 and VC04.

13. Tr in EG030: Unstable tape motion due to a problem with internal synchronizaton of the recorder.

14. Ar in EG030: success.

15. Wb in GM053: Scans after 00:58 are all out of Hour Angle range.

16. Mc in GM053: Weather partially cloudy. Some interference seen. There were problems with Tsys that were quickly fixed.

17. Ef in GS021B: Started 10 minutes late due to Mk5 problems. All tsys measurements were about 1K too high till UT2027, because accidentally the noise diode was fired continuously (i.e. with 80 Hz - the VLBA mode).

18. Wb in GS021B: Last 5 minutes (04:49-04:54) lost as the calculation of the time remaining on the disk pack was slightly wrong. Looks also like there was a gain variation in one of the IFs.

19. Sm in GS021B: success.

20. Wb in GB049B: Used Mk4 tape recorder. Parity errors were slightly high. Scans from 22:28 to 22:38 were out of Hour Angle range.

21. Ro in GB049B: VC01 completely degraded by L-band RFI (1660-1670 GHz). First 4 sources lost, 5th partially lost. Tape positioning incorrect for all passes on first tape (+1000 feet). Not enough time provided in schedule for tape change. As a result, first source of second tape was not recorded and the following sources were recorded 600 feet off.

22. Ef in GI001B: Channels 5-8 were badly effected by RFI.

23. Wb in GI001B: Bad pulsed RFI above 1622 MHz all the time caused problems phasing up the array. Best estimate (after the experiment) was a 58 degrees error combining X and Y pol, giving about a 15% loss in efficiency, and VERY elliptical polarizations.

24. Hh in GI001B: Four panels missing due to surface setting procedure. Intermittent severe RFI in channels 5 through 8.

25. Wb in EB028B: Airco could not cool the IF and tied array racks sufficiently. System stopped at 06:44, so last hour is lost. SEVERE WEATHER was the temperature, not wind!

26. Nt in EB028B: From about 23:15 UT the maser did not work. A great part of the experiment was lost.

27. Ro in EB028B: VC07 degraded by L-band RFI (1660-1670 GHz). First EVN observation performed with SRC in tracking mode. Sub-reflector position and pointing model were optimized for this session.

28. Ef in GV017: Due to a thunderstorm the antenna was stopped between UT1811-2042.

29. Wb in GV017: Lost all observations after about 20:05UT. Airco problem (see note on EB028B) meant that the IF and tied array racks stopped working.

30. On in GV017: Some RFI. Source below horizon during the last three scans.

31. Mc in GV017: Last source EL limited.

32. Ar in GV017: No feedback.