

EVN Technical Operations Group (EVN TOG)

Report

Title	5th EVN Technical and Operations Group Meeting	
	http://www.radionet-eu.org/fp7wiki/doku.php?id=na:engineering:ew:5thtog	
Date	29-30 August 2011	
Location	Puerto Rico, USA	
Host institute:	National Astronomy and Ionosphere Centre, Arecibo Observatory	
Participants		
	<i>Number</i>	28
	<i>Countries</i>	CN, DE, ES, IT, LV, NL, SE, USA, ZA
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EVN Technical Operations Group (TOG) Meeting Report
28-30 August 2011, Puerto Rico (USA)

PARTICIPANTS LIST

No.	Name	Institute	Country	
1.	Alef Walter	MPIfR, Bonn	Germany	
2.	Bach Uwe	MPIfR, Bonn	Germany	
3.	Bezrukovs Dmitrijs	VIRAC, Ventspils	Latvia	
4.	Campbell Bob	JIVE	The Netherlands	EVO
5.	Cassaro Pietro	IRA-Noto	Italy	
6.	De Vicente Pablo	OAN	Spain	EVO
7.	Douglas Kevin	Arecibo Observatory	USA	
8.	Gosh Tapasi	Arecibo Observatory	USA	
9.	Hammargren Roger	Onsala Space Observatory	Sweden	
10.	Himwich Ed	NASA GSFC	USA	Phone
11.	Kupert Geert	ASTRON	The Netherlands	EVO
12.	Martin Leeuwinga	JIVE	The Netherlands	EVO
13.	Lindqvist Michael	Onsala Space Observatory	Sweden	
14.	Mantovani Franco	INAF-IRA	Italy	
15.	Neidhardt Alexander	FESG, TU München	Germany	
16.	Tenkink Hans	JIVE	The Netherlands	EVO
17.	Quick Jonathan	HARTRAO	South Africa	
18.	Quintero Luis	Arecibo Observatory	USA	
19.	Romney John	NRAO	USA	Phone
20.	Ruszczyk Chester	Haystack – MIT	USA	Phone
21.	Szomoru Arpad	JIVE	The Netherlands	
22.	Whitlow Diana	Cornell University	USA	
23.	Whitney Alan	Haystack - MIT	USA	Phone
24.	Zhao Rongbing	Shanghai Astronomical Observatory	China	
25.	Minchin R.	Arecibo Observatory	USA	
26.	Salter Chris	Arecibo Observatory	USA	
27.	Taylor Rhys	Arecibo Observatory	USA	
28.	Young Jun	JIVE	The Netherlands	EVO

Note: Due to a hurricane several participants (12) could not attend the meeting

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NATIONAL ASTRONOMY AND IONOSPHERE CENTER ARECIBO OBSERVATORY	
August 28-30, 2011	
<u>5th EVN TPG Meeting</u>	
Name	Signature
Walter Alf <i>Alef</i>	<i>W. Alf</i>
Uwe Bach	<i>U. Bach</i>
Dmitrijs Bezrukovs	<i>D. Bezrukovs</i>
Bob Campbell	
Pietro Cassaro	
Kevin Douglas	<i>Kevin Douglas</i>
Tapasi Ghosh	<i>✓</i>
Alastair Gunn	
Roger Hammargren	<i>R. Hammargren</i>
Magdalena Kunert-Bajraszewska	
Geert Kuper	
Martin Leeuwinga	
Michael Lindqvist	<i>M. Lindqvist</i>
Franco Mantovani	<i>Franco Mantovani</i>
Alexander Neidhardt	<i>Alexander Neidhardt</i>
Andrea Orlati	
Gienek Pazderski <i>+ Spouse</i>	<i>Gienek Pazderski</i>
Jonathan Quick	<i>Jonathan Quick</i>
Luis Quintero	<i>Luis Quintero</i>
Jouko Ritakari	<i>Jouko Ritakari</i>
Arpad Szomoru	<i>Arpad Szomoru</i>
Gino Tuccari	
Minttu Uunila <i>+ Spouse</i>	
Pablo de Vicente	
Dana Whitlow	<i>Dana Whitlow</i>
Jun Yang	
Rongbing Zhao	<i>Rongbing Zhao</i>
<i>R. Minchin</i>	<i>✓</i>
<i>C. Salter</i>	<i>✓</i>
<i>Rhys Taylor</i>	

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PHOTO



The participants of the EVN TOG Meeting in Puerto Rico (USA) on 28 August 2011.

AGENDA of the TOG Meeting (28 August 2011)

Local Arrangements/Opening Remarks (Ghosh & Alef)

1. Approval & last minute additions to Agenda [All]
2. Acceptance of minutes from last meeting
3. Review of Action Items from last meeting (all; see appended list)
4. Reliability/Performance of the EVN (Yang)
 - pre-session checks (e.g., sampler stats, phase-cal, RFI...)
 - extending "near-realtime" fringe checks, status
 - NME results
 - feedback from last sessions (reports from all stations, JIVE)
 - timeliness of disk shipments to Socorro, JIVE
 - Interference monitoring, update? (Lindqvist)
5. Amplitude Calibration (Yang)
 - Quality of calibration
 - Timely delivery of results?
 - separate receiv. temp for L and R (Himwich)
 - gain curves free of opacity corrections, status? (all)
 - Continuous calibration with the DBBC (see under DBBC)
6. Digital BBC (Alef/Tuccari)
 - Short development and production status (Alef)
 - DBBC mailing list (Alef)
 - DBBC experience at Effelsberg (Bach) and Onsala (Lindqvist)
 - Continuous calibration with the DBBC, status
 - DBBC feedback from JIVE (Campbell)
7. 4 Gbit/s and 2 Gbit/s
 - Boundary conditions for co-observing with the VLBA (LOs) (Lindqvist/Romney)
 - EVN stations without DBBC: how will 2 Gbps be done?
 - Setting up the DBBC for 2 Gbps
 - Tests with DBBCs at 2 Gbit (Bach/Lindqvist/Tuccari)
 - RDBE tests with VLBA (Ghosh/Bach/Romney)
8. e-VLBI status
 - EVN e-VLBI operations (Szomoru)
 - calibration issues?
 - Status of NEXPreS (Szomoru)
9. Sched Developments
 - DBBC, Mark 5C etc.
 - New wide-band frequency standards (RDBE and DBBC)
 - Support for real-time fringe checks for user observations
 - Vex working group status (JIVE, Brisken)
10. Field System, status and new features (Himwich ?)

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- Status report, new developments (none?): Mark 5C, RDBE, DBBC, VDIF
- Consequences of missing FS developments?
- 11. NRAO&Haystack status report (Romney/Whitney)
 - RBDE status and rollout
 - interoperability issues with EVN, e.g. Modes, VDIF vs. 5B
 - roadmap to higher bitrates
- 12. Mark 5
 - Status: Mark 5A/B/B+/C, software, firmware, SDK9 (Whitney)
 - Planning upgrade to SDK 9 and big disks (all)
 - EVN Mark 5A program: feedback d-VLBI/e-VLBI (all) ??????????
 - Mark 5B/C in the EVN: plans and status (all)
 - Mark 5 problems encountered during last session (all)
 - Disk inventory and purchase status – 7000 € per station/year (Alef, all)
 - Disk throughput at JIVE, balancing with NRAO, Astro/Geo pool (Campbell)
 - Mark 5 logistics (repairs, shipping rules, VLBA shipping requirements, boxes, labels, etc.) (all)
- 13. Date and place of the next TOG meeting.
 - New TOG support scheme under Radionet3 (Alef)
- 14. New TOG chair
- 15. AOB
 - TOG or other support for aspiring stations to become EVN-ready? (Campbell)
 - Support (e.g. disks) for Radioastron? (Campbell)
 - Spare parts purchase – 3000 € per station
 - Impact of Chinese lunar program on EVN sessions?
 - Noto status (Cassaro)
- 16. Please provide written Station and Correlator reports by August 22!

List of Action Items

1. Ruszczyk to send email on EVNtech with the explanation of all details how to deal with SDK9
2. Small (JIVE) and Walker to incorporate information on frequency agility in SCHED
3. All friends to enter RFI-events in the database.
4. Szomoru to investigate if/how the number of ftp-tests could be increased, as a high time priority of the NEXPRES
5. Stations to send updated information for the SCHED catalogue
6. Alef to schedule a monthly telecon between the EVN and VLBA to clarify interoperability issues.
7. JIVE to inform Alef about the retired disks for keeping the inventory up to date.
8. Stations to update the page of the disk inventory. They should contact Alef to gain access.
9. Stations to indicate the disk space on new modules. Email to W.Alef.
10. W.Alef would like a summary/overview of what stations get better or worse after calibration.
11. A.Whitney to send information about A. Roger's Updown Converter to match bandpasses (with regards to issue of mis-matched IFs) to W.Alef.
12. Arrange small telecon next week with Chet and including A.Szomoru, B.Campbell, W.Brisken and W.Alef to get the SDK9 related information.

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13. To inform directors at next CBD meeting to put aside a few 1000 euros for new modules/new disks, old modules have single disks which fail more easily.
14. On wants their old disk packs for upgrades
15. Inquire about fares and connections on these days within 2 weeks
16. Tapasi to provide an estimate of accommodation cost (25 people on site)
17. Alef to DRAFT a program for Arecibo. All to give feedback
18. JIVE to send someone to teach at TOW

MINUTES

Local Arrangements and Opening Remarks:

Alef said it was a [great](http://www.mpifr-bonn.mpg.de/div/vlbicor/tog_chair/togreps11-2/) pleasure to be meeting at Arecibo despite the problems experienced with Hurricane Irene. The visitor's centre will be open over lunch. Group photo to be on the balcony at the end of lunch break.

1. Approval of / additions to agenda:

Some parts will be very short due to absence of attendees caused by hurricane Irene. No additions. Presentations and reports are available at

The agenda is available at

http://www.mpifr-bonn.mpg.de/div/vlbicor/tog_chair/tog_agenda-2011-2.html.

The meeting webpage can be found under

<http://www.radionet-eu.org/fp7wiki/doku.php?id=na:engineering:ew:5thtog>.

2. Acceptance of minutes from last meeting:

The minutes from the last meeting have been accepted.

3. Review of past action items:

1. Ruszczyk to send email on EVNtech with the explanation of all details how to deal with SDK9.
If Ruszczyk cannot attend the meeting later via telephone, Alef to ask what the support from Haystack for Mark5/6 will be in the future.
2. Olon(JIVE) and Walker to incorporate information on frequency agility in SCHED.
Open.
3. All friends to enter RFI-events in the database.
RFI info - to be moved to permanent action items.
4. Szomoru to investigate if/how the number of ftp-tests could be increased, as a high time priority of the NEXPreS.
Not done, perhaps deliverable at end of NEXPreS.
5. Stations to send updated information for the SCHED catalogue.
Updates to catalogues happen, but stations have to be chased. This should be moved to the permanent action items.
Request from Campbell for contact details on ToO webpage. This is missing for Arecibo, Wetzell - please forward info to Campbell.
6. Alef to schedule a monthly teleconference between the EVN and VLBA to clarify interoperability issues.
Ad-hoc teleconferences did happen but not very regularly. Rephrase action item to have them when need arises.
7. JIVE to inform Alef about the retired disks for keeping the inventory up to date.
Done.
8. Stations to update the page of the disk inventory. They should contact Alef to gain access.
This should be a permanent AI. Action item for Alef to talk to Jodrell about this.
9. Stations to indicate the disk space on new modules. Email to W.Alef.
This should be made a permanent AI.

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10. W.Alef would like a summary/overview of what stations get better or worse after calibration.
AI for JIVE still open.
11. A.Whitney to send information about A. Roger's Updown Convertor to match bandpasses (with regards to issue of mis-matched IFs) to W.Alef.
Info on UDC is now on TOG wiki page.
12. Arrange small telecon next week with Chet and including A.Szomoru, B.Campbell, W.Brisken and W.Alef to get the SDK9 related information.
No developments on SDK9 - item still open, waiting for Haystack to report in the meeting on this issue.
13. To inform directors at next CBD meeting to put aside a few 1000 euros for new modules/new disks, old modules have single disks which fail more easily.
Done. Alef will report at the meeting.
14. On wants their old disk packs for upgrades.
Done, ON has packs.
15. Inquire about fares and connections to Arecibo on these days within 2 weeks
Done.
16. Tapashi to provide an estimate of accommodation cost (25 people on site).
Done.
17. Alef to DRAFT a program for Arecibo. All to give feedback
Done.
18. JIVE to send someone to teach at TOW
Teaching at TOW happened.

4. Reliability/Performance of the EVN. (Jun Yang remotely)

Yang presented the Reliability and Performance report. The detailed report and related presentations are available on the web at

http://www.mpifr-bonn.mpg.de/div/vlbicor/tog_chair/togreps11-2/Performance_JunYang_Arecibo.pdf

etc.

Highlights were:

- Successful use of DBBC at Ef.
- Successful 2 Gbps fringes in Europe (Ef-On) using the DBBC in PfB mode and also in China using the CDAS.
- Lots of problems with both Jb1 and Jb2, particularly instability.
- New problem with Mark 5B recording at Yebes - also seen occasionally at other stations.
Comment: Mark 5B is very sensitive to the cleanliness of the 5/10MHz and 1pps.

ACTION: Dave Graham to send info about Mark 5B 1pps issues, perhaps after teleconference with Haystack ? (Checking offset between input 1pps and output to confirm it is clean.)

- Ef: dropouts were RFI from a radar.
- Still having the problem of data for two different correlators being put on one pack. Due to e-transfers this is less of a problem. But still need to beware of JIVE data being first shipped to Socorro as it can get lost (NRAO may need a reminder that the modules have to be shipped after correlation in Socorro rather than just erased).

5. Amplitude Calibration: *(Jun Yang remotely)*

Yang also presented his report on the EVN amplitude calibration. The detailed report and related presentations are available on the web at

http://www.mpifr-bonn.mpg.de/div/vlbicor/tog_chair/togreps11-2/Calibration_JunYang_Arecibo.pdf

Session 1/2011, poor calibration accuracy at Jb, Ur, Zc.

Session 3/2010, poor calibration accuracy at On, Zc.

Various issues at Bd, Sv, Zc, On, Jb2, Kn, Ur were mentioned

K-band: 10 stations are now available, but amplitude calibration is poor.

Lack of opacity free gain curves at Nt, Jb, Ro. (amongst others)

No Tsys available at Jb2, Cm.

Reminder on timely delivery of products:

Feedback, rxg, antab, uvflg should be delivered within 2 weeks and ASAP for eVLBI.

Automatic uploading of log files/gps data welcomed.

Arecibo confesses to be a problem.

Bach spoke on continuous calibration using DBBC (using a ND of about 5-10% Tsys) - 1 second average results are noisy, new software version allows 10s averaging but then messes up the 2-bit quantisation.

ACTION: All stations getting DBBCs need to make plans for implementing continuous calibration.

ACTION: Romney to provide details on VLBA experience.

Responsibility for maintaining the EVN status table has now moved from Polatidis to JIVE staff.

6. DBBC Status *(given by Alef - Tuccari not well)*

Presentation available at

http://www.mpifr-bonn.mpg.de/div/vlbicor/tog_chair/togreps11-2/DBBC%20status%20TOG%20Arecibo.pdf

DBBCs have mainly been sent to the southern hemisphere (Hb, Ww, Yg, Ke), but have now also been delivered to On, Ir and Tr. The biggest issue is the lack of proper FS support. However Ef has a prototype dbbcn program for controlling the DBBC (copy of mk5cn).

ACTION: Software from Eb (dbbcn) to be put on TOG wiki, together with pointers to the Hobart DBBC wiki.

- The FILA10G ethernet interface is still to come
- There was some discussion on VDIF format.
- The internal timing calibration step is to be automated.
- A control socket interface is now available.
- EVN adoption status presented. Worries are Wb, Jb and perhaps Kvasar stations.
- It should be possible to do 2Gbps soon (with a Mark5B+).
- A new DBBC mailing list has been created at Bonn - see

<https://lists.mpifr-bonn.mpg.de/mailman/listinfo/dbbc>

7. 4Gbps/2Gbps:

- The 2Gbps PFB instance of the DBBC is not tunable so there is a problem of LO matching.
- An LO frequency matrix has been set up on TOG wiki.

ACTION: All stations should add their information to https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Frequency_ranges_for_4_Gbps

- Romney spoke about the RDBE/DDC tunability quantum – believes it should be solvable.

ACTION: Romney to ask Briskin to produce a document about tunability and inter-operability with VLBA.(RDBE with DBBC)

11. NRAO/Haystack status report: *(Jon Romney, by telephone)*

- RDBE/PFB – NRAO have been running piggyback experiments by splitting the IF as it comes into control room, recording with new Mark5C's.
- A lot of tests have been done – but it is not yet considered operational.
- The Mark5C is not reliable ($\pm 70\%$) and there are multiple failure modes.
 - Alan Whitney commented that Haystack is working on the problem.
- VDIF support: Haystack has a prototype output module but it isn't in any of the RDBE personalities as yet.
- However the e-VLA WIDAR correlator has a native phased-array VDIF output.
- 4Gbps upgrade path is on hold - no money is available at present.

12. Mark 5: *(including Haystack report by Whitney and Ruszczyk, by telephone)*

- Switches between disk recording and e-VLBI mode is still handled by changing software.
- SDK 9/9.1 works with Mark5A/B, but there is an issue with Mark5B+
 - Ruszczyk will try upgrade Haystack correlator soon, then the Westford station and only then will he release it to end-users, hopefully within 4 months.
 - JIVE will also try SDK9/9.1 on a few systems.
 - Bonn is already using 9.0(9.1?) for playback through OS to the software correlator.
- The current pack size limit is 8TB and component disk size limit 1TB (or bigger with 8.3 patch, but overall pack size limit remains the same.)
- On is not happy with the recent firmware upgrade, to follow up with Verkouter.
- Stations should allocate 7,000 € per year to replace older disks.

ACTION: Alef will raise issue of Kvasar stations buying a suitable amount of diskpacks.

8. Technical operations and R&D at JIVE: *(Arpad Szomeru)*

Presentation available at

http://www.mpifr-bonn.mpg.de/div/vlbicor/tog_chair/togreps11-2/arpad_tog11-2.pdf

- Mainly use Mark5A+ for playback, no real native Mark5B playback yet, but coming soon.
- New PCInt and many new Mark5Cs have been added - currently used for software correlator.

e-VLBI status:

- Full 1024Mbps is now used operationally at most stations.
- Recent improvements: Sh 256Mbps, Ar 512Mbps, KVN 512Mbps, and some ASKAP testing
- SXFC: 16 cluster nodes, 2 quad CPUs per node. Now capable of supporting e-VLBI at 512Mbps.

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Uniboard production run completed:

- Digital receiver
- VLBI correl
- Beam-former
- all-dipole Lofar correlator.

NEXPreS: 4 activities

1. Cloud correlation buffering - automatic network-dependent correlation, remote control/monitor.
2. High bandwidth on demand - integrate with e-VLBI, prepare EVN to use this technology.
3. Computing in a shared infrastructure - distributed correlation.
4. High bandwidth, high capacity network storage - Growth in bandwidth, no of telescopes, network capacity also growing to 100Gbps.

9. Sched developments (*Bob Campbell and others*)

- New VEX2 document in preparation.
- Question of support for DBBC/Mark5C
- Some convergence on how to handle Mark5B

10 Field system: (*Ed Himwich via phone*)

- Hopes to be able to work on FS once CONT11 campaign is complete.
- First priority will be a maintenance release addressing outstanding issues, also including the remote interface software from Wetzell.
- Support for DBBC/RDBE is highest priority for the release thereafter.
ACTION: Romney to put Himwich in contact with NRAO programmers.
- Known outstanding issues:
 - fmout-gps jumps at Kvasar stations.
 - problems with DBBCs at some Auscope stations.

13. Date and Place of next meeting: (*Walter Alef*)

- Presentation on Radionet 3 support for TOG meetings
 - every second TOG meeting would be combined with a Technical Workshop meeting.
 - support level is slightly less than before
 - Alef offered to act as coordinator
- Discussion on date and place of next meeting was deferred to item 14 – see below.

15. A.O.B:

- Issue of support for aspiring stations?
ACTION: All aspiring stations must attend TOW/TOG mini-workshops first, before we would support them in terms of visits to stations.
ACTION: Next TOG mini-workshop should include a "How to check out a VLBI station."
- Whose disks should be used for Radioastron?
ACTION: TOG agrees that normal EVN disk pool should not be used - forward to CBD about additional disks required.
- Spare parts purchase?

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ACTION: Directors agreed each institute to invest ~3000 € in spare parts. Stations to define required items on TOG wiki, purchase (coordinated through Alef) and keep on-site as a hot spare, which can be sent to other stations as needed.

- Impact of Chinese Space program on EVN schedules?
No information available at meeting
- Noto status?
To be repaired by the end of 2012 (Franco Mantovani).

14. New TOG chair

- Michael Lindqvist will be the new TOG chairman from January 2012.
- Suggestion from the in-coming chairman for the place of the next meeting is Onsala, time frame would be in May 2012.

Alef ended the meeting by expressing the TOG's thanks to the local organisers.

Action Items

1. Olon (JIVE) and Walker to incorporate information on frequency agility in SCHED.
2. Szomoru to investigate if/how the number of ftp-tests could be increased, as a high time priority of the NEXPreS project.
3. Contact details for ToO observations should be put on ToO webpage. This is missing for Arecibo, Wetzell - please forward info to Campbell.
4. Alef to schedule a teleconference between the EVN and VLBA to clarify interoperability issues when need arises.
5. Alef would like a summary/overview from JIVE of what stations get better or worse after calibration.
6. Dave Graham to send info about the Mark 5B 1pps issue. (Checking offset between input 1pps and output to confirm it is clean.)
7. All stations getting DBBCs need to make plans for implementing continuous calibration.
8. Romney to provide details of VLBA experience with continuous calibration.
9. Software from Eb (dbbcn) to be put on TOG wiki, together with pointers to Hobart DBBC wiki.
10. All stations should add their information relevant for 2/4 Gbps operation to https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Frequency_ranges_for_4_Gbps
11. Romney to ask Brisken to produce a document about tunability and inter-operability with VLBA. (RDBE with DBBC).
12. Alef will raise issue of Kvasar stations buying a suitable amount of diskpacs at CBD.
13. Romney to put Himwich in contact with NRAO programmers (for RDBE control in FS).
14. All aspiring stations must attend TOW/TOG mini-workshops first, before we would support them in terms of visits to stations.
15. Next TOG mini-workshop should include a "How to check out a VLBI station."
16. The TOG agrees that normal EVN disk pool should not be used for Radioastron observing - forward to CBD about additional disks required.
17. Directors agreed each institute to invest ~3000 € in spare parts. Stations to define required items on TOG wiki, purchase (coordinated through Alef) and keep on-site as a hot spare, which can be sent to other stations as needed.

Summary of "Permanent" Actions/TOG recommendations

IN ADVANCE OF SESSION:

Stations should ensure SCHED catalogue information is up-to-date.

Stations should update the page of the disk inventory. (Contact Alef to gain access.) They should also indicate the disk space on new modules by e-mail to Alef.

SESSION PREPARATION:

Gunn to send email before each session when the final versions of all schedules are ready for download.

All should check that Mk5 modules are placed squarely on a flat surface when received; otherwise connectors are easily damaged when bent 8packs get inserted in Mark 5 units.

All stations should condition disk packs if time permits, especially those which are to be used for 1Gbps recording. If a disk pack is found to be not suitable for 1Gbps recording, the label can be changed to 512 Mbps.

All stations which do both astronomy and geodesy should clearly distinguish between astronomical and geodetic 8packs and ensure there is no "leakage" into the wrong pool, as mixing pools can create problems for scheduling.

Disk packs should be shipped with one European and one US address on covers so they can be easily returned in case a shipment is lost in transit.

DURING SESSIONS:

All stations should look at data regularly with chchk program, use it to locate significant RFI, report the results to Polatidis and CRAF representatives and enter them into the database, and use it to check phasecal throughout the session. The chchk program can be run in gaps, or for example on ftp data files.

All stations should monitor Tcal throughout sessions. This can be done by running ANTABFS and plotting the results.

All stations should forward FS error log files to Himwich in the event of a crash, including details of what the FS was doing when the crash occurred.

All stations should try to run the FS diagnostic tests and investigate the results.

All stations should ship disk packs as soon as they are full, at least once per week, following the Bologna rules.

POST SESSION FEEDBACK:

All stations should look at pipeline results available from the EVN data archive pages at JIVE, in particular amplitude corrections found by selfcal on strong, compact calibrators. JIVE support scientists should include a comment on the quality of amplitude calibration results, especially to indicate cases where a problem may have occurred and the amplitude correction factors are unreliable.

NME calibration files should be made available as early as possible. All stations should look at NME reports sent by JIVE. NMEs should be pipelined as early as possible and email sent to EVNtech when the results are available, to ensure feedback is provided well in advance of the next session.

Stations must aim to produce ANTAB and RXG files within 2 weeks after the end of a session. For eVLBI, RXG files from the previous session can often be used. ANTAB files for eVLBI experiments should be produced as soon as possible as rapid analysis is often a high priority for these experiments. JIVE should inform Alef of any problems, so that Directors can be asked to prioritise calibration if insufficient time is available at stations

FINANCIAL REPORT

The EU-project RadioNet-FP7 (contract no.: 227290) has partially sponsored the TOG Meeting on 28 – 30 August 2011 in Puerto Rico (USA). The National Astronomy and Ionosphere Centre, Arecibo Observatory hosted the meeting. The local organisation costs were partially supported in the level of ~1700 €. Additionally the travel expenses of several participants were supported in the total range of ~11.000€.