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Report from the 1st EVN Technical and Operations Group Meeting (TOG)

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WP 6

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1. 2 Dissemination Level

Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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2. Report

2.1 Participant list

In total 55 persons participated in the TOG-meeting at Onsala Space Observatory, Sweden.

#	Name	Country	Gender
1	Zheng Weiming	China	M
2	Wenren Wei	China	M
3	Rongbing Zhao	China	M
4	Bo Xia	China	M
5	Elizaveta Rastorgueva	Finland	F
6	Ari Mujunen	Finland	M
7	Minttu Uunila	Finland	F
8	Juha Kallunki	Finland	M
9	Tomi Salminen	Finland	M
10	Walter Alef	Germany	M
11	Alessandra Bertarini	Germany	F
12	Helge Rottmann	Germany	M
13	Uwe Bach	Germany	M
14	Reinhard Zeitlhofer	Germany	M
15	Michael Wunderlich	Germany	M
16	Christian Plötz	Germany	M
17	Izabela Rottmann	Germany	F
18	Carlo Migoni	Italy	M
19	Andrea Orlati	Italy	M
20	Gino Tuccari	Italy	M
21	Pietro Cassaro	Italy	M
22	Tae Hyun Jung	Korea	M
23	Do-Young Byun	Korea	M
24	Vladislavs Bezrukovs	Latvia	M
25	Miks Klapers	Latvia	M
26	Magdalena Kunert-Bajraszewska	Poland	F
27	Roman Feiler	Poland	M
28	Evgeny Nosov	Russia	M
29	Gennadii Ilin	Russia	M
30	Victor Stempkovsky	Russia	M
31	Jonathan Quick	South Africa	M
32	Salvador Sanchez	Spain	M

33	Christina Garcia-Miro	Spain	F
34	Michael Lindqvist	Sweden	M
35	Roger Hammargren	Sweden	M
36	Ulf Kylenfall	Sweden	M
37	Leif Helldner	Sweden	M
38	Karl-Åke Johansson	Sweden	M
39	Christian Wigren	Sweden	M
40	Miroslav Pantalev	Sweden	M
41	Rüdiger Haas	Sweden	M
42	Simon Casey	Sweden	M
43	Jun Yang	The Netherlands	M
44	Geert Kuper	The Netherlands	M
45	Harro Verkouter	The Netherlands	M
46	Arpad Szomoru	The Netherlands	M
47	Martin Leeuwinga	The Netherlands	M
48	Hans Tenkink	The Netherlands	M
49	Keimpema Aard	The Netherlands	M
50	Bob Campbell	The Netherlands	M
51	Alastair Gunn	UK	M
52	Jim Cullen	UK	M
53	Dan Smythe	USA	M
54	Ed Himwich	USA	M
55	Mikael Taveniku	USA	M

2.2 Meeting programme

On June 27, 2012, we had a DBBC-workshop with the following program:

Time	Program	Presenter
09.00-09.15	Local Arrangements/Opening Remarks	M. Lindqvist
09.15-09.45	General presentation of the DBBC system with the hardware functionalities of all the sections	G. Tuccari
09.45-10.15	DDC (tunable configuration) description and command set, optimization and system testing	G. Tuccari, M. Wunderlich
	PFB (polyphase fixed configuration) description and command set, optimization and system testing	G. Tuccari, M. Wunderlich
10.15-10.45	FILA10G description and command set.	G. Tuccari
	SPECTRA (spectrometer), description and command set, optimization and system testing	G. Tuccari
10.45-11.15	Coffee break	
11.15-11.45	DBBC - Spare parts and maintenance	M. Wunderlich
11.45-12.30	DiFX for zero baseline tests and more	A. Bertarini
12.30-14.00	Lunch	
14.00-14.30	FS implementation for the DBBC	E. Himwich
14.30-15.00	Mark5C usage for 2 and 4 Gbps recording	H. Verkouter
15.00-15.30	NEXPreS WP8 FlexBuff	A. Mujunen
15.30-16.00	Mark6	D. Smythe
16.00-16.30	Coffee break	
16.30-17.30	XCube+demo	M. Taveniku

On June 28, 2012, we had the TOG-meeting with the following agenda:

1. **Local Arrangements/Opening Remarks (Lindqvist)**
2. **Approval & last minute additions to Agenda (all)**
3. **Acceptance of minutes from last meeting (all) Arcibo, August 30, 2011**
4. **Review of Action Items from last meeting (all; see appended list)**
5. **Reliability/Performance of the EVN**
 - Reliability/Performance of the EVN presentation (Yang)
 - Pre-session checks, e.g., sampler stats, phase-cal, RFI ... (Yang)
 - Extending “near-realtime” fringe checks, status (Yang)
 - NME results (Yang)
 - Feedback from last sessions (Yang)
 - Timeliness of disk shipments (Tenkink / Leeuwinga)
6. **Amplitude Calibration**
 - Quality of calibration (Yang)
 - Timely delivery of ANTAB-files? (Yang)

- Beam-shapes for calibrating off-axis detections (Keimpema)
- New Antabfs script/Next step? (Lindqvist, all)

7. **Digital BBC-systems (DBBC, R1002, CDAS)**

- Short development and production status (Tuccari)
- Continuous calibration with the DBBC (Tuccari / Bach)
- Setting up the DBBC for 2 Gbps (Tuccari)
- DBBC experience at Effelsberg (Bach), Onsala (Lindqvist), Irbene (Bezrukovs), Hartebeesthoek (Quick)
- DBBC feedback from JIVE (Campbell)
- R1002M (Nosov)
- R1002M (Nosov)
- China Digital Acquire System (CDAS) (Zhao)
- Operational issues with the different systems (all)

8. **JIVE**

- Technical Operations and R&D at JIVE (Szomoru)

9. **2-4 Gbps observations EVN, EVN+VLBA**

- Tests with DBBCs at 2-4 Gbps (Szomoru, Verkouter, Bach, Lindqvist, Tuccari)
- EVN stations without DBBC: how will 2-4 Gbps be done? (all)
- Boundary conditions for co-observing with the VLBA at 2 Gbps (all)

10. **Haystack**

- Haystack status report (Smythe)

11. **Mark 5**

- Status: Mark 5A/B/B+/C, software, firmware, SDK9 (Smythe)
- Planning upgrade to SDK 9 and large disks (all)
- EVN Mark 5A program: feedback d-VLBI/e-VLBI, could it be used for disk-recording? (all)
- Mark 5 problems encountered during last session, e.g., large disks (all)
- Disk inventory and purchase status – 7000 € per station/year (Lindqvist, 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), Disk repair statistics (Leeuwinga)
- Contact person concerning disks in the EVN (Lindqvist)

12. **NRAO**

- NRAO status report (Romney)

13. **Sched Developments**

- DBBC, RDBE, Mark5C etc. (Campbell)
- New wide-band frequency standards, RDBE and DBBC, (Campbell)

- DBBC IF-channel naming convention in Sched (Campbell)
14. **Field System, status and new features**
 - Status report, new developments: Mark 5C, RDBE, DBBC, VDIF (Himwich)
 15. **Technical priorities for the EVN**
 - Result of the JIVE user-questionnaire (Lindqvist, Campbell, Szomoru)
 16. **Activities at EVN stations (all)**
 17. **Activities at potential new EVN stations**
 - Irbene (Bezrukovs)
 - KVN (Taehyun Jung)
 18. **RadioNet3 (Lindqvist)**
 19. **Date and place of the next TOG meeting**
 - Bonn, March-April 2013
 20. **AOB**

Action Items from the Arecibo meeting:

1. Small (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. Lindqvist to schedule a telecon between the EVN and VLBA to clarify interoperability issues when need arises.
5. Lindqvist 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.mpifrbonn.mpg.de/Working_Groups/EVN_TOG/Frequency_ranges_for_4_Gbps
11. Romney to ask Brisken to produce a document about tunability and inter-operatability with VLBA. (RDBE with DBBC).
12. Lindqvist 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 1 Gbps 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 8 packs 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

2.3 Meeting Photo



Participants of the 1st EVN Technical and Operations Group Meeting.

2.4 Summary and minutes from the TOG-meeting

Summary from the DBBC-workshop

The **presentations** from the DBBC-workshop on June 27 can be found here, <http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:eratec:tog:tog-meeting-01:workshop-2012-06-27>.

Minutes from the TOG-meeting

Participants:

<http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:eratec:tog:tog-meeting-01:participants-2012-06-27-28>

by phone: Jon Romney (NRAO), Chester Ruszczyk (Haystack Observatory)

Agenda (with presentations):

<http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:eratec:tog:tog-meeting-01:agenda-2012-06-28>

1. Local Arrangements/Opening Remarks

(Michael Lindqvist, chair)

Lindqvist welcomes everybody, mentions how wonderful it is to have so many participants (>50, one of the best-attended TOGs yet). As NRAO will call in, some changes have been made to the agenda to accommodate the time difference. Lindqvist gives a short overview of the observatory and its scientific and engineering programmes. He also stresses the growth of proposal pressure on the EVN, which shows the scientific relevance of the instrument.

2. Approval and last minute additions to Agenda

Walter Alef suggests calibration at 22 GHz, but Jun Yang says he will cover this in his presentation.

3. Acceptance of minutes from last meeting, Arecibo, August 30, 2011

Minutes were accepted without comments

4. Action items from Arecibo meeting

1. Small (JIVE) and Walker to incorporate information on frequency agility in SCHED.
 - Bob Campbell says there have been lots of updates to SCHED. He mentions that many stations want different setups, that there are different backends etc. Info from the stations is **very** important, EVN status table should be updated.
 - Ari Mujunen points out that many friends do not know how to find the relevant information.
 - This action can be removed, new **ACTION** on Bob Campbell: let stations know where to find this information
2. Szomoru to investigate if/how the number of ftp-tests could be increased, as a high time priority of the NEXPreS project.

- Szomoru says that effort is ongoing to implement the complete Mark5 command set in Jive5AB. Once this is done, it will be possible to increase the number of ftp tests without losing scientific observing time. Action remains.
3. Contact details for ToO observations should be put on ToO webpage. This is missing for Arecibo, Wetzell - please forward info to Campbell.
 - Done, remove
 4. Lindqvist to schedule a telecon between the EVN and VLBA to clarify interoperability issues when need arises.
 - Done, remove
 5. Lindqvist would like a summary/overview from JIVE of what stations get better or worse after calibration.
 - Done, remove
 6. Dave Graham to send info about the Mark 5B 1pps issue. (Checking offset between input 1pps and output to confirm it is clean.)
 - Dave has sent email to Lindqvist on this topic. Later during the meeting the setup of the system at Onsala will be shown. Remove action.
 7. All stations getting DBBCs need to make plans for implementing continuous calibration.
 - Onsala is in the process of doing this, based on input of Graham, Irbene not yet. This should be discussed offline later. Alef suggests that this email should be distributed to the stations/evntech.
 - **ACTION** Lindqvist and Uwe Bach: distribute this email
 8. Romney to provide details of VLBA experience with continuous calibration
 - As far as Lindqvist understands Romney sees no need for a discussion on this point. Lindqvist will ask Romney later during telecon.
 9. Software from Eb (dbbcn) to be put on TOG wiki, together with pointers to Hobart DBBC wiki.
 - Done, remove
 10. All stations should add their information relevant for 2/4 Gbps operation to https://deki.mpifrbonn.mpg.de/Working_Groups/EVN_TOG/Frequency_ranges_for_4_Gbps
 - Not done, will be discussed at a later point, remove action.
 11. Romney to ask Brisken to produce a document about tunability and inter-operability with VLBA. (RDBE with DBBC).
 - Will be discussed during presentation of Romney. Remove action.
 12. Lindqvist will raise issue of Kvasar stations buying a suitable amount of diskpacs at CBD.
 - Gennadii Ilin informs that a total of 80TB disk space will be purchased. Remove action.
 13. Romney to put Himwich in contact with NRAO programmers (for RDBE control in FS).
 - Himwich is not sure, but not relevant anymore. Remove action.
 14. All aspiring stations must attend TOW/TOG mini-workshops first, before we would support them in terms of visits to stations.

- Lindqvist once again stresses importance of attendance to TOW/TOG. Himwich adds that at the next TOW there will be a DBBC (and other digital backends). Remove action.

15. Next TOG mini-workshop should include a “How to check out a VLBI station.”

- This has not happened, instead there will be a workshop on DBBC. The TOW should provide enough info. Lindqvist mentions that the TOW will not be during any observing sessions, so there should be no excuses not to attend. Himwich mentions the need for teachers.
- Remove this action, new **ACTION** Lindqvist: make sure TOW covers all topics related to checking out VLBI stations.

16. The TOG agrees that normal EVN disk pool should not be used for Radioastron observing - forward to CBD about additional disks required.

- Bach says that recording rates are low anyway, for which old packs can be used, and that they do not need to be sent. Remove action.

17. Directors agreed each institute to invest ~3 k€ 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.

- Lindqvist points out that DBBC spare parts (discussed during workshop on previous day) would cost about 30-40 k€. **ACTION** Lindqvist: get estimate of extra money needed. **ACTION** everybody: check out list on wiki.

5. Reliability/Performance of the EVN

- Pre-session checks, e.g., sampler stats, phase-cal, RFI ... (Yang)
- Extending “near-realtime” fringe checks, status (Yang)
- NME results (Yang)
- Feedback from last sessions (Yang)
- Presentation by Jun Yang: *Reliability/Performance of the EVN*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:performance_junyang_onsala.pdf

- During N12K2 there were no fringes to Mh. Mujunen stresses that rapid feedback is very important, in this case a (wrong) explanation was found instead of understanding the problem.
- 22 GHz phasecal problematic. On injects into IF, Ef directly? **ACTION** Bach: if directly, send out info on evntech. If not, no action
- Scan_check ending with "e" -- issue. Leeuwinga explain that if scan does not stop at an integral second this is reported (through the "e"), but the data are fine. Verkouter stresses that there can be many reasons for error messages on Mark5B, but the data can still be fine.

- Timeliness of disk shipments

- Leeuwinga notes that some stations follow Bologna rules, some send everything at end. Lindqvist would like to know what is preferred. Campbell does not have a strong preference.

6. Amplitude Calibration

- Presentation by Jun Yang: *Quality of calibration*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:calibration_onsala2012.pdf

DBBC 16 MHz: limited bandwidth. **ACTION** Tuccari: investigate if 16 MHz band shape can be improved

K-band:

- Robledo will measure opacity gain curve in July
- Noto is experiencing some problems with K-receiver
- Jodrell Bank: no diode in K-band receivers, no priority
- Kvazar: will be done soon (after fixing receiver)

- Timely delivery of ANTAB-files

Onsala has sent script to Kvazar for sending GPS info to vlbeer. **ACTION** Lindqvist: put script on wiki

- Presentation by Aard Keimpema: *Beam-shapes for calibrating off-axis detections*

<http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:tog-aard.pdf>

Point sources are needed for determining actual beam shapes. Only L and C bands are relevant.

ACTION stations: determine beam shapes, list elevation at which it was done, send results to Keimpema.

- New Antabfs script (part of Yangs presentation)

Jb will maybe have RDBE. Yang needs to know if all stations will use 80 Hz radiometry, or whether they will use RDBEs, before starting to write a script.

Bach has a script, which uses the FS logfile

ACTION Yang, Bach, Lindqvist, Himwich and Graham: discuss new script, present conclusions at next TOG

7. Digital BBC systems

- Presentations by Tuccari and Bach: *Short development and production status*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:dbbc_status_june_2012.pdf

and *Continuous calibration with the DBBC*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:dbbc-continuous_cal.pdf

Garcia-Miro mentions the DBC that is being built at Robledo. Discussion follows about VLBI technology meeting in autumn at Haystack that will have a 3-day workshop during which different backends will be compared. Possibly Robledo could join as well.

Walter Alef is given a soccer shirt (captain of the Swedish national team, Zlatan Ibrahimović) signed by the attendants, to thank him for his long inspiring leadership as fearless captain of the TOG.

- DBBC experiences:

- Hartebeesthoek: Quick says it is surprisingly easy to set up, and that it is advisable to be on the mailing list, as it contains lots of important information. Lindqvist mentions the (not up to date) DBBC wiki page at Hobart. The 15m at Hh will be outfitted with DBBC next week.
- Onsala: Lindqvist says that IF level is the main concern, but system seems more or less ok now
- Irbene: DBBC working fine now. Progress was slow because of lack of experience and lack of second backend for comparison. Performance used to vary, but since 2 core boards were replaced it has been working fine. Tuccari has given input on configuration day before.
- Pico Veleta: not used for science recording yet. Advice to assemble on site, as shaking during transport can cause damage.

- Presentation by Tuccari: *Setting up the DBBC for 2 Gbps*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:dbbc_2_and_4_gbps.pdf

- Feedback from JIVE (Campbell): data quality much better

- Presentation by Nosov: *R1002M*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:nosov_evn_tog_meeting.pdf

Should be included in DBC comparison workshop in Haystack. Invitation needed. **ACTION**

- Presentation by Zhao: *China Digital Acquire System (CDAS)*

<http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:cdas-evn-tog20120627.pdf>

8. JIVE

- Presentation by Szomoru: *Technical Operations and R&D at JIVE*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:arpad_tog12.pdf

9. 2-4 Gbps observations EVN, EVN+VLBA

These topics were sufficiently covered during previous presentations and discussions. However, EVN+VLBA compatibility will have to be discussed during the next US-EVN teleconference.

10. Haystack

- Presentation by Smythe: *Haystack status report*

<http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:haystack.pdf>

11. Mark5

- Presentation by Smythe: *Status: Mark 5A/B/B+/C, software, firmware, SDK9*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:mark5ab_v3.pdf

Some confusion/slight panic about "critical" bug in latest Sdk9 related to incorrect output of scan_check. Chet Ruzszyk is contacted and asked to join the telecon. Critical seems not to be critical after all, workable work-around exists (scan_set before scan_check should solve problem). Version 9.2 nearly ready, but needs testing, Chet is looking for Westford time to do so. 9.2 should be capable of handling 3 TB disks.

- Short presentation by Lindqvist on disk inventory and purchase status. Lindqvist stresses that EVN science right now is limited by the size of the disk pool, and that the directors have agreed to spend 7 keuro/year/station on the purchase of disks. Everybody should make sure this money gets spent. **ACTION** all stations, purchase disks and/or disk packs.

- Presentation by Leeuwinga: *Disk repair statistics*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:diskrepair_statistics.pdf

Conclusion is that no clear evidence exists that large packs break more frequently than small ones. Smythe suggests investigating reliability of specific brands of disks through the disk drive serial number.

- Disk throughput: Campbell mentions that last session was very tight, but situation has improved.

12. NRAO

Presentation by Romney (via telecon): *NRAO status report*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:120628_tog.pdf

Campbell asks about global compatibility. Romney answers that this should be topic of separate telecon.

Alef inquires whether the new VLBA synthesizer equals the Haystack down converter. Romney answers it is not a down converter, but generates LOs, and that it is not clear other institutes could use it easily.

13. Sched developments

Campbell mentions a number of points

- continually trying to find out what stations want to see in vex files
- often have to lie to Sched a bit
- new Kvasar backend support incorporated, not yet released
- request to everyone to follow Effelsberg DBBC rules
- DDC-related issues ok now, still learning about PFB
- IF channel naming problem has been solved
- .skd files are still copied from .vex; should let Drudge only use .vex

Romney mentions a problem that occurs when trying to use a subband requiring 3 digits or more (128MHz for example). It seems Sched then inserts a double asterisk in the \$FREQ section. This should have been fixed in the beta version.

14. Field System

- Presentation by Himwich: *Status report, new developments: Mark 5C, RDBE, DBBC, VDIF*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:fs_tog_jun_2012.pdf

15. Technical priorities for the EVN

- Presentation Lindqvist: *Result of the JIVE user-questionnaire*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:survey_report.pdf

Lindqvist stresses that the highest ranking request of the users is for more and shorter baselines in the EVN (e.g., eMerlin, Sardinia Radio Telescope, Irbene, China, Korea, Ghana).

Quick gives some information on Ghana effort

- Ghana dish has been handed over by Vodaphone to government
- South Africa actively involved, trying to make 5 and 6.7 GHz work
- should give a dramatic improvement of UV coverage

Lindqvist urges everybody to take a look at the user questionnaire (part of JIVE review document)

Alef once again asks all stations to buy disks, 7 keuro per year should make it possible to sustain 2 Gbps recording.

17. Activities at potential new EVN stations

Presentation by Bezrukovs: *Irbene*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:vl.bezrukovs_talk_evn_tog.pdf

Alef ask about the precision of dish. Answer is 1-5 mm, the hope is that 22 GHz will be possible after (ongoing) improvements.

Lindqvist asks Irbene to send representatives to next TOW.

- Presentation by Jung: *KVN*

http://www.radionet-eu.org/radionet3wiki/lib/exe/fetch.php?media=na:eratec:tog:tog-meeting-01:20120628-evn_tog-jung.pdf

Alef asks about X-band. Jung says it will be implemented at some time, no fixed date yet.

Lindqvist suggests the KVN director should be invited to attend the CBD as observer.

18. RadioNet3

Lindqvist explains there is money for support, but less than under RadioNet FP7. TOG hosts will have to pay more out of their own budget than previously.

19. Date and place of the next meeting

As already decided, this will be in Bonn, March-April 2013. There will be a hands-on DBBC workshop in connection with the TOG. The TOG is part of the Radionet3 Network Activity ERATec, and at some point combined meetings are called for (engineers/users/operators). The first meeting will possibly be held in Bonn.

Summary of action Items:

1. **Campbell** to let friends know where to find relevant SCHED catalogue information. Note that there is a permanent action item, “stations should ensure SCHED catalogue information is up-to-date.”
2. **Szomoru** to investigate if/how the number of ftp-tests could be increased, as a high time priority of the NEXPreS project.
3. **Lindqvist/Bach** to circulate input from Graham concerning implementing of continuous calibration with the DBBC.
4. **Lindqvist** to make sure that the next TOW covers all topics related to checking out a VLBI station.
5. **Lindqvist**: investigate if extra money is needed for DBBC spare parts.
6. **All**: check out the spare part list on the wiki and make sure that each institute contributes. https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/EVN_spare_parts
7. **Bach**: Send out information on the Effelsberg 22 GHz phasecal system.
8. **Tuccari**: investigate if the DBBC 16 MHz band shape can be improved.
9. **Lindqvist**: put script that transfer GPS-data to vlbeer on the wiki.
10. **All L- and C-band stations**: determine beam shapes at L- and C-band, if possible at different elevations. Send results, as well as the elevation intervals used, to Keimpema.
11. **Yang, Bach, Lindqvist, Himwich and Graham**: discuss new ANTAB script, present conclusions at next TOG.
12. **Lindqvist/Szomoru**: get Haystack Observatory to send official invitation to Nosov so he can participate in the DBC comparison workshop.
13. **All**: Make sure that your station spends 7 keur/year on the purchase of disks.

2.5 Information of the EC financial contribution

The EU-project RadioNet3 has partially sponsored the TOG Meeting on June 27-28, 2012 in Onsala (Sweden). Onsala Space Observatory hosted the meeting. The local organisation costs were partially supported in the level of ~ 1000 EUR, additionally the travel expenses of several participants were supported in the total range of ~4400 EUR.