

EVN Technical and Operations Group Meeting

Shanghai, China, April 19, 2018

Minutes

Participants:

<http://evn2018.csp.escience.cn/dct/page/70004>

Agenda:

<http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:eratec:tog:tog-meeting-09:tog-agenda-2018-1>

1 Local Arrangements/Opening Remarks

(Bin Li, Vicente)

Bin Li opens the meeting, welcomes the participants, followed by a short speech by the director, Zhiqing Shen, welcoming everybody and wishing them a good meeting.

Presentation by Vicente, used throughout meeting: [TOG chair notes](#)

2 Approval and last minute additions to Agenda

No comments or additions to the agenda.

3 Acceptance of minutes from last meeting [Minutes Ventspils meeting](#)

Minutes were accepted without comments

4 Review of action items from last meeting

Vicente will move links to new indico.

1. All: beam-maps at L- and C-band and send them to Keimpema
https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Beam_maps
 - Not everybody has done so yet, please do so!
 - **Action remains.**
2. All: Upgrade to SDK9.4 first at the correlators then at the stations.
 - Some stations still use 9.3. All please upgrade.

- **Action remains.**
3. All: 80 Hz continuous calibration. Update the table:
https://deki.mpifrbonn.mpg.de/Working_Groups/EVN_TOG/Continuous_calibration
 - Vicente stresses this is very important. Will be reviewed later on.
 - **Action remains.**
 4. JIVE: set up a wiki page, summarizing problems per station.
 - Done, **remove.**
 5. All: Provide frequency information of the stations to de Vicente
 - Vicente remarks that info on frequency agility should also be provided.
 - **Action remains.**
 6. All: If a station is not buying a FlexBuff, purchase disk packs. This was discussed later along the meeting.
 - **Action remains.**
 7. Szomoru: ask Keimpema to re-send email to stations requesting beam maps
 - **Action remains.**
 8. All: pay attention to autocorrelation plots
 - We do not quite remember why this action is here. But we think this item was covered by the next item.
 - **Remove** action.
 9. Blanchard: collect cases of bandpass dips to present to Tuccari.
 - Ongoing, the dips may have gone.
 - **Action remains.**
 10. Rottman: define proper release policy for release of firmware versions.
 - **Action remains,** Rottman not present.
 11. Vicente: Talk to Himwich possibility to inject opacity information in FS logs. This was already commented to Himwich before the meeting but no answer from him.
 - **Action remains.**
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12. Vicente: Ask directors to provide funds for purchasing a DBBC/Fila test setup for Tuccari.
 - Tuccari: possible to use spare parts that are available and to remotely use DBBCs at the stations for tests as it has been done up to now. Situation could be better, but test setup not absolutely necessary.
 - **Remove** action.
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13. García Miro: Find a suitable date for real time fringe-test, probably during next e-VLBI on June 20.
 - García Miro has left Robledo, no replacement. De Vicente mentioned he had contacted the station manager and there is no clear replacement for García Miro and observations with Robledo may be discontinued.
 - **Remove** action

5 Review of permanent action items [Permanent action items](#)

All actions stay.

- De Vicente: network efficiency seems pretty high.
- Campbell: some issues from last session:
 - Empty looking packs: caused by old firmware?
 - Lack of 8TB packs right now.
 - Daily GPS missing sometimes. De Vicente explains that Yebes monitors maser throughout the year, with a daily upload and expects all stations to do so He suggests to create a script at station to check that the file is correctly updated every day.
 - Missing FS logs.
 - Multiple versions of schedule files caused by late requests. Changes should be communicated in time and not at the very last moment!

6 Reliability/Performance of the EVN

- Reliability/Performance of the EVN. New web page with Grafana (Blanchard) .
- NME results (Blanchard).
- Feedback from last sessions. New Grafana web page (Blanchard).
- Issues from last session (Campbell, Vicente).
- New EVN communication channel: Mattermost (Blanchard).
- Presentation by Blanchard: [EVN Performance and Reliability](#)
 - Old problem: not always known where a telescope points when tracking a source. De vicente reminded everybody of the importance of using track command at the FS and implement at each station
 - Some discussion about Grafana, generally it is thought to be a good feedback tool.

7 Amplitude Calibration

- Quality of calibration. New web page (Blanchard).
- Review of continuous cal: availability at stations (Vicente)
- Continuous cal: processing at the correlator (Campbell, Blanchard).
- Reminder of antabfs script (Vicente).
- Presentation by Blanchard: [EVN Amplitude Calibration](#)
 - Blanchard: basically at high frequencies everything is terrible, at 6 cm everything is pretty good.
 - De Vicente: for high frequencies, make sure noise diode is ok, and do calibration sessions! There is a time slot reserved for his in the sessions. How does the KVN do opacity correccions?
 - Jung: check of gain every year, measure opacity (sky dips) at beginning and end of observations, monitor gain curve. Opacity measurement is applied to gain, Tsys is corrected for opacity. A presentation was shown later along the meeting.
 - **New action** Jung: write down instructions for high frequency gain/opacity corrections, circulate these among the EVN members.
 - de Vicente asks who can do chopper: On, Yb, KVN

- Blanchard: it should be possible to use good stations, freeze the solutions and use these for the bad ones. **New action** Blanchard: come up with a method to use solutions of good stations for bad stations.
- de Vicente shows a few slides on continuous cal.
- Bach notes that the DBBC produces a reference signal that can also be used for RDBE.
- De Vicente: antabfs.py is maintained at Yb, available to stations. Verkouter asks if it is on Github, de Vicente agrees it could be placed there. Blanchard warns to make sure to use the right version of the script. There is also a script at JIVE, uses the sampler stats, but has an offset of 10%. This is being looked into. Bach wonders if this could be a result of difference in bit sampling.
Blanchard to compare amplitude results from both scripts.

8 VLBI backends

- DBBC2 firmware issues: V105E, V106 and PFB modes (all).
- Other VLBI backends: MDBE
- Other VLBI backends: OCTAD (Jung)
 - DBBC issues:
 - De Vicente: how many stations use 106 version?
 - Yb: changed to 106, experienced strange issues
 - Bach: spikes in 105 gone in 106, loading once is mostly enough
 - Tuccari: advises everybody to use latest version, suggest group of testers
 - This however is not followed by any clear decision
 - Blanchard: 106 was tested during NME, looked ok, easier to load
 - De Vicente: everybody to switch to 106, **new action**
 -
 - Fila10G issues:
 - Tuccari: version 4-1 was used by Wetzell for VGOS, has bug fixes and corner turning, also continuous check between GPS and Fila10G time, automatic sync
 - External Fila always has GPS
 - Quite a few stations without GPS, can be provided by Tuccari
 - Verkouter: during JUC test not all the stations used the same firmware, for various reasons
 - No new functionality, so no need
 - Missing functionality?
 - Verkouter and Tuccari urge the stations to let them know why they are not using the latest firmware
 - Bach: latest has been used at Ef since December, no problems, although full-band mode sometimes broken (but not used in EVN)
 - **New action:** everybody to use latest Fila10G firmware
 - Marshalov: developed new system, working at all telescopes. Continuous cal is not possible on old systems

- Jung presentation: [KVN Backend System](#)
 - Old situation: 512 MHz on Mk6, or 1Gbps to Mk5
 - End of year, 2Gbps operations
- Jung presentation [KVN Amplitude Calibration](#). This was presented as a result from the discussion on amplitude calibration accuracy at high frequencies before.

9 Recorders: Mark 5,6, Flexbuf

- Presentation by Verkouter: [Jive5ab and support acts](#)
 - De Vicente mentions problems copying to the correlator using multiple instances of jive5ab. Verkouter answers this is to the correlator in Washington. Flushing to disk can stall for several seconds
- Mark5 status: nothing really. Bach mentions that Ef has no more Mk5s. Leeuwinga reports that he received an email from Conduant, telling that they will not sell disk pack chassis for Mk5 anymore.
- Some slides by de Vicente on FlexBuff.
 - New FlexBuff stations?
 - Tianma, Shanghai, Sardinia this year.
 - Ir: bought two new flexbuffs of 230TB, going to send one to JIVE
 - Tr: problem is money
 - Ur: problem is bandwidth
 - KVN: not many observations to justify investment, but they have Mark6 units which can be used as Flexbuffs
 - De Vicente: not many Q-band proposals, many astronomers do not seem to know about this possibility
 - Kunming: problem is bandwidth, but they are going to buy a Mark6. This poses a problem with disk packs exchanges.

10 Stations

- Presentation by Varenius, [eMerlin + EVN status update](#)
- Presentation by Asabere, [The Ghana 32m Radio Telescope \(Nk\)](#)
- Presentation by GuangHui, [Recent VLBI Activities at XAO](#)
- Presentation by Hao, Kunming status (not available)
- **New action** Bach: schedule 43 GHz test in May
- Ir is moving their maser between the two telescopes, de Vicente asks if it would not be cheaper to make a fixed connection instead. C-band receiver is away for repairs.
- De Vicente reports about a successful fringe test between Yebes 40m and Santa Maria, 13m telescope on Azores, S&X band. There may be a possibility to use SM for the EVN at X band in the future.

- RFI: for BRAND RFI has to be measured at the stations, with same equipment. **New action** de Vicente, contact stations and work out how to ship equipment.

11 e-VLBI

- Some slides by de Vicente.
- Presentation Marshalov, [VLBI Network “Quasar” – JIVE Network Performance Test](#)
- KVAZAR network integration in the eVLBI.
 - Tests were successful
 - Need internal discussion
 - **New action** Szomoru, contact KVAZAR network when the next e-VLBI date is known, for possible participation

12 Technical Developments

- Some slides by de Vicente on 4 Gbps
 - 6 stations can actually do 4 Gbps with common LO
 - How to advance. **New action** Bach, find out what stations can match the common observing band for 4Gbps observing
- Auxiliary scripts. Central repository
 - Was already discussed. Github will be set up
 - **New action** Blanchard, set up EVN Github
- Presentation by Tuccari on [DBBC3 status and deployment](#)
 - Field System cannot control DBBC3 yet
- Presentation by Tuccari on [Radionet JRA: BRAND EVN](#)
 - Discussion on RFI generated by receiver, direct sampling near feed horn
- Future backends compatibility: slide by de Vicente
- UniBoard will be covered in presentation by Szomoru

13 JIVE

- Presentation by Szomoru: [Technical Operations and R&D at JIVE](#)

14 VLBA (should that not be LBO?)

- No representation from LBO (time difference)

- some discussion on the usage of Mark6s at the VLBA and the compatibility with the EVN when observing globals.
- no clear conclusion. One Mark6 unit at JIVE?

15 Field System, status and new features

- Himwich is not present, few slides by de Vicente about the most urgent needs.

16 Long term future

- few slides by de Vicente, no discussion

17 Jumping JIVE

- Already discussed, skip

19 Date and place of the next TOG meeting

- Granada, the Thursday and Friday before the EVN Symposium, 4 and 5 October 2018

20 AOB

- None

March 20th:

Presentations about the EVN, SHAO activities and the Asian VLBI networks.

Vicente: A technical overview of the EVN

Tao/Weimin: Chinese VLBI Network

Polatidis: Recent scientific highlights with the EVN

Junzhi/Bin: Tianma Telescope

Muxlow: Prospects for e-MERLIN-EVN

Qinghui: Chinese Space VLBI

Jung: EAVN / KaVa activities

Trip to Tianma telescope and correlator at Sheshan area.

Updated list of action items:

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2. **All:** Upgrade to SDK9.4 first at the correlators then at the stations.

3. **All:** 80 Hz continuous calibration. Update the table: https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Continuous_calibration_%2880_Hz%29
4. **All:** provide frequency information of the stations to de Vicente
5. **All:** If a station is not buying a FlexBuff, purchase disk packs
6. **Szomoru:** ask Keimpema to re-send email to stations requesting beam maps
7. **Blanchard:** collect cases of bandpass dips to present to Tuccari.
8. **Rottmann:** define proper policy for release of firmware versions
9. **Vicente:** talk to Himwich about possibility to inject opacity information into FS logs.
10. **Jung:** write down instructions for high frequency gain/opacity corrections, circulate these among the EVN members.
11. **Blanchard:** come up with a method to use correction solutions of good stations for bad stations.
12. **Blanchard:** compare amplitude calibration results from both continuum calibration scripts.
13. **All:** everybody to switch to DBBC firmware version 106
14. **All:** everybody to use latest Fila10G firmware
15. **Bach:** schedule 43 GHz test in May
16. **de Vicente:** contact stations and work out how to ship RFI measuring equipment (for BRAND project)
17. **Szomoru:** contact KVAZAR network when the next e-VLBI date is known, for possible participation
18. **Bach:** find out what stations can match the common observing band for 4Gbps observing
19. **Blanchard:** set up EVN Github