

# **EVN Technical and Operations Group Meeting**

## **Jodrell Bank Observatory, United Kingdom, June 26, 2019**

### **Minutes**

#### **Participants:**

<https://events.mpifr-bonn.mpg.de/indico/event/112/registration/registrants>

#### **Agenda:**

[https://radiowiki.mpifr-bonn.mpg.de/doku.php?id=na:sustainability:tog:2019\\_06:tog-agenda-2019-06](https://radiowiki.mpifr-bonn.mpg.de/doku.php?id=na:sustainability:tog:2019_06:tog-agenda-2019-06)

#### **1 Local Arrangements/Opening Remarks**

(Bach, Alastair)

The meeting starts with a short welcome by Garcia-Miro.

#### **2 Welcome by Phil Diamond and Simon Garrington**

Diamond welcomes the participants, presents the status of the SKA. Garrington also gives a short welcome address.

#### **3 Approval and last minute additions to Agenda**

Alef suggests an extra topic, namely the testing of backends. Agenda was approved.

#### **4 Acceptance of minutes from last meeting [Minutes Granada meeting](#)**

Minutes were accepted without comments

#### **5 Review of action items from last meeting**

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](https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Beam_maps)
  - Slowly improving situation
  - **Action remains.**
2. All: Upgrade to SDK9.4 first at the correlators then at the stations.
  - Keep action for Mark5.
  - **Action remains.**
3. All: 80 Hz continuous calibration. Update the table: [https://deki.mpifr-bonn.mpg.de/Working\\_Groups/EVN\\_TOG/Continuous\\_calibration](https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Continuous_calibration)
  - Campbell mentions it would be useful if this would be available in all bands
  - **Action remains.**

4. Szomoru: ask Keimpema to re-send email to stations requesting beam maps
  - Done
  - **Remove** action.
5. de Vicente: talk to Himwich about possibility to inject opacity information into FS logs.
  - Email was sent a long time ago
  - Action **remains**.
6. All: everybody to use last Fila10G firmware.
  - Bach: latest version only available in Bonn, still now on Hatlab site
  - Action **remains**.
7. Szomoru: contact KVAZAR network when the next e-VLBI date is known, for possible participation.
  - Done
  - **Remove** Action.
8. de Vicente: contact Tuccari about the policy for the versioning of firmware releases.
  - **Move** to permanent actions
  - **Remove** Action.
9. Bach: schedule 43 GHz test in November.
  - Done, tested at Sh, Ef, Ys.
  - **Remove** Action.
  - de Vicente: need to test new 43 GHz receiver with 2 GHz for VLBI
  - **New action:** Bach: set up new 43 GHz test, define frequency range.
10. Blanchard: send out email to all announcing EVN Github.
  - Blanchard has left, Marcote has taken over. Done.
  - **Remove** Action.
11. Verkouter: talk to Horsley about ports being reset to zero for e-VLBI.
  - Did not happen anymore, and there is a solution, setting the ports in SCHED
  - **Remove** Action.
  - **New action:** Bach: send out details of solution to stations
12. Bach: find time slots for tests of v107, November/December 2018. At least 2 tests.
  - Done.
  - **Remove** Action.

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

Reminder to stations to register incoming and outgoing disk packs.

## 7 Reliability/Performance of the EVN

- Presentation by Marcote: [EVN Performance and Reliability](#)

- Alef remarks that it seems many problems could have been prevented if tests were done beforehand
- Bach answers that the EHT observations are done following a document with detailed instructions. This might be useful for the EVN as well. **New action:** Bach and Rottmann to look at EHT document and see if it could be modified for use in the EVN
- Problem is noted getting ANTAB files, which needs work at the stations.
- **New action:** Bach to investigate how Tsys and opacity are determined at K band and higher

## 8 Amplitude Calibration

- Presentation by Bach: [TOG chair slides](#)
  - V107: 64MHz have slopy bandpasses

## 9 VLBI backends

- No presentation
- Not much news

## 10 Recorders: Mark 5, Mark6, Flexbuf

- Rottmann: media at Bonn are piling up, what to do? Discard small modules? Need permission. Possibly get rid of 2 – 4 TB modules. **New action** Rottmann and Leeuwinga: send emails to owners of 2 – 4 TB modules and ask what should be done with them.
- Flexbuffs: nowadays many stations have 250TB at station and 250TB at JIVE.
- Jb will have a problem once more e-Merlin station join in.

## 11 Stations

- ! Presentation by Cullen (for Varenius), [eMERLIN+EVN status update](#)
- ! Presentation by Surcis: [Funded developments at the italian radio telescopes](#)

## 12 e-VLBI

- One slide by Bach, [TOG Chair slides](#)

## 13 JIVE

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

## 14 Technical Developments

- Presentation Rottmann: [GMVA 4GBPS TEST \(APRIL 2019\)](#)
- Presentation Kettenis: [32 Gbit/s VLBI from a correlator perspective](#)
- Some discussion about VEX2, Alef asks if it is suitable for high data rate observing. Himwich: yes, but right now only internally, some issues with parser. Maybe will be fixed this year.
- **New action:** Rottmann to set up meeting with Verkouter, Kettenis, Alef, Rottmann and Wagner, to discuss the best format of VDIF packets.
- **Voevents:** no presentation. Kettenis describes the triggering demonstration that was done for the Asterics project, using software that was partly developed five years ago. This now includes the use of VOEvents. Szomoru mentions the LOFAR responsive telescope, also part of Asterics. Alef wonders if the CBD knows, Campbell answers it is still possible to request triggered proposals.
- **pySCHED:** presentation Eldering: [pySCHED](#)

*At this point the meeting switches to the VLBA presentation of Brisken, via zoom*

## 16 VLBA

- Presentation by Brisken: not available. Some highlights:
  - Mark6 at all stations, VLA, GBT, data look good, parallel recording Mark5b and 6. Mark5s will be retired in the next 6 months.
  - 4Gbps is operational, but not standard.
  - DifX correlator is upgraded, 10 stations at 8Gbps
  - Will formally evaluate pySCHED, produce VEX2
  - NGVLA proceeding, 10 times sensitivity of current JVLA, VLA and VLBA will become one observatory.
  - Bach: what about a Mark6 diskpool for globals? Brisken: several options, maybe copy to Mark5 packs, or provide set of Mark6 packs.

*Switch back to Technical Developments*

## 14 Technical Developments (continued)

- **DBBC3:** presentation Bach: [TOG Chair slides](#)
- Rottmann mentions monitoring functionality being developed for DBBC3
- **2Gbps at L-band, Available IF bandwidth, Auxiliary scripts:**
  - all stations are urged to find suitable bands for 4Gbps

## 15 Field System, status and new features

- Presentation by Himwich: [Field System Status and New Features](#)

## 17 Jumping JIVE

- WP5. New stations:
  - De Vicente: Gurvits and he visited Greece
  - 32m communication antenna in Thermopilae
  - Need receiver, backend
- Alef asks about request of Conway to send Brand receiver to Ghana
  - Consensus is that this is probably not a very good idea

## 18 Long term future

- Many topics have been covered already
- Alef mentions the trend towards a general backend, digitize near receiver and solve IF problem
- Kettenis is reviewing a proposal of Phillips for an ultra-wide band backend for Parkes

## 19 Date and place of the next TOG meeting

- Bonn, Feb – March 2020?

## 20 AOB

- Orlatti: could the schedules please be sent earlier to the stations?

### Updated list of action items:

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](https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Beam_maps)
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](https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Continuous_calibration_%2880_Hz%29)
4. **Vicente:** talk to Himwich about possibility to inject opacity information into FS logs.
5. **All:** everybody to switch to DBBC firmware version 106
6. **All:** everybody to use latest Fila10G firmware

7. **Bach**: set up new 43 GHz receiver test with 2 GHz for VLBI, define frequency range
8. **Bach**: send out details of solution, setting ports in SCHED, to stations
9. **Bach, Rottmann**: look at EHT station set-up document and see if it could be modified for use in the EVN
10. **Bach**: investigate how Tsys and opacity are determined at K band and higher at stations
11. **Rottmann and Leeuwinga**: send emails to owners of 2 – 4 TB modules and ask what should be done with them.
12. **Rottmann**: set up meeting with Verkouter, Kettenis, Alef, Rottmann and Wagner, to discuss the best format of VDIF packets.