1st GMVA Technical Group Meeting

Madrid, Spain

February 8th 2016

Minutes

1 Registered Participants

Walter Alef	MPIfR
Uwe Bach	MPIfR
Laura Barbas Calvo	Observatorio de Yebes - IGN
Marcis Bleiders	VUC Ventspils International Radio Astronomy Center
Michael Bremer	IRAM
Walter Brisken	NRAO / MPIfR
Bob Campbell	JIVE
Pietro Cassaro	ORA INAF - Sezione di Noto
Francisco Colomer	Instituto Geografico Nacional
Cristina Garcia Miro	Madrid Deep Space Communications Complex NASA
Pablo de Vicente	Observatorio de Yebes (IGN)
Javier Gonzalez	Observatorio de Yebes -IGN
Roger Hammargren	Onsala Space Observatory
Ed Himwich	NASA
Taehyun Jung	Korea Astronomy & Space Science Institute
Mark Kettenis	JIVE
Carsten Kramer	IRAM/Granada
Michael Lindqvist	Onsala Space Observaory
Colin Lonsdale	MIT Haystack Observatory
Minnie Mao	JIVE
Dmitrii Marshalov	Institute of Applied Astronomy RAS
Andrea Melis	INAF - ORA Cagliari
Carlo Migoni	INAF - ORA Cagliari
Arturs Orbidans	VUC Ventspils International Radio Astronomy Center
Andrea Orlati	INAF
Helge Rottmann	MPIfR
Salvador Sánchez	IRAM/Granada
Arpad Szomoru	JIVE
HarroVerkouter	JIVE
Jun Yang	Onsala Space Observatory

2 Agenda

The meeting agenda can be found at:

https://deki.mpifr-bonn.mpg.de/GMVA/GMVA_Technical_Group/1st_GTG_Meeting_Madrid_February_8th%2C_2016

3 Topics

3.1 Local Arrangements/Opening Remarks (Colomer, Vicente)

3.2 GMVA Technical Group (GTG) constitution

- Alef gives an overview presentation about the GMVA
- Discussion about future LMT participation. **Brisken**: Test with LMT+VLBA showed some equipment incompatibility. **Lonsdale**: LMT participated successfully in tests at 1mm and 3mm.
- Rottmann summarizes the reasoning and possibly modalities for future regular face-to-face meetings of the GMVA Technical Group (GTG).
- Alef appointed as chair of the GTG.
- **All**: Agreed to hold the GTG meetings alongside the EVT TOG meetings on a 2-term cadence.

3.3 GMVA observations & operations

- **Rottmann** shows available GMVA tools & services (FTP, Web, mailing list). Everybody on the meeting was encouraged to register to the new GMVATech mailing list (**https://lists.mpifr-bonn.mpg.de/mailman/listinfo/gmvatech**) . **Szomoru** expressed his doubts about the need for another mailing list.

- **Rottmann** presents the correlator report from the Sep.2015 session (c152). Reasons for amplitude drop seen at Yb were discussed. **AI (Rottmann, de Vicente) : take a look at Yb DBBC configuration**
- **Bach** gives presentation about general operations (DBBC, FiLA10G, FS, pre-checks etc.)
  - FilA10G configuration now possible from FS
  - New DDC mode with 32 MHz wide channels (possibly useful for GMVA)
  - Fullband mode with 1x512MHz channel available
  - New FS version (yet unreleased) will have PFB support
- Question by **Brisken** about cadence of gain adjustments of the DBBC. **Bach/Alef**: automatic gain adjustment by default every 1s by the analogue electronics.
- Question by **Brisken** whether phase changes can happen when gain is adjusted by the DBBC. Bach: Krichbaum has reported phase jumps for PV. Yet unclear whether these

coincide with gain adjustments times.

- **Sanchez** asked about the status of investigating the origin of the PV phase jumps.

AI (MPIfR correlator) : investigate possible PV phase jumps

- **All:** Unclear whether new FS version with DBBC-PFB support will be available for the May 2016 session. Himwich will attend the TOG meeting tomorrow and should comment on this question.
- **IRAM (Bremer/Kramer)**: optical fibre line connection from PdB is planned but has not been realized. Possibilities to provide fibre connection to PV is currently being discussed with spanish authorities.

- **All**: discussion about pre-checks for the GMVA. **AI (all): Form small group to compile a pre-check list.**
- **All:** Discussion about useful software tools. JIVE explained new tools for fringe checks (will be presented on tomorrow on TOG meeting). Bach explains how to use m5spec to extract and plot small data portions. Interest was expressed to collect the various tools used at the stations in a publicly available place.
- **All**: Discussion about common procedures for pointing and focus. Yb has trouble finding suitable sources for pointing and focus (no chopper available). **Jung** explained the KVN pointing procedure (cross-scans and comparison with 22GHz).
- **All**: Discussion about enhancing session information provided by the stations. Stations should provide available information, about weather (temperature, pressure, humidity), opacity automatically in the FS logs preferably in a common syntax. Station operators should also regularly write status messages during the sessions.
- **All**: Communication during sessions. A skype chat should be used in the beginning of the session especially during the fringe check. This will help idetifying and solving possible problems at the stations.

- **AI (MPIFR correlator): GMVA correlation reports should be made available online.**
- **Brisken:** VLBA is investigating a possible bandwidth upgrade towards 4Gbps operations. It was agreed that this would be desirable also for the GMVA and EVN and that a concerted action (e.g. preparation of a technical roadmap) between VLBA/EVN/GMVA would be useful. The discussion was deferred until the upcoming TOG. **Kettenis** has noted that correlation of 4Gbps observations cannot be done in realtime currently.

4 Calibration

Reports about local calibration strategies given by the stations (presentations online, see http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:eratec:tog:tog-meeting-06:gmvapresentations-feb2016)

Bach: Report about general calibration strategies. FS calibration with 32MHz subbands does not work well for faint sources. Calibration typically relies on single dish measurements on strong sources (1Jy) and planets. Alternatively using SiO maser sources and spectrometer could be used.

Yang: New dual pol receiver at Onsala for which antab files can be delivered. On uses chopper wheel calibration / hotload in/out before scan. Can deliver continous Tsys measurements. Gain curve typically flat. Plan to re-determine gain curve.

Brisken: VLBA can do pointing at lower frequency (43 GHz). Weather measurements typically every 120s. GBT typically has problems during daytime due to thermal deformations.