

OAN - Yebes station report

Granada TOG meeting 4 October 2018

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1 VLBI Equipment

Details of the equipment used in EVN observations:

- DBBC2
 - 4 CoMo boards (Unica 4).
 - 4 ADB2.
 - 4 Core2.
 - Internal Fila10G.
 - Software available:
 - DDC:
 - v105_1 (June 10 2015) (v106 available but not adopted).
 - v105e_1 (June 11 2016) (v106e failed to give fringes).
 - PFB:
 - v16_2 (October 13 2017).
 - Fila10G:
 - fila10g_v3.3.3_1 (reported as 2.8.0, December 8 2014).
- Flexbuff
 - 36 disks of 6 TB capacity.
 - Software version: jive5ab : 2.8.1-k : 64bit : dev : flexastro : 15-feb-2017
- We use a Harrobox running Debian Jessie (8.2) as a proxy between the FS and the DBBC to allow concurrent connections to DBBC2. JIVE correlator uses this feature to control the flow of data from the Fila10G when doing eVLBI. This host is in the public LAN but allows connections from the private LAN.

At present time RT40m's spare DBBC2 is on lend to Santa María station in Azores. The DBBC3 is being upgraded at Bonn. A second Flexbuff system with 144 TB of capacity (36 disks of 4 TB each) mainly used for non-EVN experiments is available, as well as a Mark5B+ which is not presently used.

2 Field System

We are running three FS computers:

- RT40m: FS version 9.11.19 on Debian 7.11 Wheezy, kernel 3.2.0-5-686-pae
- RT13.2m: FS version 9.12.11 on Debian Jessie 8.10, kernel 3.16.0-4-686-pa.
- A test computer which can be connected to any of the non-used backends. Debian Jessie and FS 9.11.19

3 EVN observations

These are the statistics of Yebes participation in the EVN during 2018 so far:

EVN session 2018-1:

- M band: 4/5 successfully observed. 3 scans lost from 1 observation.
- C band: 4/5 successful observations. One observation with minor failures due to DBBC error.
- K band: 5/5 successful

EVN session 2018-2:

- C band: 2/2 successful
- S/X: 2/4 successful. A lightning stroke the station, we lost two experiments in consequence.
- K: 11/11 successful

EVN Out of Session: Yebes participated in 10 OoS observations (mostly RA).

EVN eVLBI: 3 of 4 successful observations during 2018. One observation was lost because the receiver warmed up.

4 Other VLBI observations

We regularly run several VLBI programs at Yebes: EVN, IVS (geodetic observations), GMVA (Global millimeter VLBI), and Radioastron observations. Since June 2011 the telescope is managed by operators during 80% of the time. The rest of the time operations are done in an unattended and automatic way.

5 Continuous calibration

Continuous calibration mode (80 Hz applied to a noise diode) works in C, X and K bands.

6 Disk purchases

No disk purchases on 2018.

7 Spares

14 BBCs are available from the VLBA terminal decommissioned on 2014. 3 of them are faulty. We also have some IO Mark5B+ boards and some main boards for the Mark5B+.

We have lent temporarily one Fila10G unit to Torun.

8 Gigabit connection

Yebes is connected to RedIris, the spanish NREN using a 10 Gb/s dark fiber since May 2012. In 2017 we introduced a new Aruba-3810M 10G switch to interconnect all Gigabit systems in the backend room that eliminated the necessity of plug/unplug some of the fibers when switching between recorders.

9 40m radiotelescope

Several holography sessions performed during the year determined that the parabola needed to be adjusted in a big portion of the area of its surface. Panel adjustment tasks just finished last week, and the set of observations to measure the new efficiency are scheduled for the next month.

10 13.2 m radiotelescope

The 13.2m radiotelescope has been taking part in VGOS test observations since April 2016. Current observations with 4 RDBEGs + 1 Mark6 are 24 hour long and are performed every 2 weeks.

At the beginning of the summer the telescope suffered a failure in one of the subreflector motors that forced the antenna to be inactive until last week of August. It has been repaired already and we have performed two successful VGOS observations since then.

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