OAN - Yebes station report – Aug 2011

VLBI Equipment

No changes on the Mark 5B, VLBI terminal.

The dBBC broke in July 2011. After inspection we found that the board that hosts the microprocessor was burnt. HAT-Lab provided a new board and two power supplies. The new board requires new drivers. We are waiting for a new flash card to arrive from MPI to boot the DBBC. The two power supplies, not required to solve out the problem, were returned to MPI.

Field System

No changes since last TOG report: we are still running 9.10.4 on a Debian Lenny host. Installation was not standard.
We have installed a local software to command the DBBC from MPIfR but it has not been tested yet until the DBBC is fully repaired.

VLBI observations

Astronomy observations (traditional and eVLBI) have been performed unattended and checked remotely until the operators arrived at Yebes. 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.

40m radiotelescope

The 40m antenna membrane in the vertex which has been replaced by a new one with less losses. It was known since some months that the membrane had important losses at high frequencies (80 GHz and higher). This replacement was done before the GMVA session in May 2011. See report OAN-2011-4.

We have been suffering an intermittent disruption in the socket communication with the ACU of the antenna. After an extensive and long investigation we have found that the problem resides in the ACU computer and seems to be rather elusive since we have not found yet its causes. A patch was installed in August which bypasses the problem and allows to observe without interruptions. This error is still present in the ACU and we intend to find a definitive solution in the last week of August together with MT-Mechatronics. A description of the problem may be found at report OAN-2011-3.

A new Maser from Timetech was purchased. The maser was installed last february and has been working successfully since then. Report OAN-2011-5 describes the works performed to integrate it in the 40m antenna. The new maser is the current frequency standard since the beginning of August.

A list of tests in preparation for the geodetic CONT11 session next september has been conducted during the the first 2 weeks of August. Results are summarized in report OAN-2011-6

Holography maps have been performed to obtain a map of the main reflector surface. The surface was slightly adjusted on a first iteration to check the validity of the procedure. Only the inner panels were corrected. Prior to the adjustement the RMS error was approximately 450 um. After the first adjustement the surface budget error was approximately 350 um. Currently the surface is being adjusted in its second iteration. We hope to get an average of 250 um after the second adjustement. This would increase the total aperture efficiency from 0.10 (prior to the first adjustement) to 0.25.

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