

Effelsberg Station Report

General Status

Effelsberg has participated in EVN sessions III 2016, which was the only session since the last report and all the e-EVN sessions. Most of the observations were successful. The few losses were due to bad weather, i.e. strong wind and snow.

JIVE noticed a periodic change of the phases in Effelsberg data for some receivers in EVN session II. It was actually also present in RDBE observations with NRAO and e-EVN observations performed around June/July 2015. It turned out that it was the second synthesizer that is used for observations at 3.6cm and 6cm wavelength and depending on the multiplication factor caused phase changes of 60-90 deg with a period of 20 sec. A replacement solved the problem.

Receivers

Developments for a new Q-band receiver are ongoing and the installation is planned for early 2016. The new K-band receiver is now used for VLBI observations with RadioAstron and for future EVN sessions. A new C/X receiver was installed recently in the secondary focus cabin which provides a continues band width between 4 GHz to 8 GHz or 5.3 GHz to 9.3 GHz, depending on the configuration. The receiver has linear polarization and will be primarily be used for spectroscopy and continuum observations. If it is also suitable for VLBI observations will depend on the future capabilities to convert the linear into circular polarization.

New Hardware and Software

The Mark6 recorder that was installed in 2015 run in parallel as a Flexbuff for two sessions now. All recordings were successful, only some scans were lost because of time synchronization problems in the Fila10G. However, also those should be solved now and Effelsberg will use the Mark6 as the primary recorder in the next session, Session I 2016.

A raid of 36 x 4 TB disks (144 TB) was bought and send to JIVE to provide the capacity to e-transfer the data from Session I 2016.

Effelsberg is using the latest software and firmware releases for the Field System, DBBC, Fila10G and Mark5/6 (FS-9.11.8, DBBC DDC V105_1, V105E_1 and PFB V15, Fila10G v4.0_1, and jive5ab-2.7.1). Only the SDK firmware on the Mark5s was not updated and is still SDK-9.2.1. Updating the Mark5C depends on coordination with NRAO and until now the Mark5B+ was too much in use to be updated. This will change when the Mark6/Flexbuff is the main recorder now.

In September a DBBC3 and a 4 GHz wide IF module for the K-band receiver were tested at Effelsberg. A fringe-test with Onsala resulted in good fringes between the DBBC2s, that were used in parallel, and successful autocorrelations between DBBC2 and DBBC3 data at Onsala. The Effelsberg DBBC3 data didn't correlate with any other data for unknown reasons.

Future Plans

Effelsberg is involved in the testing of a proxy server software from JIVE for the communication between the Field System and the DBBC, that would allow JIVE to configure the Fila10G for eVLBI observations. This is a necessary step towards 2 Gbps eVLBI.