

Bonn DiFX correlator report March 2013

DiFX Correlator status and operations

In Bonn all VLBI observations are processed using the **DiFX software correlator**.

The DiFX releases being used presently are 2.1 from May 2012 for production correlation and the development version “trunk”.

A modification of DiFX which will allow to correlate Radioastron data has been finished, and first observations have been correlated. Work is going on to bring the correlation of different sub-band widths into a production environment.

Quick summary:

- 14 Mark 5s can be used for playback from disk modules. In addition data can be played back from presently 5 big RAID systems (~250 TB). In theory this setup allows correlation of significantly more than 20 stations in parallel. The maximum correlated so far was a geodetic observation with 20 stations and an astronomical observation with 14 antennas.
- All Mark 5s can playback all flavours of Mark 5 data (A/B/C).
- All Mark 5 systems have been upgraded to SDK 9 and some to SDK 9.1 which allows the usage of bigger disks.
- An Infiniband 20 Gb/s connection between the Mark 5s and the cluster has been installed. Maximum data rates of about 1.5 Mb/s have been observed (This is a limit of the Streamstor RAID card into the host computer). The stability of the correlation process has been increased significantly by this.
- Data is archived on the new MPIfR archive server in raw format, FITS, and MK IV (if desired). FITS (default) or MK IV formatted data is made available to the PIs. (HOPS software for handling MK IV format can now be installed “at home”.)
- The new database for storing experiment and module information is operational. It might be extended to worldwide tracking of modules.

Capabilities

The capabilities of the DiFX software correlator can be found at http://www3.mpifr-bonn.mpg.de/div/vlbicor/correlator_e.html

Operations

Correlation is much faster with the DiFX correlator compared to the MK IV so that student shifts on weekends and in the night were stopped last summer. Disk turnaround is typically between two sessions. 1/3 of a position is available for correlation supervision.

All data is archived on the new MPIfR archive server. GMVA data is being made available via the NRAO archive after a grace period.

A significant load is expected by Radioastron observations and wideband mm-VLBI in the near future. Also VLBI2010 observations will increase the correlator load in the near future.

Disks

MPIfR bought disks for 7000 € (\cong 64 TB) in 2012 as agreed by the CBD in 2011. A purchase for 2013 has been budgeted.