

# Bonn DiFX correlator report October 2014

## ***DiFX Correlator status and operations***

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

The DiFX release being used presently is 2.3 and for geodesy a slightly newer version. The merging of the special Radioastron version is temporarily on hold due to other commitments of James Anderson.

Quick summary:

- 15 Mark 5s can be used for playback from disk modules. In addition data can be played back from presently 8 big RAID systems (~400 TB). This setup allows correlation of significantly more than 20 stations in parallel.
- All Mark 5s can playback all flavours of Mark 5 data (A/B/C).
- All Mark 5 systems have been upgraded to SDK 9.3a which allows the usage of bigger disks and more than 1024 scans. This was a requirement for the geodetic CONT14 session and very large modules.
- As cluster interconnect Infiniband 20 Gb/s is used Maximum data rates of about 1.5 Mb/s have been observed from the Mark 5s (This is a limit of the Streamstor RAID card into the host computer).
- Data is archived on the 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 be installed “at home”).
- Transfer of GMVA data to the VLBA archive for public access is nearly finished. Old MK4 correlated data is translated to FITS for this.
- Correlation of the 14 day-long CONT14 session with 17 antennas was very successful and could be finished in record time.

## ***Correlator Cluster upgrade***

The HPC cluster which runs the correlator is now 6 to 7 years old. A proposal for a new cluster was successful and new cluster with 1000 to 1500 cores will be installed Q1/2015. We expect an increase in performance by about a factor of nearly 10.

## ***Mark 6 playback units***

2 Mark 6 recorders capable of recording at 16 Gbit/s have arrived. One unit is used for testing the next generation of FiLA10G cards (DBBC3 output interface) which will output up to 32 Gb/s. The 2<sup>nd</sup> unit is being used for testing Mark 6 software and hopefully soon also the Flexbuff software.

## ***Capabilities***

The capabilities of the DiFX software correlator can be found at <http://www.mpifr-bonn.mpg.de/771785/DiFX-CORRELATOR>

## ***Operations***

No backlog exists for geodesy. Radioastron correlation has some backlog and is waiting for new ephemeris data for the satellite from Moscow. 2 EVN Observations are held up due to the PIs request for exorbitant correlation parameters.

## ***Disks***

3 Modules with 96 TB total (4 TB disks) bought for use by the EVN in April 2014. To compensate for EVN disk modules used for Radioastron 5 modules of 32 TB each were added to the EVN pool. Further modules for RA will be contributed before the end of 2014 (all financed by ASC).