Bonn Correlator Report

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Abstract. The correlator at the Max-Planck Institute for Radioastronomy, Bonn has played an important role in European VLBI since the mid-seventies, catering to the needs of astronomers and geodesists. The operation in Bonn has been additionally supported by the Geodetic Institute of the University of Bonn (GIUB) and later by the Institute for Applied Geodesy in Frankfurt (IFAG: now BKG). This report will give a short description of the status and future activities at the Bonn VLBI Correlator.

Playback Recorders

8 of the 9 Metrum/Honeywell playback drives have already been upgraded with Mk4/VLBA style control electronics and thin tape capability; the 9th drive will be finished in February. Due to problems (oscillations) in 3 of the 5 drives with MPIfR modified playback electronics, and in order to prepare for the MK4 correlator (32 tracks) we have started to change these 3 drives to the VLBA/MK4 "standard" read electronics. We expect to have 9 operational playback drives available by the end of February. The Penny&Giles prototype playback recorder has been removed from the correlator.

Figure 1. Playback Recorders (all and one single rec. front)

Throughput

Due to the above mentioned problems and the preparations for the MK4 processor the priorities at the correlator were changed. The highest priority is now preparing the tape drives for the MK4 correlator, the delivery of which is expected in summer or autumn of this year. The number of tape drives that can at present be used for correlation has gone down to 5 or 6. As a consequence of that the throughput went down from 90 to about 60delays in the delivery of replacement heads. We expect to reach about 90throughput again in March using both the MK3A and the old MK3 correlators. The present backlog for astronomical projects is about 3 months, while there is no backlog for the correlation of geodetic observations. History usage of the passed year 1998 was 36/64 percentage (geodesy/astronomy) for the CPU proccessor time.

Operations

The playback quality of thin tape recordings has improved in the last year. It is now comparable to that of thick tape recordings. Log access via the ftp areas at CDDIS (geodesy) and Bologna (astronomy) is routine. Logs are stored on these 2 computers promptly, with few exceptions. NRAO's tape tracking program TRACK is used by all stations now, again with the exception of places where access to the Internet is difficult or impossible. In general tapes arrive at the correlator within 2 weeks after the observation.

EVN Support

EVN in absentia correlation is now supported by Bob Campbell from Dwingeloo. Correlation of EVN projects has been made easier and more reliable by using GPS measured clock and clock rate offsets for the correlation; fringe search is nearly never needed any more for preparing the correlation of EVN observations. The reliability was increased as clock rates and jumps are monitored and compensated.

Figure 2. Mk3A and Mk3 processor

Mark IV Correlator

Haystack's schedule for the installation of the MK4 correlator in Bonn is as follows:

Jan/Feb	Physical configuration of the MK4 correlator is finalised
Jun/Jul	Final testing of the BKG correlation hardware at Haystack Observatory and acceptance from BKG and MPI
Jul	ship all hardware to Bonn (processor, station units, control computer)
Aug	Arrival and installation of correlator by Haystack crew; training of Bonn personnel

Bonn: The upgrade of the 9 tape drives to full MK4 compatibility will have been finished by the end of February. The old MK3 correlator will be removed by the end of May to make space for the MK4 correlator and the station units. In August start correlating with both the MK3A and the MK4 correlator: each with 4 to 5 tape units. After September phase out correlation on the MK3A correlator with end open. Note: the MK3 correlator can still correlate on 1.1.2000.