

Washington Correlator

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Abstract

This report summarizes the activities of the Washington Correlator for the year 2009. The Washington Correlator provides up to 80 hours of attended processing per week plus up to 50 hours of unattended operation, primarily supporting Earth Orientation and astrometric observations. In 2009 the major programs supported include the IVS-R4, IVS-INT, CONT08, APSG, and CRF observing sessions.

1. Introduction

The Washington Correlator (WACO) is located at and staffed by the U. S. Naval Observatory (USNO) in Washington, DC, USA. The correlator is sponsored and funded by the National Earth Orientation Service (NEOS) which is a joint effort of the USNO and NASA. Dedicated to processing geodetic and astrometric VLBI observations, the facility spent 100 percent of its time on these sessions. All of the weekly IVS-R4 sessions, all of the IVS-INT01 Intensives, the APSG and CRF sessions and the entire CONT08 were processed at WACO. The facility houses a Mark IV Correlator.

2. Correlator Operations

- The Washington Correlator continues to operate 80 hours per week with an operator on duty. The correlator has continued to function well unattended, allowing another 40 hours per week, on average, of extra processing. This has also decreased the time it takes to process an R4 or a T2 by one day, and it has allowed more rapid processing of CONT08 sessions.
- The CONT08 session (15 days of continuous observations) was completed in 2009. 12 CONT08 days were processed in 2008 and 3 were completed in 2009, with the entire clean dataset exported at the end of January.
- The correlator staff continues the testing and repair of Mark 5 modules. Not only were failed disks replaced, but some modules were upgraded by the replacement of lower capacity disks with higher capacity disks.
- Prior to June, 2009, Intensive observations from Wettzell were electronically transferred to the Washington area and transported to the correlator. After June 5, 2009, observations from Wettzell were sent directly to the correlator over an Internet 2 connection. This operation saves 1 to 2 days of shipping time.
- A Mark 5B playback unit was added to the correlator complement of Mark 5's, which now allows the correlator to process 11 stations (8 Mark 5A and 3 Mark 5B) simultaneously. In addition, a Mark 5B+ was acquired and is being used to support the data transfers from Wettzell.
- Table 1 lists the experiments processed during 2009.



Figure 1. A view of the Mark IV Correlator. From right, station units, Mark 5B rack, legacy tape drive and central processing unit. More legacy tape drives are beyond the central unit. The Mark 5B+ in the background is used for e-VLBI transfers.

Table 1. Experiments processed during 2009

51	IVS-R4 experiments
2	CRF (Celestial Reference Frame)
1	T2 (Terrestrial Reference Frame)
3	CONT08
208	Intensives
20	Kk-Sv-Wz Intensives

3. Staff

The Washington Correlator is under the management and scientific direction of the Earth Orientation Department of the U.S. Naval Observatory. USNO personnel continue to be responsible

for overseeing scheduling and processing. During the period covered by this report, a private contractor, NVI, Inc., supplied a contract manager and correlator operators.



Figure 2. Harvis Macon keeps an eye on an R4 during processing at the WACO Mark IV Correlator.

Table 2 lists staff and their duties.

Table 2. Staff

Staff	Duties
Dr. Kerry Kingham (USNO)	Head VLBI Operations Division and Correlator Project Scientist
David Hall (USNO)	VLBI Correlator Project Manager
Bruce Thornton (NVI)	Operations Manager
Harvis Macon (NVI)	Lead Correlator Operator
Roxanne Inniss (NVI)	Media Librarian
Kenneth Potts (NVI)	Correlator Operator

4. Outlook

The Washington Correlator plans to upgrade the Mark 5A playbacks to Mark 5B, in coordination with the installation of Mark 5B at the Network Stations. It is expected that the number of playbacks available will increase to 13 (8 Mark 5A and 5 Mark 5B) with the addition of 2 Mark 5B+ before the existing Mark 5A units are converted to Mark 5B.