

# Washington Correlator

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## Abstract

This report summarizes the activities of the Washington Correlator for the year 2005. The Washington Correlator provides up to 80 hours of processing per week, primarily supporting Earth Orientation and astrometric observations. In 2005 the major programs supported include the IVS-R4, IVS-INT, IVS-R1, IVS-T, CONT05 and CRF and CRFD experiments.

## 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 experiments. All of the weekly IVS-R4 sessions, all of the daily intensives, and several IVS-R1 sessions and 8 out of 15 CONT05 days were processed at WACO. The remaining time was spent on terrestrial reference frame and astrometry sessions. The facility houses a Mark IV Correlator.

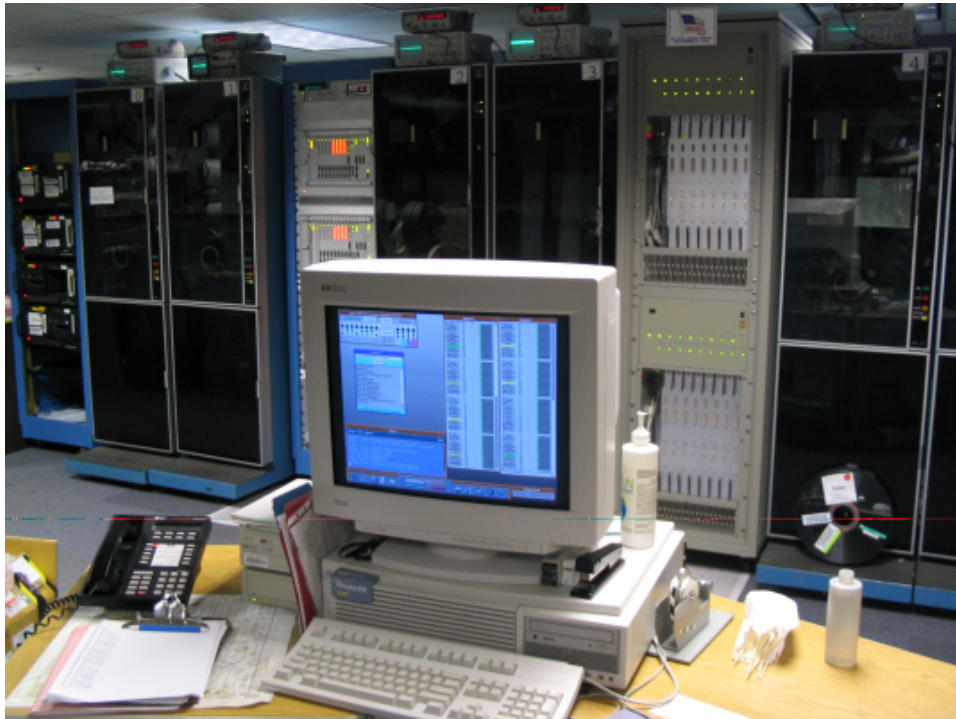


Figure 1. The left half of WACO showing 4 Mark 5A units (left), tape drives, the operator's console, and the central processor (right).

## 2. Correlator Operations

The Washington Correlator sent a Mark 5A unit to Fortaleza Station to upgrade that R4 station to Mark 5 operation. This upgrade allowed the R4s to be all Mark 5A which lowered the processing factor from 1.25 to under 1.0. Thus, the R4s take less time to process at the correlator than they do to observe. This increase in efficiency allowed the correlator hours to be reduced from 136 hours per week to 80 hours per week and still keep up with IVS processing.

The Washington Correlator processed 8 of the 15 CONT05 days, processing 5 of them twice in order to make the processing of the 15 days uniform at all correlators. The processing was still completed by the end of 2005 despite the extra processing and the fact that 3 passes were required for complete processing. Normal rapid processing of the R4s and INTs were not disrupted during this process.

Starting in July, 2005, 2 Intensives per month included Svetloe as well as Wettzell and Kokee in order to characterize the Kk-Sv baseline as a planned alternate to Kk-Wz should Wz not be able to observe. Work continues to find an alternate for Kk should Kk be unable to observe.

The Intensive observations from Wettzell were electronically transferred to the Washington area and transported to the correlator. This operation saved 1 to 2 days in shipping time.

Table 1 lists the experiments processed during 2005.

Table 1. Experiments processed during 2005

50	IVS-R4 experiments + 2 CONT days as Rapids
10	CRF (Celestial Reference Frame)
2	IVS-R1
2	APSG (Asia Pacific)
2	IVS-T (Terrestrial Reference Frame)
8	CONT05 days
226	Intensives
11	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 the scheduling and processing. During the period covered by this report, a private contractor, NVI, Inc., supplied a contract manager and correlator operators. An addition to the staffing this year is Dr. Brian Luzum who is assisting with the review of experiment processing.

Table 2 lists staff and their duties.

## 4. Outlook

The Washington Correlator plans to upgrade the Mark 5A playbacks to Mark 5B coordinated with the installation of Mark 5Bs at the Network Stations. It is expected that the number of

playbacks available will increase to 10 with the addition of 2 Mark 5B units.

Table 2. Staff

<b>Staff</b>	<b>Duties</b>
Dr. Kerry Kingham (USNO)	VLBI Correlator Project Scientist
Dr. Brian Luzum (USNO)	VLBI Correlator Scientist
Bruce Thornton (NVI)	Operations Manager
Harvis Macon (NVI)	Lead Correlator operator,
Roxanne Inniss(NVI)	Media Librarian
Joseph Granderson (NVI)	Correlator Operator
Kenneth Potts (NVI)	Correlator Operator
Firew Waktole (NVI)	Correlator Operator