Washington Correlator

Phillip Haftings and Sara Hardin

Abstract This report summarizes the activities of the Washington Correlator for the years 2023 and 2024. The Washington Correlator provides attended processing during US eastern time zone business hours and unattended processing 24/7, primarily supporting Earth Orientation and astrometric observations.

1 General Information

The Washington Correlator (WACO) is located at, and staffed by, the U.S. Naval Observatory (USNO) in Washington, D.C., USA. The correlator is sponsored and funded by the National Earth Orientation Service (NEOS), a joint effort of USNO and NASA. The facility houses the WACO DiFX software correlator and spends 100 percent of its time dedicated to processing geodetic and astrometric VLBI observations. Sessions processed at WACO include all of the weekly IVS-R4 sessions, all of the IVS-INT-00, IVS-INT-1, and VGOS-INT-A Intensives, and a subset of the IVS-RD, IVS-CRF-DS (southern hemisphere Celestial Reference Frame), and VGOS-OPS sessions. Additionally, the USNO-INT-P sessions provided to the IVS through USNO are correlated at WACO.

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2 Activities During the Past Years

- The Washington Correlator currently houses just the DiFX V2 Software Correlator. The V3 correlator is not expected until late 2026 at the earliest. In the meantime, WACO has started the process of upgrading an internal server as well as public-facing storage.
- WACO's old 2-Gbps network has been upgraded to 10 Gbps. Staff have successfully tested up to 6.5 Gbps, and transfer speeds are now limited by storage write speed.
- WACO now maintains a pair of software and configuration repositories with file processing libraries, clock tracking information, and session codes.
- Table 1 lists the IVS sessions processed during 2023–2024.

Table 1 IVS sessions processed during 2023–2024.

Type	Mode	Number processed
VGOS-INT-A	VGOS	439
VGOS-OPS	VGOS	10
IVS-INT-1	Legacy	464
IVS-INT-00	Legacy	210
IVS-R4	Legacy	100
IVS-CRF-DS	Legacy	8
IVS-RD	Legacy	5
USNO-INT-P	Legacy	306

3 Staff

The Washington Correlator operates under the management and scientific direction of the Earth Orientation Department of the U.S. Naval Observatory. The years 2023–2024 were tumultuous years for the staff at WACO; there have been both losses and new hires. The most difficult loss was that of David Hall, who served as the VLBI Division Chief for over a decade and as a member of USNO for many years beyond. Dave passed away in early January 2024. In his place, Phillip Haftings assumed the Division Chief role temporarily until July 2024, when he was officially hired as the new VLBI Division Chief. In addition, Tim Dorman's contract to investigate cloud correlation concluded in 2023. As a result of a push for more staff, WACO hired two new astronomers in July/August 2023: Dr. Jessica Page and Ethan Rooney. In 2024, Dr. Jessica Page transferred from WACO to another division in USNO's Earth Orientation Department.

Table 2 Staff and their roles during the years 2023–2024.

Staff	**Duties**
David Hall	Chief, VLBI Division (starting)
Phillip Haftings	Astronomer (starting); Chief, VLBI Division (present)
Dr. Mike Dutka	Astronomer, Developer
Sara Hardin	Astronomer
Dr. Jessica Page	Astronomer
Ethan Rooney	Astronomer
Bruce Thornton	Physical Science Technician
Roxanne Inniss	Media Librarian
Contractors	**Company**
Timothy Dorman	CPI

4 Future Plans

USNO is working with NRAO to build the upcoming DiFX V3 Software Correlator, which includes substantial improvements to compute, storage, and network speed. More modest upgrades to the V2 public-facing storage and internal servers are also planned in the interim.