

## International VLBI Service for Geodesy and Astrometry (IVS)

Chair of Directing Board: **Axel Nothnagel** (Austria)

Coordinating Center Director: **Dirk Behrend** (USA)

<https://ivscc.gsfc.nasa.gov>



### Development

The International VLBI Service for Geodesy and Astrometry (IVS) is an international collaboration of organizations, which operate or support Very Long Baseline Interferometry (VLBI) components. IVS was established in 1999 and became a service of IAG that year. In 2000, IVS was recognized as a service of the International Astronomical Union (IAU). In 2013 an agreement was signed between the IVS and the International Science Council (ISC; formerly ICSU) accepting the service as a Network Member of ISC's World Data System (WDS). The IVS interacts closely with the International Earth Rotation and Reference Systems Service (IERS), which is tasked by IAU and IUGG/IAG with maintaining the international celestial and terrestrial reference frames (ICRF and ITRF).

### Mission/Objectives

The objectives of IVS are:

- To provide a service to support geodetic, geophysical, and astrometric research and operational activities.
- To promote research and development activities in all aspects of the geodetic and astrometric VLBI technique.
- To interact with the community of users of VLBI products and to integrate VLBI into a global Earth observing system.

To meet these objectives, IVS coordinates VLBI observing programs, sets performance standards for VLBI stations, establishes conventions for VLBI data formats and data products, issues recommendations for VLBI data analysis software, sets standards for VLBI analysis documentation, and institutes appropriate VLBI product delivery methods to ensure suitable product quality and timeliness. IVS closely co-

ordinates its activities with the astronomical community because of the dual use of many VLBI facilities and technologies for both astronomy and astrometry/geodesy.

### Products

VLBI data products currently available are

- All components of Earth orientation
- Terrestrial reference frame
- Celestial reference frame
- Tropospheric parameters
- Baseline lengths

All VLBI data products are archived in IVS Data Centers and are publicly available.

### Structure / Board / Members

IVS accomplishes its goals through Permanent Components. As of 2020 the IVS has:

- 34 Network Stations, acquiring high performance VLBI data.
- 3 Operation Centers, coordinating activities of Network Stations.
- 8 Correlators, processing acquired data, providing feedback to stations and providing processed data to analysts.
- 5 Data Centers, distributing products to users, providing storage and archiving functions.
- 29 Analysis Centers, analyzing the data and producing results and products.
- 7 Technology Development Centers, developing new VLBI technology.
- 1 Office for Outreach and Communications, promoting knowledge of the VLBI technique and IVS activities.
- 1 Coordinating Center, coordinating daily and long-term activities of IVS.

All together there are 88 Permanent Components, representing 42 organizations in 21 countries, and ~315 individuals who are Associate Members. The 42 organizations that support IVS components are IVS Member Organizations. There are also 6 Affiliated Organizations that cooperate with IVS on issues of common interest but do not support an IVS component.

In addition, the IVS has a Directing Board to determine policies, standards, and goals. The current IVS Directing Board consists of the following members (alphabetical):

1. *J. Anderson* (Germany) Analysis and Data Centers Representative
2. *D. Behrend* (USA) Coordinating Center Director
3. *P. Charlot* (France) IAU Representative
4. *F. Colomer* (Spain) Network Stations Representative
5. *A. de Witt* (South Africa) At Large member
6. *J. Gipson* (USA) Analysis Coordinator
7. *R. Haas* (Sweden) IERS representative
8. *D. Hall* (USA) Correlators and Operation Centers Representative
9. *H. Hase* (Argentina) Network Stations Representative
10. *E. Himwich* (USA) Network Coordinator
11. *N. Kotary* (USA) Office for Outreach and Communications
12. *J. Li* (China) Member-at-Large
13. *E. Nosov* (Russia) At Large member
14. *A. Nothnagel* (Austria) Analysis and Data Centers Representative
15. *C. Rusczyk* (USA) Technology Development Centers Representative
16. *O. Titov* (Australia) IAG Representative
17. *G. Tuccari* (Italy) Technology Coordinator

The Office for Outreach and Communications was created in 2019 to establish and maintain an outreach program that would promote knowledge of the VLBI technique and the activities of the IVS and foster an understanding of the importance of its products for the scientific communities and the general public. The outreach Web pages are being established under the URL <https://vlbi.org>, and fledgling Twitter and Instagram accounts have been created. A new IVS logo was designed, replacing the 20-year-old logo.

## Committees and Working Groups

IVS currently has one active working group, one task force, and three committees:

- Working Group 7 on Satellite Observations with VLBI.
- Task Force on Seamless Auxiliary Data.
- Observing Program Committee (OPC).
- Committee on Training and Education (CTE).
- VGOS Technical Committee (VTC).

## Publications and Meetings

IVS publishes a Biennial Report, a thrice-annual Newsletter, and Proceedings from its biennial General Meeting. All publications are published electronically on the Web site. IVS holds a General Meeting every two years, a Technical Operations Workshop every two years, and an Analysis Workshop every year. Information about all IVS activities is available at the IVS Web site under the URLs <https://vlbi.org> and <https://ivscc.gsfc.nasa.gov>.