

III.1 VLBI Coordination Centre

IVS Organization The year 2000 was the first full year of operation for the International VLBI Service for Geodesy and Astrometry (IVS). IVS was recognized as a service of the International Astronomical Union (IAU). In 1999 IVS had been recognized as a service of the International Association of Geodesy (IAG). IVS held its first General Meeting in 2000, with more than 120 participants representing almost all components of the IVS.

Network Stations A total of 740 station days were used in 125 geodetic sessions during the year, for an average of 2.4 days per week observing. Observing was reduced compared to 1999 because we had to accommodate the phase-in of the new Mark IV correlators. The major observing programs during 2000 were:

NEOS-A Weekly 24-hour measurements of EOP were continued by the U.S. National Earth Orientation Service (NEOS), a joint effort of USNO and NASA. The Green Bank (USA, operated by USNO) station was closed mid-year and was replaced by Algonquin Park (Canada, operated by Natural Resources, Canada). Daily 1.5-hour UT1 Intensive measurements continued on the other four days of the week. As of July 1, 2000, Kokee Park (USA, operated by USNO and NASA) replaced Green Bank in the Intensive measurements, and the starting time of the Intensives was fixed at 18:30 UT instead of shifting by a sidereal amount each day.

CORE The CORE (Continuous Observations of the Rotation of the Earth) program, coordinated by NASA, observed monthly CORE-A sessions simultaneous with NEOS for the first half of the year and then began the "true" CORE observations with CORE-1 (Mondays) and CORE-3 (Wednesdays) as monthly sessions. CORE-1 and CORE-3 recorded at 128 Mb/s, double the standard bandwidth. These modes can only be processed by the Mark IV correlators.

VLBA The Very Long Baseline Array (VLBA), operated by the National Radio Astronomy Observatory (NRAO) continued to allocate six observing days for astrometry/geodesy. These sessions included the 10 VLBA stations plus up to 10 geodetic stations, providing state-of-the-art astrometry as well as information for mapping ICRF sources. Additional sessions were scheduled for maintenance of the ICRF in the southern hemisphere.

Europe The European geodetic network, coordinated by the Geodetic Institute of the University of Bonn, continued its series at a reduced

level of seven sessions. These sessions were aimed at studies of vertical motions within Europe.

IRIS-S Monthly 24-hour sessions were continued to be coordinated and correlated by the Geodetic Institute of the University of Bonn with observatories in South Africa (Hart RAO), Brazil (Fortaleza), Europe (Wetzell) and North America (Westford, Gilcreek) for stabilization of EOP and TRF determinations. The IRIS-S series (International Radio Interferometric Surveying - South) started in early 1986 and is now the longest running VLBI observing series.

APSG The Asia-Pacific Space Geodynamics (APSG) Project sponsored two sessions.

JADE The Japanese Dynamic Earth observation by VLBI (JADE) experiments began in February and had quarterly sessions. These sessions include the dedicated 32-m dish at Tsukuba and were designed to fix the domestic network within the ITRF.

Syowa The National Institute for Polar Research (NIPR) continued its sessions that included the Syowa station in Antarctica. The data were recorded with K4 and S2 and processed at the Mitaka (Japan) correlator.

COHIG BKG continued its sessions involving the O'Higgins station in Antarctica. Two campaigns were held, one in February and the other in October. Equipment and antenna problems plagued the latter campaign.

JPNTI The Geographical Survey Institute (GSI), Japan, sponsored five "ties" sessions designed to provide precise geodetic ties between the Tsukuba station and the Keystone network.

Correlators The new Mark IV correlators at Haystack Observatory (USA), the U.S. Naval Observatory (USA), and at Max-Planck Institute for Radioastronomy (Germany) became operational in early 2000. The start-up period for the new correlators was slow: the initial processing of a 24-hour session took nearly a week. Software enhancements and some clever work on the problem-plagued station units steadily reduced the processing time to about three days as of the end of the year. Additional significant enhancements and improvements are anticipated during the next year, with the goal being 1–2 days processing for each 24-hour session.

Data Centers The IVS Data Centers continued to receive new data bases throughout the year. The Data Centers increased their VLBI data holdings

in 2000, although all of the historical data bases had not been submitted to the Data Centers as of the end of the year. This project should be completed during 2001.

Analysis Products

The first IVS Analysis Workshop was held on the last day of the first General Meeting. The Analysis Coordinator led discussions of standards, models, and contributions of the various Analysis Centers.

The objective of providing high-quality EOP derived by VLBI is met by regular VLBI data analysis by IVS Analysis Centers and by rigorous combination of their results by the IVS Analysis Coordinator. In late 2000, the U.S. Naval Observatory ceased submission of VLBI analysis products and Goddard Space Flight Center took over this responsibility. As of year end, there were regular submissions of EOP results from 24-hour and from 60-minute sessions to the IVS Data Centers by four IVS Analysis Centers: Bundesamt für Kartographie und Geodäsie, Leipzig, Germany; Institute of Applied Astronomy, St. Petersburg, Russia; St. Petersburg University, St. Petersburg, Russia; and NASA Goddard Space Flight Center, USA. The Analysis Coordinator began a routine service to compare and later combine the four contributions into a combined IVS product.

Starting on October 1, 2000 the individual EOP results from weekly 24-hour network sessions (NEOS network) are processed further in a combination procedure at the IVS Analysis Coordinator's office in order to generate a combined IVS EOP product. For polar motion and UT1-UTC series, it is intended that long term consistency is maintained with the C04 series of the International Earth Rotation Service (IERS). The results of the combinations are regularly updated. They are available both graphically and numerically on the IVS Analysis Coordinator's web page via the IVS Home page at <http://ivscg.gsfc.nasa.gov> or directly from <http://giub.geod.uni-bonn.de/vlbi/IVS-AC>. The combined EOP series may also be retrieved by anonymous FTP from one of the IVS Data Centers (e.g. <ftp://hpiers.obspm.fr/ivs/ivsproducts/eops>).

Outlook

During 2001, IVS will hold its second Analysis Workshop and publish the 2000 Annual Report. The first Technical Operations Workshop will be held at Haystack Observatory with the purpose of training operations staff. IVS will actively participate in ongoing discussions about VLBI observing programs and support by the international community for increasing observing in the CORE program.

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