

The Bonn Geodetic VLBI Operation Center

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Abstract

In 2004 the GIUB Operation Center has continued to carry out similar tasks of organizing and scheduling various observing series as in 2003.

1. Center Activities

The GIUB VLBI Operation Center is located at the Geodetic Institute of the University of Bonn, Nussallee 17, D-53115 Bonn, Germany. It has been organizing and scheduling VLBI observing sessions for more than twenty years. The observing series organized and scheduled in 2004 are the same as in 2003:

- **Tsukuba - Wettzell UT1-UTC K4 Intensive Series**

The Tsukuba - Wettzell Intensive series for monitoring UT1-UTC has been continued and expanded as a joint project of the Bundesamt für Kartographie und Geodäsie (BKG, Germany), the Geographical Survey Institute (GSI, Japan) and the Geodetic Institute of the University of Bonn (GIUB, Germany).

Regular one hour sessions have been observed almost every Saturday in 2004. Starting on August 29th, 2004 a second INT2 session per week has been established on Sundays. One Sunday session per month is observed as eVLBI session to test and evaluate the procedure. Based on the experience from almost two years of Wettzell - Tsukuba Intensives the schedule design and strategy have been refined in close collaboration with the Goddard Space Flight Center and the GSI correlator.

In order to assess the accuracy of UT1-UTC determined with both Intensive series (INT1 and INT2), two special 24-hour Research and Development experiments (RD0404 and RD0405) have been carried out. In the first session Wettzell and Kokee Park observed 24 consecutive single-baseline sessions while 6 other globally distributed stations observed a normal 24-hour session. In the second session the same procedure was repeated for the Wettzell - Tsukuba baseline. Since the UT1 results of a global multi-baseline session are expected to be better by a factor of 4-6 than those of single-baseline Intensive observations, the comparison will provide information about the accuracy level of the Intensive UT1 results and on consistency questions. A third 24-hour R&D session (RD0408) was scheduled for testing strategy improvements of the Intensive sessions. Here the 24 consecutive Intensive sessions have been observed using the 1 Gb/sec technology and a different scheduling procedure.

- **IVS-T2 series**

This series is being observed roughly once per month (11 sessions in 2004) primarily for maintenance and stabilisation of the VLBI terrestrial reference frame as well as for Earth rotation monitoring as a by-product. Each station of the global geodetic VLBI network participates several times per year in the T2 sessions. The IVS Observing Program Committee (OPC) decided to enlarge the T2 sessions from 8 or 9 stations to 16 to 20 for a stronger and more robust determination of the TRF. The scheduling of these sessions has to take into

account that a sufficient number of observations is planned for each baseline of these global networks. The experience from the processing of these experiments has confirmed that the Mark IV correlators can efficiently handle large sessions requiring multiple passes when data is recorded predominantly with Mark 5 units.

- **Measurement of Vertical Crustal Motion in Europe by VLBI (EUROPE)**

Four sessions with Ny-Ålesund, Onsala, Wettzell, Simeiz, Madrid (DSS65), Yebes, Medicina, Matera, Noto, Svetloe, and Effelsberg (participated once) have been scheduled for precise station coordinate determination and long term stability tests. MPIfR operated a Water Vapor Radiometer at Effelsberg during the last Europe session.

- **Southern Hemisphere and Antarctica Series (OHIG):**

Four sessions with the Antarctic stations Syowa (Japanese) and O'Higgins (German) plus Fortaleza, Hobart, Kokee, HartRAO and DSS45 have been organized for maintenance of the VLBI TRF and Earth rotation monitoring. O'Higgins is also included in the T2 sessions.

2. Staff

Table 1. Personnel at GIUB Operation Center

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On July 1, 2004, Axel Nothnagel handed over the responsibility for scheduling the Europe sessions to Arno Mueskens. Arno is also responsible for the T2 and the OHIG sessions. Dorothee Fischer organized the Tsukuba - Wettzell series.