

Analysis Coordinator Report

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Abstract

IVS analysis coordination issues in 2003 are reported here.

1. General Issues

The “Fourth IVS Analysis Workshop” was held at Observatoire de Paris in Paris, France, April 3 - 4, 2003. Detailed information on the presentations and discussions can be found under <http://giub.geod.uni-bonn.de/vlbi/IVS-AC>.

2. IVS Operational Data Analysis and Combination

2.1. Terrestrial Reference Frame

In late 2002 it became evident that the ITRF2000 coordinates and velocities [1] of some of the VLBI stations regularly used in IVS-R1 and -R4 observing sessions did not match VLBI observations accumulated up to late 2002 [2]. Consequently the use of ITRF2000 as a fixed terrestrial reference frame (TRF) lead to significant distortions in some of the EOP series submitted by IVS Analysis Centers and in the combined IVS EOP series. In addition the site of GILCREEK (Fairbanks) was affected by an earthquake in October 2002. For these reasons a conventional VLBI terrestrial reference frame (VTRF2003) was developed with its axis and geocenter definition closely aligned to ITRF2000 but with modifications of some of the station coordinates and velocities (Nothnagel, 2003).

2.2. IVS EOP Series

Early in 2003 routine analysis and combination of the earth orientation parameters (EOP) series submitted by the six IVS Analysis Centers has seen a change with respect to the underlying terrestrial reference frame. Until the end of 2002 the combined EOP series were closely linked to the ITRF2000. Owing to the deficiencies of ITRF2000 listed above, VTRF2003 was used as the TRF for a consistent alignment of the TRF and the IVS EOP series.

Since the end of 2003 a seventh series provided by Sergei Bolotin from the Main Astronomical Observatory Kiev, Ukraine, is regularly submitted to the IVS Data Centers. First comparisons with the combined series have been carried out.

On January 1, 2003, the IAU2000 resolutions were planned to take effect. However, some of the numerical constants of the IAU2000 precession, nutation and non-rotating origin models had not been finalized early enough. Therefore, modifications in the VLBI analysis software packages for the IAU2000 resolutions had not yet been completed for a timely start of producing the new type of EOP. In order to provide celestial pole offsets in the new paradigm (X, Y) a conversion program was developed on the basis of software kindly provided by Christian Bizouard, Observatoire de Paris. Consequently, the rapid service EOP series (e. g. `ivs03r1e.eops`) as well as the complete (since 1979) IVS series are routinely complemented by the files `ivs03r1X.eops` and `ivs03q1X.eops`

which contain celestial pole offsets (X , Y) instead of the classical nutation offset $d\psi$, $d\epsilon$ w.r.t. to IAU1980. More details can be found in the proceedings of the Third IVS General Meeting, Ottawa, Canada, February 9 - 11, 2004.

References

- [1] Altamimi, Z., P. Sillard, C. Boucher (2002): *ITRF2000: A new release of the International Terrestrial Reference Frame for earth science applications*; JGR, Vol. 107, No. B10, 2214, doi:10.1029/2001JB000561
- [2] Nothnagel A. (2003) *VTRF2003: A Conventional VLBI Terrestrial Reference Frame*; In: Proceedings of the 16th Working Meeting on European VLBI for Geodesy and Astrometry, held at Leipzig, May 09-10, 2003, edited by W. Schwegmann and V. Thorandt, Bundesamt für Kartographie und Geodäsie, Frankfurt/Leipzig, 2003, p. 195-205 (web-reference: <http://giub.geod.uni-bonn.de/vlbi/IVS-AC/vtrf2003/vtrf2003.html>).