FFI Technology Development Center - Software Development

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Abstract

FFI's contribution to the IVS as a Technology Development Center focuses primarily on the development and validation of the GEOSAT software for a combined analysis at the observation level of data from VLBI, GPS and SLR. This report shortly summarises the latest improvements of the GEOSAT software. FFI is currently an Analysis Center for IVS and ILRS, and a Technology Development Center for IVS.

1. The GEOSAT Software

FFI's contribution to the IVS as a Technology Development Center focuses primarily on the development and validation of the GEOSAT software for a combined analysis at the observation level of data from VLBI, GPS and SLR. The advantages of the combination of independent and complementary space geodetic data at the observation level is discussed in Andersen ([1]). After five years of development and extensive validation we are proud to announce that a major revision and extension of the GEOSAT software has been completed. The most important changes implemented have been described in recent IVS Annual Reports. New in 2008 is ambiguity resolution of undifferenced GPS data. Only resolved data are used in the analysis, which has reduced the number of GPS stations in the solution for each arc from aproximately 175 to 135. The actual stations involved in an arc change in general from day to day. Another extension is that the rates of the Earth orientation parameters are estimated. In 2008 the focus has been on the application of GEOSAT to real data. The status of this work is described in the FFI Analysis Center report.

We hope to include space-bourne gravity (accelerometer, gradiometer, sat-sat range/doppler, altimetry etc.) in GEOSAT for a simultaneous analysis using VLBI, SLR and GPS. This extension will be made possible by a close collaboration between Statens Kartverk and FFI.

2. Staff

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References

[1] Andersen, P. H. Multi-level arc combination with stochastic parameters. Journal of Geodesy (2000) 74: 531-551.