4 Third GGOS Unified Analysis Workshop

After the GGOS Unified Analysis Workshop (UAW) in Monterey, California, USA, in December 2007, a Follow-Up Meeting in Vienna in April 2008, and the Second UAW in San Francisco, California, in December 2009, a Third GGOS Unified Analysis Workshop was organized at the ETH Centre main building in Zürich, Switzerland, September 16–17, 2011. As in the case of the other UAWs, the participation in the UAW 2011 was based on invitation, i.e., the IAG Services decided on the persons to represent them during the workshop.

Workshop Scope and Goals

An important goal of GGOS is to advance the combination and integration of the various space and in-situ geodetic techniques. This goal can only be achieved with the help of all the IAG Services, and especially the IERS and IGFS.

Even if considerable progress has been made in the effort to rigorously combine the various space geodetic techniques (e.g. with the realization of ITRF2008, making use of a new approach based on time series of weekly/session SINEX files), there are still many deficiencies, inconsistencies and systematic effects to be addressed.

The workshop was intended to be a forum for the exchange of information and results concerning both,

- problems common to more than one service and
- problems specific to an individual service.

For a successful combination of the space geodetic techniques, experts of a certain technique have to be familiar with the critical issues of the other techniques. Therefore, the workshop was aimed at increasing the common understanding of the individual techniques as they contribute to GGOS.

The workshop was organized in four sessions. Their titles, chairs, and goals were the following:

Session 1: Products by the Services, Filling the GGOS Portal

Chaired by B. Richter and C. Noll

Goals:

- Approach to fill the GGOS Portal with service products: methods and metadata
- Imbedding of GGOS portal into international programs like GEOSS Data-Core

Presentations:

- Position paper / introduction (B. Richter, C. Noll)

- IDS, products and service status (L. Soudarin)
- ILRS products, standards, modeling (E. Pavlis)
- ILRS data QC, data flow, ... (H. Müller)

Session 2: Modelling Based on External Data (Atmosphere, Ocean, ...), Modelling Deficiencies and Standards

Chaired by T. van Dam, J. Böhm, and D. Angermann

Goals:

- Data from atmosphere, hydrology, ocean, ...
- Biases of individual techniques, systematic effects
- Standards and conventions

Presentations:

- Position paper / introduction (T. van Dam, J. Böhm, D. Angermann)
- VLBI atmospheric loading comparison: observation level versus daily; reference pressure for atmospheric loading (J. Böhm)
- Reference pressure used for pressure loading computation (D. MacMillan)
- Atmospheric pressure loading (R. Dach)
- Hydrological loading (D. MacMillan)
- Update on ray-traced delays (J. Böhm)
- Correcting met data in VLBI data analysis (D. MacMillan)
- Vertical deformations from homogeneously processed GRACE and global GPS long-term series (P. Steigenberger)
- Geophysical fluids modeling (R. König)
- GGOS Bureau on Standards (D. Angermann)
- SLR Systematics (C. Luceri)
- VLBI telescopes and gravitation effects (A. Nothnagel)
- Impact of orbit modeling deficiencies (U. Hugentobler, C. Rodríguez)

Session 3: ITRF 20xx and Other Combined Products

Chaired by Z. Altamimi, M. Seitz, and R. Biancale

Goals:

- SINEX issues: development of SINEX for more complex combination strategies
- ITRF20xx: modelling and parameterization for the next ITRF solution
- Combination strategies: observation level, weighting, ...
- Other combined products

Presentations:

- Position paper / introduction (Z. Altamimi, M. Seitz, R. Biancale)
- SINEX (D. Thaller)
- ITRF combination issues (Z. Altamimi)
- Recent validation of the ITRF (X. Wu)
- Seasonal geocenter motion from space geodesy and models (J. Ries)
- Consistent modeling/estimation of Earth rotation, gravity, and geometry (R. Gross)
- Simultaneous Adjustment of TRF and CRF (M. Seitz)
- LLR contribution to long-term EOP variations and celestial reference frames (J. Müller)
- ILRS combination products (C. Sciarretta)
- Status, results, challenges of the Combination on the Observation Level (COL) (R. Biancale)

Session 4: Co-location on Ground and in Space, GGOS Core Sites

Chaired by H. Schuh, M. Pearlman, and E. Pavlis

Goals:

- Co-location on ground: new technologies, twin telescopes, GNSS antenna arrays
- Co-location on satellites: problems with existing co-location, new satellite missions (GRASP), co-location on GNSS
- Discrepancies in local ties
- GGOS core sites
- Twin telescopes, kHz laser, multi-frequency GNSS

Presentations:

- Position paper / introduction (H. Schuh, M. Pearlman, E. Pavlis)
- GRASP mission status and insights (Y. Bar-Sever)
- The next generation timing system at the Geodetic Observatory Wettzell (goals and prospects) (U. Schreiber)
- VLBI for Space Applications (H. Schuh, L. Plank, C. Schönberger, J. Böhm)
- GNSS/SLR combination with co-location on satellites (D. Thaller)
- SLR target signature model improvements, SLR and co-locations with gravity measurements (G. Appleby)
- Observation of GLONASS satellites with VLBI (R. Haas)

- NASA Space Geodesy Program at GGAO (C. Ma)
- New options with twin telescopes in VLBI (A. Nothnagel)

A discussion with a wrap-up and outlining Action Items, chaired by M. Rothacher, concluded the workshop.

The detailed programme, the position papers of the sessions, the presentations, and the Action Items are available at <http://www.iers.org/UAW2011>.

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