

4 Unified Analysis Workshop

The 4th Unified Analysis Workshop (UAW) was held on June 27–28, 2014 at the California Institute of Technology in Pasadena, California, USA. It was organized mainly by the IERS Analysis Coordinator and the IERS Central Bureau and co-sponsored by GGOS.

Aims of the workshop and issues to be addressed

The following topics were the main ones to be addressed at the Unified Analysis Workshop. Papers were invited that would address these areas and follow-up after the workshop should lead to resolution or a better understanding of the issues. There is no specific order to the issues listed below but some are more critical to be addressed than others.

- (1) ~1 ppb scale difference between VLBI and SLR. This issue is critical to the ITRF realization and should be addressed as thoroughly as possible.
- (2) Antenna phase center models for DORIS systems. The recent implementation of phase center models for the DORIS ground transmitters has increased the scale difference between DORIS results and the ITRF2008 scale. It is likely this difference will persist with ITRF2013 as well.
- (3) Time variable gravity field effects (DORIS LEO satellites). Although the IDS raised this issue, it also has impacts on the ILRS and even GNSS orbits could be affected by time variable low degree gravity field coefficients.
- (4) Sub-daily loading and S1/S2 loading. Two issues are involved here: (a) the coefficients of the S1 and S2 loading signals and how they vary during the year, and (b) the effects of any remaining sub-daily variations after the S1 and S2 terms are removed.
- (5) Update time scales for atmospheric and hydrographic loading: Frequency dependence and signal to noise ratio of loading?
- (6) Diurnal and Semidiurnal EOP variations. Impact of new models available from the IVS and how these model impact geodetic parameter estimates.
- (7) EOP parameterization for high-time resolution representation: Is piece-wise linear adequate for current accuracies?
- (8) Collocation issues, ground- and space-based: Assessment of where we stand at the moment.
- (9) Monument stability (large and small, physical and electrical): UNAVCO and NASA SGP have been studying this issue and there are measurements that try to address this issue.

- (10) Intersystem observations (e.g. VLBI of satellites, SLR of GNSS systems): Assessment of current status, future prospects and likely impacts on geodetic parameter estimates.
- (11) Error models for data and parameter estimates: What are the impacts and best methods for determining correlations within and between geodetic systems and how do account for these correlations so that error estimates on geodetic parameters are more robust and realistic?
- (12) Unification of gravity contributions: How do we start addressing the integration of gravity services with the geometric services to ensure consistent models and results?
- (13) Combination at the Observation level results. Update on current status and long term impact of these approaches.

Friday, June 27

Schedule of Talks

Session 1: VLBI/SLR scale I

Zuheir Altamimi: Current estimates of scale differences between techniques

John Ries: The Scale of the Terrestrial Reference Frame from VLBI and SLR

Johannes Boehm, Hana Krana, and Matt King: GIA effects on VLBI scale rate

Erricos C. Pavlis, V. Luceri, M. Kuzmicz-Cieslak, and K. Evans: Modeling Changes for the ILRS Reanalysis for ITRF2013

Session 2: VLBI/SLR scale II

Dan MacMillan: VLBI Scale Effects

Vincenza Luceri, B. Pace, E. Pavlis, and G. Bianco: SLR systematics and TRF scale

Graham Appleby and Jose Rodriguez: Accuracy assessment of the ILRS network and potential impact on ITRF scale

A. Auriol, F. Boldo, C. Jayles, and C. Tourain: DORIS Ground Antenna Characterization

Saturday, June 28

Session 3: Geophysical Fluids I EOP and Loading

Daniela Thaller, Ole Roggenbuck, Gerald Engelhardt, and Sonja Geist: Geophysical fluids: Models and their impact on space-geodetic solutions

John Gipson: High Frequency Tidal EOP from Space Geodesy and Ocean Modeling

Jan M. Hagedoorn, H. Schuh, M. Madzak, and W. Bosch: Short Period Ocean-Tidal variations in Earth rotation

Session 4: Geophysical Fluids II S1/S2

Shailen Desai, Willy Bertiger, Bruce Haines, and Richard Ray: Self-Consistent Treatment of Tidal Variations in the Geocenter for Satellite Geodesy

Johannes Böhm, Hana Krásná, and Michael Schindelegger: S1/S2 Loading Effects

Session 5: Analysis methods

Richard Biancale, Daniel Gambis, Manuela Seitz: After 4 years of COL activities

Frank G. Lemoine: Time-variable gravity effects on LEO satellites

John Gipson: What Do Our Time-Tags Refer to?

Session 6: Monument Stability

Jérôme Saunier: Monument Stability: DORIS Network Experience Feedback

Thomas Herring: UNAVCO/GGAO monument study

Workshop website and recommendations

The workshop program, summary, and presentations are available online at <<http://www.iers.org/UAW2014>>. For a list of recommendations from this UAW see the report of the IERS Analysis Coordinator in Chapter 3.3 or the UAW website.

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