3.7 IERS Working Groups

3.7.1 Working Group on Site Survey and Co-location

The working group is concerned with local tie surveying, i.e. determining the vectors between stations' geometric reference points (GRP), their relations to geodetic site markers and temporal and spatial correlation and evolution. The working group also utilizes geometric measurement techniques to isolate station-specific geometric variations in order to quantify and improve the knowledge of such variations with the objective to remove systematic technique biases and create a coherent geodetic system on the observational level. The working group covers practical (i.e. surveying and data exchange) as well as theoretical issues.

At the Unified Analysis Workshop in Paris, the guidelines for the coming years stated that it is more beneficial for the coming ITRFs to survey the GRP vectors at sites that have not been measured, rather than to reiterate measurements at those sites with existing ties. Other desired focus areas were also explicitly stated (see Section 4).

Complementary to the GRP relationships, the structural deformations of the Onsala 20m VLBI telescope were quantified and reveal internal properties that traditional local tie surveying techniques are unable to identify. Similar measurements should be performed also at other sites to capture local characteristics of the different stations.

The IERS Technical Note No. 39, "IGN best practice for surveying instrument reference points at ITRF co-location sites", was published, reflecting IGN's comprehensive experience from surveying at different sites. Also, the St. Croix site has been surveyed by the NGA and the local tie data been made publicly available.

Publications

Gross R., T. Herring. Unified Analysis Workshop July 2017 Paris, France. http://ggosdays.com/media/filer_public/71/81/718149fd-b295-43dd-b82e-d01cacc8363e/uaw2017_report_v4.pdf

Haas R., G. Elgered (eds.). Proceedings of the 23rd European VLBI Group for Geodesy and Astrometry Working Meeting, May 2017 Gothenburg, Sweden. http://www.oso.chalmers.se/evga/23_EVGA_2017_Gothenburg.pdf

- Bergstrand S., R. Haas, M. Herbertsson, C. Rieck, J. Spetz, C.-G. Svantesson. Geometric Variations of a Geodetic Radio Telescope
- Lösler M., C. Eschelbach, R. Haas. Unified Model for Surface Fitting of Radio Telescope Reflectors
- Nickola M., A. de Witt, H. Krásná, C. Jacobs, L. Combrinck, J. Böhm. HartRAO Antenna Axis Offset and its Effect on Troposphere Modelling and Antenna Coordinates

Holst C., D. Schunck, A. Nothnagel, R. Haas, L. Wennerbäck, H. Olofsson, R. Hammargren and H. Kuhlmann. Terrestrial Laser Scanner Two-Face Measurements for Analyzing the Elevation-Dependent Deformation of the Onsala Space Observatory 20-m Radio Telescope's Main Reflector in a Bundle Adjustment. Sensors, 17(8), https://doi.org/10.3390/s17081833

Poyard J.-C., X. Collilieux, J.-M. Muller, B. Garayt and J. Saunier. IGN best practice for surveying instrument reference points at ITRF co-location sites. IERS Technical Note 39, https://www.iers.org/IERS/EN/Publications/TechnicalNotes/tn39.html?nn=94912

Co-location survey: online reports http://itrf.ign.fr/local_surveys.php

- Fancher K.L., B. Erickson. St. Croix co-location survey, May 2017

Sten Bergstrand