3.7 IERS Working Groups

3.7.1 Working Group on Site Survey and Co-location

Focus of the latest years have been directed towards deformation studies of VLBI reflectors, and resulted in a set of articles significantly enhancing the knowledge of individual telescopes. These studies have been able to separate the internal deformation parameters of the VLBI telescopes, aliasing as several millimetres movements of the telescope in previous and current analysis (undetected in “classic” local tie measurements). In order to get full benefit of these measurements, more telescopes need to be measured – of particular urgency are those telescopes about to be decommissioned (as their time series will be of little use for future analysis unless the telescopes get characterized). This is a maintenance issue for the telescope operators and the geodetic society, and a requirement to fulfil the GGOS/VGOS objectives.

Such activities are being undertaken, and we foresee more publications in 2019. For example, first photogrammetric deformation analysis measuring focal-length variations of VGOS telescopes using unmanned aerial systems were performed. Members of the WG also participated in a successful bid “Large-scale dimensional measurements for geodesy” (GeoMetre, 18SIB01) in the European Metrology Programme for Innovation and Research (EMPIR), commencing in 2018 and running for three years.

Publications related to the WG objectives

GeoMetre Project, Large-scale dimensional measurements for geodesy. https://www.euramet.org/research-innovation/search-research-projects/details/project/large-scale-dimensional-measurements-for-geodesy/

Holst C., T. Medić, H. Kuhlmann. 2018. Dealing with systematic laser scanner errors due to misalignment at area-based deformation analyses, Journal of Applied Geodesy 12(2), https://doi.org/10.1515/jag-2017-0044

IVS 2018 General Meeting Proceedings “Global Geodesy and the Role of VGOS – Fundamental to Sustainable Development”, edited by Kyla L. Armstrong, Karen D. Baver and Dirk Behrend. NASA/CP-2019-219039, 2019, online: https://ivscc.gsfc.nasa.gov/publications/gm2018/

- Cornelia Eschelbach et al.: Extension and Optimization of the Local Geodetic Network at the Onsala Space Observatory
- Torben Schüler et al.: LEVIKA SBA – Wettzell Radio-Telescope Positioning With a Tailor-Made Analysis Software

- Torben Schüler et al.: Local Radio Telescope Ties from the Wettzell Precision Engineering Surveying Network
- Marisa Nickola et al.: Antenna Parameters and Local Tie between HartRAO 15-m and 26-m Antennas
- Swetlana Mähler et al.: Permanent Reference Point Monitoring of the TWIN Radio Telescopes at the Geodetic Observatory Wettzell
- Iván Herrera Pinzón et al.: Analysis of the Short VLBI Baseline at the Wettzell Observatory
- Dhiman Mondal et al.: A GPS-Based Study to Improve the Accuracy of Local Geodetic Ties at Co-located Sites that Exploits Small-Scale Atmospheric Structure

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