3.7 IERS Working Groups

3.7.1 Working Group on Site Survey and Co-location

Automated monitoring with terrestrial instruments has been developed further, and a number of sites have been revisited and resurveyed. Evaluations indicate stable conditions in the majority of situations, and a general trend observed in several services is that current efforts are being directed towards systematic errors evaluations rather than site stability.

The SIB60 project of the European Metrology Research Program (EMRP) which included some VLBI and GNSS space geodetic stations was completed, and major project results were presented at dedicated sessions of the 3rd Joint International Symposium on Deformation Monitoring (JISDM). A new consortium involving several WG members was initiated to focus metrological efforts towards SLR in a follow-up proposal. Funding was not granted in the 2016 decision, but the consortium anticipates a resubmission on the next SI Broader scope theme in 2018. The EMRP is jointly funded by the EMRP participating countries within EURAMET and the European Union.

Co-location status within the different services

International DORIS Service, IDS

The tie vectors originating from 1988 are being re-qualified, and a new file “DORIS_ext-ties.txt” are available on the IDS data centers. In an assessment of monument stability, 80% of the surveyed monuments were found to be stable within 1 mm, and monitoring of the stability is currently under consideration. A 4^{th} generation beacon is under development and to be deployed in 2019, the antenna design will remain but cable lengths will increase. In September a new station was deployed at Wettzell.

International GNSS Service, IGS

A new observation pillar was installed at the co-located VLBI/GNSS Katherine observatory in Australia, which eliminates the need to remove the antenna when undertaking future surveys.

International Laser Ranging Service, ILRS

Local tie vectors and technique specific biases are being scrutinized and appears to reduce the offset at co-located sites. Presentations were given at IVS General Meeting, as well as a dedicated session at the 20th International Workshop on Laser ranging.

International VLBI Service, IVS

Terrestrial laser scanning were performed at the Onsala radio telescope and refinement of TLS deformation analysis to detect focal length

variations with respect to elevation and comparisons with local gain optimization parameters has been initiated. Presentations of preliminary SIB60 results were given at IVS GM 2016. IVS also hosted an international workshop on VLBI observations of near-field targets which included both ground and space co-locations.

Publications

2016 International Workshop on Laser Ranging, Potsdam, Germany, October 9–14, 2016, https://cddis.nasa.gov/lw20/Program/index.html (no hardcopies)

Behrend D., K. D. Baver, K. L. Armstrong (eds.) International VLBI Service for Geodesy and Astrometry 2016 General Meeting Proceedings, NASA/CP-2016-219016, ftp://ivscc.gsfc.nasa.gov/pub/general-meeting/2016/IVS-2016-General-Meeting-Proceedings.pdf

Lösler M., R. Haas, C. Eschelbach (2016) Terrestrial monitoring of a radio telescope reference point using comprehensive uncertainty budgeting. J. of Geodesy, Vol. 90, p. 467–486, DOI: 10.1007/s00190-016-0887-8

Saunier, J. (2016) Assessment of the DORIS network monumentation, Advances in Space Research, Vol. 58, Issue 12, p. 2725–2741. DOI: 10.1016/j.asr.2016.02.026

SIB60 consortium (2016), https://www.ptb.de/emrp/sib60-home.html

Nothnagel A. and F. Jaron (eds.), Proceedings of the First International Workshop on VLBI Observations of Near-field Targets, October 5 – 6, 2016, Schriftenreihe des Instituts für Geodäsie und Geoinformation, Vol. 54, ISSN 1864-1113, Bonn, http://www3.mpifr-bonn.mpg.de/div/meetings/vonft/index.html

Sten Bergstrand