

3.5.5 ITRS Centre

This report summarizes the activities of the IERS ITRS Centre during the year 2017.

IGS Workshop 2017

The ITRS Centre hosted the IGS Workshop 2017 in Paris, during the week July 3–7, 2017. 275 participants from 32 countries attend the workshop. All the details are available at: <http://igsworkshop2017.ign.fr/>

Unified Analysis Workshop 2017

The ITRS Centre has also hosted the Unified Analysis Workshop 2017 in Paris, during July 10–12, 2017. 42 participants attended, representing the 4 Technique Centres and the IERS. The main focus of the UAW was to discuss technique systematic errors, their handling and impact on the geodetic products and in particular the IERS combined products.

IERS Technical Note 39 on IGN best practice for surveying instrument reference points at ITRF co-location sites

The IERS ITRS Centre has published a specific Technical Note on the IGN best practice for surveying instrument reference points at ITRF co-location sites. The document aims at summarizing the IGN best practice to perform local tie survey measurements and to process and archive associated data and results. Indeed, IGN surveyors have been involved in local tie measurements at many multi-technique co-location sites during the last two decades. In charge of performing local tie surveys at DORIS stations since the nineties, IGN benefited from NASA experience thanks to joint surveys at Hartebeesthoek and Sheshan in 2003. Since that time, nine other specific surveys involving more than 3 different technique instruments have been carried out in addition to other DORIS/GNSS co-located sites. This document was initially written for IGN internal use but has been reorganized to be available to any person or group who wish to learn from IGN experience in surveying multi-technique sites.

Maintenance of the IERS network

The ITRS Centre assigns DOMES numbers to geodetic tracking stations or markers as unambiguous identifications of points in space, independently from the technique of their tracking instruments.

The IERS network database, which contains the descriptions of the sites and points, is continuously updated as DOMES numbers are assigned. DOMES number request form can be found on the ITRF web site <http://itrf.ign.fr>, and should be sent to domes@ign.fr. An updated list of all available DOMES number is available at http://itrf.ign.fr/doc_ITRF/iers_sta_list.txt. The IERS site information is available to the users through the ITRF website interface (see below).

Several new stations, mainly GNSS permanent stations were added to the ITRF network and database.

ITRF web site

The ITRF web site, available at <http://itrf.ign.fr>, provides an interface to consult the IERS network database. Site and point information can be requested on line; it contains approximate coordinates of the sites, the list of their points as well as their descriptions, their DOMES numbers and the list of ITRF versions in which they have been computed. Subsets of points can be selected and their ITRF coordinates can be requested at any epoch in any ITRF version if their coordinates are provided in the requested ITRF version.

The maps of the ITRF networks can be displayed depending of the measurement techniques and of the ITRF realization. Velocity vectors can be displayed as well as tectonic plates. The dynamical map can help users to familiarize with ITRF products and can be used for educational purpose. It can also be an interesting tool to select IERS sub-network depending on the measurement techniques, co-located hosted instruments or ITRF versions. ITRF94, ITRF96, ITRF97, ITRF2000, ITRF2005, ITRF2008 and ITRF2014 solutions are available for download.

Preparation for a new ITRF web site

The ITRS Centre has started an initial study analysis and preparation for a new design of the ITRF web site. It will be designed to provide more ITRF-related information to the users using more user-friendly interfaces. The new web site which was expected to be operational beginning 2016 experienced some delay, unfortunately, and will hopefully be available by the end of 2018, beginning 2019.

Local ties of ITRF co-location sites

The ITRS Centre collects all new surveys operated by either IGN or the hosting agencies of ITRF co-location sites. The reports of these surveys are posted at the ITRF web site and are available to users at http://itrf.ign.fr/local_surveys.php. The local ties SINEX files used in the ITRF combinations are also available on that web site.

At the occasion of the ITRF2014 analysis, several new local tie SINEX files and corresponding reports were submitted to the ITRS Centre. All past and new local surveys used in the ITRF2014 computation are now available via the ITRF web site: http://itrf.ign.fr/local_surveys.php.

The operational entity of the ITRS Centre at the IGN Survey department prepared a document describing the IGN current practice of local survey that could help surveyors who do not know how to proceed and are not used with mm precision. The document was published in 2017 in a dedicated IERS Technical Note (see above).

Other activities

- Participation in most meetings of the analysis working groups of the Technique Centres (in 2017: IDS, IGS, ILRS and IVS);
- Convening and organizing EGU and AGU sessions on reference frames and ITRF;
- Participation in the UN-GGIM related meetings, and contribution to the implementation plan of the Roadmap on the Global Geodetic Reference Frame for Sustainable Development, following the UN GA resolution adopted February 26, 2015.

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