

Summary
IGS Workshop 2018
29 October to 2 November
Wuhan, China

Multi-GNSS through Global Collaboration



IGS Workshop 2018

The latest IGS Workshop, with the theme of “Multi-GNSS through Global Collaboration” took place 29 October to 2 November, 2018. The workshop was hosted locally by Wuhan University at the East Lake Conference Center in Wuhan, China, and was the first IGS Workshop to be held on the Asian continent. Over 300 individuals participated in the sessions.

The workshop featured two keynote presentations:

- “Introduction to BeiDou-3 Navigation Satellite System” presented by Yuanxi Yang of the State Key Laboratory of Geo-Information Engineering, based in Xi’an, China.
- “BeiDou Augmentation and its Future” presented by Liu Jingnan, an Academician of the Chinese Academy of Engineering, based at Wuhan University in Wuhan, China.

The theme of the 2018 workshop – “Multi-GNSS through Global Collaboration” – was echoed through ten plenary sessions, posters, and working group splinter meetings. Underpinning much of this Multi-GNSS momentum was the IGS MGEX White Paper, titled “Satellite and Operations Information for Generation of Precise GNSS Orbit and Clock Products.” The paper discusses the parameters needed to ensure the highest possible performance of IGS products for all constellations and motivates the need for provision of satellite and operations information by the GNSS providers. All information requested by the IGS is considered to be sufficiently abstract such as to neither interfere with the GNSS providers’ safety and security interests nor with intellectual property rights. <http://bit.ly/MGEXwhitepaper>

New IGS Working Group on PPP Ambiguity Resolution Established

It was noted that while current IGS products are high quality, they are not fully compatible with PPP-AR and lack multi-GNSS support. In response to this, a **new IGS working group that will focus on PPP with ambiguity resolution (PPP-AR) was established. It will be Chaired by Simon Banville from NRCan in Canada.**

RINEX 3.04 Update

The RINEX GNSS data format is a standard that is jointly managed by the IGS RINEX Working Group and the IGS Governing Board, together with the Radio Technical Commission for Maritime Services (RTCM) Special Committee (SC) 104 on Differential Global Navigation Satellite Systems (DGNSS). This relationship was formed between IGS and RTCM to ensure that RINEX would continue to be freely available.

The release of RINEX 3.04 was officially approved by the IGS Governing Board at the IGS Workshop in Wuhan last week. It was also recently approved by the RTCM SC-104. Key changes in this version include adjusting for new signals.

Laser Ranging to GNSS

At the request of the International Laser Ranging Service (a sister service within the International Association of Geodesy) the IGS issued two official recommendations. One encouraged the extension of SLR stations supporting high-altitude tracking, specifically in the Asia-Pacific region, and the transition to kHz laser systems enabling shorter normal point duration. The other addressed the increasing load on ILRS stations caused by the increasing number of GNSS satellites equipped with laser retroreflectors by recommending that observatories give priority to dedicated campaigns for tracking of selected GNSS satellites at the expense of a reduced background tracking activity while using remaining tracking resources to select and track the remaining GNSS satellites in a randomized manner – the latter of which to be defined at the discretion of the observatory.

Real Time GNSS Service (RTS)

Currently, IGS combined products are limited to clocks and orbits for GPS, with GPS+GLONASS products still classed as experimental. Some multi-GNSS analysis center solutions are available, notably CNES (France) and GFZ (Germany), with the CNES stream currently disseminating (unmonitored and uncomparated) biases. ESA ESOC also plans to generate a multi-GNSS solution, but this is not yet at a stage where it can be disseminated.

IGS real-time orbit products are based on the ultra-rapid predictions. Thus, all information that helps to improve the IGS orbit products are needed, and of this, access to complete and

accurate satellite metadata (information pertaining specifically to the physical properties of GNSS satellites) remains an issue.

It was recommended at the 2018 IGS Workshop that the IGS Real-Time Service should prepare for the transition to a true multi-GNSS service. In order to accomplish this, a number of prerequisites need to be fulfilled, such as the availability of predicted orbits for all constellations, the availability of processing, combination and validation capabilities as well as the selection of a suitable transfer format.