



International GNSS Service (IGS)

Web: <http://www.igs.org/>

Chair of the Governing Board: **U. Hugentobler** (Germany)
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Overview

Planning for the years 2011-2014, the International GNSS Service (IGS) has a number of activities and tasks to pursue, both externally and internal to the organization. The mission of the IGS is to provide the highest-quality GNSS data and products in support of the terrestrial reference frame, Earth rotation, Earth observation and research, positioning, navigation and timing and other applications that benefit society.

Key activities are the extension of the IGS' tracking and analysis capabilities to new GNSS and new signals as well as of its real-time capabilities. Basis of the work of the IGS is its global tracking network which requires continuous

maintenance and extension in close interaction with the operating agencies and institutions.

A key undertaking through 2012 will be the development of the IGS Strategic Plan for the period 2013-2017. The IGS Strategic Plan 2008-2012 is located here: <http://igs.org/overview/pubs.html>

The IGS develops annually a strategic implementation plan with which the progress of the organization is measured. The IGS Implementation plan for 2011 may be found at ftp://www.igs.org/pub/resource/pubs/IGSImplementation2011_GB_37.pdf

Figure 1 displays the organizational structure of the IGS and includes the list of Pilot Projects and Working Groups.

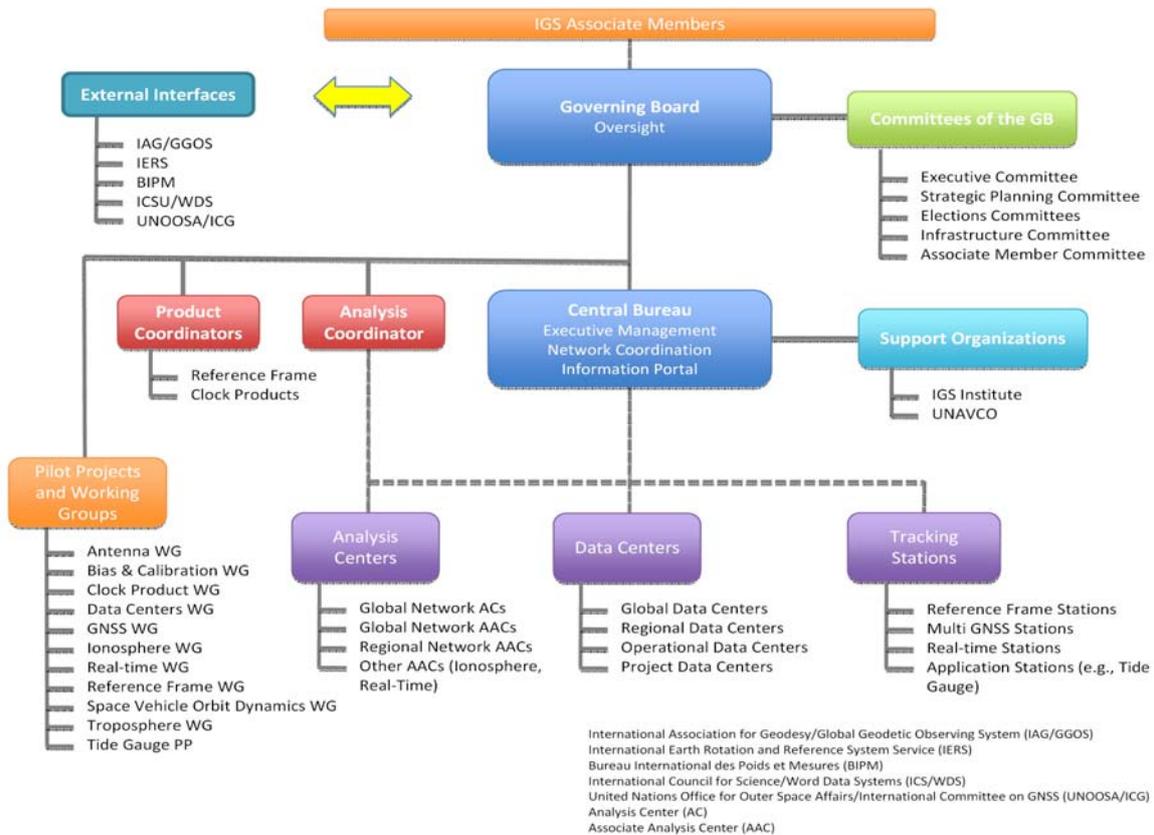


Figure 1. IGS Organization Chart 2011

Key Activities

The global tracking network and the quality of the acquired GNSS data is the basis for the generation of highest-quality products. Fostering of the network, quality monitoring of the station data and facilitating of its extension are high priority tasks also in the coming years. This includes planning for the transition to a GNSS tracking network without disruption of the existing long station coordinate time series required for the maintenance of the reference frame.

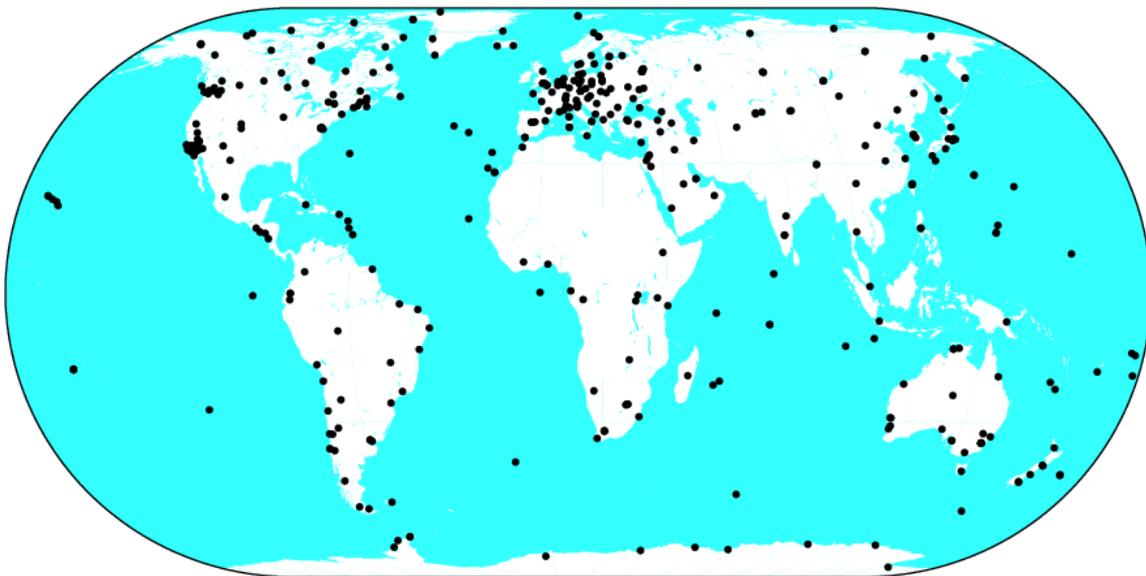
The quality of the IGS products are continuously monitored and improved. After the termination of a first complete reanalysis of GPS tracking data from 1994 to 2007 the IGS plans a next reanalysis effort based of the most up-to-date models, standards and conventions as input for the next ITRF frame.

IGS fully supports IAG's Global Geodetic Observing System (GGOS) and considers its products as GGOS products.

It works with other IAG components towards the realization of GGOS Mission, Vision and Goals, see:

<http://www.ggos.org>

In 2011, IGS released a Call for Participation in the IGS Multi-GNSS Global Experiment – IGS M-GEX. The CfP is posted at the IGS website and calls for multi-GNSS observing stations, data centres, analysis centres and cooperative networks and organizations. Main objective of the experiment is to gather experience with new signals and new navigation satellite systems. The experiment will expand the IGS tracking network, currently tracking GPS and GLONASS (Figure 2), to include GNSS observations of new constellations: Galileo (European Union), Compass (China), QZSS (Japan), as well as laying the foundation for tracking the modernized signal of the GPS and GLONASS. Coordinated analysis of the observations and generation of reliable products will be a challenge as the IGS strives to incorporate all GNSS. IGS M-GEX will begin in February 2012 and operate through August 2012, with first discussion of results at the IGS workshop in July 2012 (see below).



IGS 2011 Jun 27 16:46:42

Figure 2. IGS Tracking Network, all stations.

IGS is operating a real-time network as part of the IGS Real-Time Pilot Project (Figure 3). Currently data are available to project participants and real-time analysis is coordinated by the European Space Operations Center in Darmstadt (ESOC), Germany. IGS plans to make real-time products available within the next few years. For more information, visit the project pages:

<http://www.rtiges.net/index.php>

IGS is an active associate member of the United Nations Office for Outer Space Affairs' (UNOOSA) International Committee on GNSS (ICG). One of the ICG's four Working Groups, the Working Group on Reference Frame, Timing and Applications, is co-chaired by IGS, IAG and the International Federation of Surveyors (FIG). IGS is recently also named co-chair of a new ICG sub-committee on GNSS Monitoring. The sub-committee will be co-chaired by government representatives of China and Japan, and the IGS. This is recognition that IGS, due to multi-GNSS ob-

servations and analysis, may potentially be able to take on a greater service role for system providers by providing independent monitoring of the available GNSS constellations.

A challenge for the IGS in both the IGS M-GEX and Real-time Pilot Project is data format issues. The IGS has formalized its efforts towards standardization of multi-GNSS batch and real time observation and product formats and

protocols through cooperation with the Radio Technical Commission for Maritime Services (RTCM). RTCM Special Committees are chartered to address in-depth radio-communication and radio-navigation areas of concern to the RTCM membership. The output documents and reports prepared by these Committees are usually published as RTCM Recommended Standards and include standards for GNSS.



Figure 3. IGS Real-Time Tracking Network 2011

The IGS is applying for membership with the new International Council for Science (ICSU) World Data System (WDS). This is a new interdisciplinary body of ICSU, an integration of the former Federation of Astronomical and Geophysical Data Analysis Services (FAGS) and World Data Center System. See:

<http://www.icsu-wds.org/>

IGS continues to support other IAG elements, with focus on lesser economically developed countries (LEDC). For the past ten years, IGS has been actively supporting efforts within Africa to realize the Unification of African Reference Frames – AFREF. This is progressing, but continued engagement is needed.

Internally, the IGS Central Bureau (CB) is in the process of a complete redesign and implementation of the IGS website. A top goal of the design is to have a state-of-the-art website that has shared administration with other principal people within the IGS. A ‘Site Log Manager (SLM)’ is being jointly developed with the University NAVSTAR Consortium (UNAVCO), and will permit station operators to manage and updated their own information. The information within the website, and the SLM, will have auto-

matic validation procedures built in, so that managing the 400+ stations and networks within the IGS can be done efficiently. The website, once adequate resources are identified, can be extended to other scientific services within the IAG and specifically to GGOS. Social networking options for the IGS will also be explored and implemented where value can be identified.

The IGS 2012 Workshop will be held in Poland, July 23-27, 2012, and will be hosted by the Geodynamics Research Laboratory of the University of Warmia and Mazury in Olsztyn, Poland. Foci of the workshop are the first results of the M-GEX experiment and progress in IGS real time developments.

Summary

The IGS remains a vital organization that continues to evolve with challenging opportunities. The IGS is preparing for a future with new additional GNSS signals and new constellations to eventually generate highest-quality products for all available GNSS for the benefit of science and society.