

IGS-MGEX: Introduction

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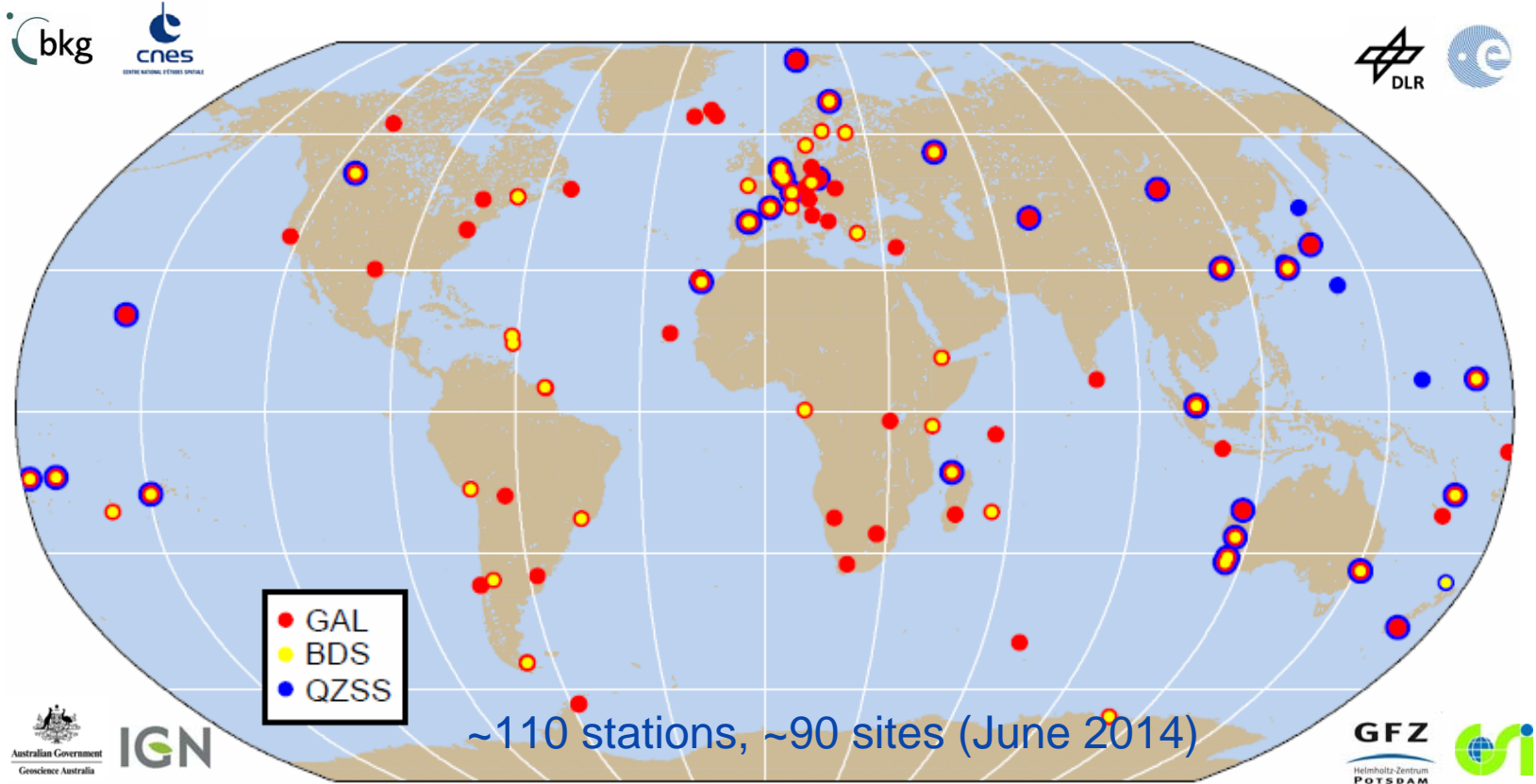
DLR/GSOC

Multi-GNSS Experiment (MGEX)



- Multi-GNSS Experiment (MGEX)
 - MGEX call-for-participation released mid-2011 (ongoing)
 - Steered by Multi-GNSS Working Group (MG WG)
- Some 30 contributing agencies from 20 countries
- About 110 stations worldwide, mostly real-time
 - 7 major receiver types, 5 major antenna types
 - Tracking of Galileo, BeiDou, QZSS, SBAS
- Free and open access
 - Data archives at CDDIS, IGN, BKG (RINEX 3.x)
 - Real-time NTRIP caster (RTCM3-MSM)
 - Product archive at CDDIS

The IGS MGEX Network



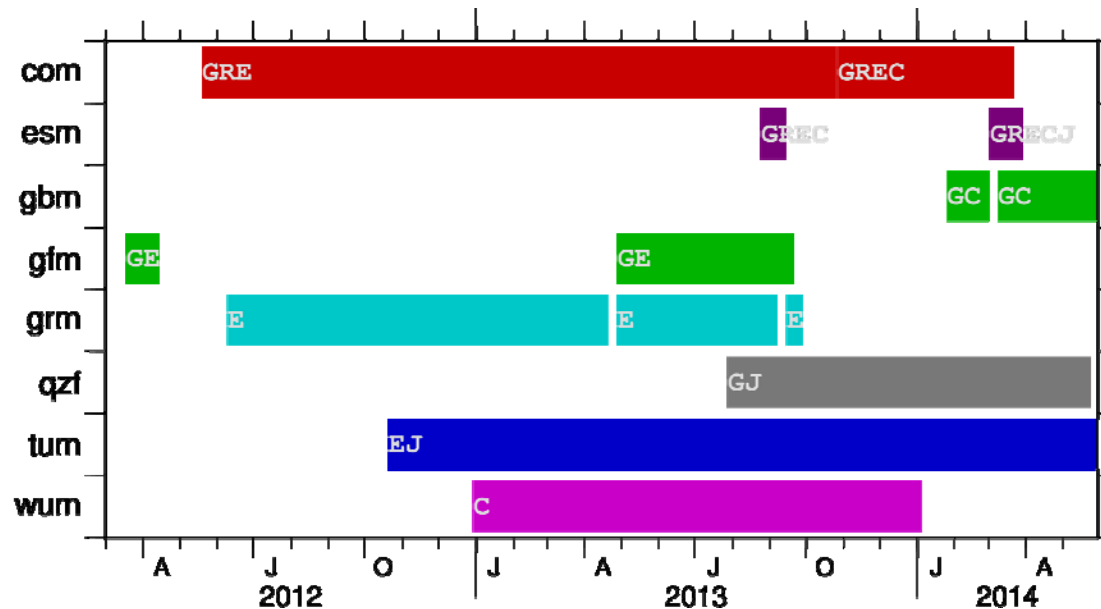
Archive: <ftp://cddis.gsfc.nasa.gov/pub/gps/data/campaign/mgex/>

- Precise Orbit and Clock Products
 - Galileo
 - QZSS
 - BeiDou
- Multi-GNSS Differential Code Bias Product
- Cumulative Broadcast Ephemerides

MGEX Analysis Centers and Products



Institution	ID	Systems
CNES/CLS, France	grm	GAL
CODE(AIUB), Switzerland	com	GPS+GLO+GAL(+BDS)
ESA/ESOC, Germany	esm ⁽¹⁾	GPS+GAL(+GLO+BDS+QZS)
JAXA, Japan	qzf ⁽²⁾	QZS
TUM, Germany	tum	GAL+QZS
Wuhan Univ., China	wum	GPS+BDS



Products provided at
<ftp://cddis.gsfc.nasa.gov/pub/gps/products/mgex/>

Some Words on IRNSS

- Indian regional navigation constellation
 - 3 GEOs ($34^\circ, 83^\circ, 131.5^\circ$),
4 IGSOs ($55^\circ, 111.5^\circ; i=29^\circ$)
 - IRNSS-1A, 1B launched (July 13, Apr. 14)
 - L5- and S-band (maybe future L1?)
 - No Interface Control Document, yet
- First signal and clock characterization performed with high gain antenna, O/S code generators revealed⁽¹⁾
- Only sparse data from selected test receivers
- Presently unsupported by IGS/MGEX
- Preliminary orbit information available at ILRS (SLR predicts) and/or NORAD (twoline elements)



⁽¹⁾Thoelert et al., GPS Solutions 18(1):147-152 (2014)

IGS MGEX – <http://igs.org/mgex/>



MGEX Stations Working Group

Welcome to the Home Page of the IGS Multi-GNSS Experiment!

Scope

The Multi-GNSS Experiment (MGEX) has been set-up by the IGS to track, collate and analyze all available GNSS signals. This includes signals from the BeiDou, Galileo and QZSS systems, as well as from modernized GPS and GLONASS satellites and any space-based augmentation system (SBAS) of interest. Analysis centers will attempt to estimate inter-system calibration biases, compare equipment performance and further develop processing software capable of handling multiple GNSS observation data.

MGEX News

- 2013/05/29 New multi-GNSS broadcast ephemeris product made available (see section [Products](#))
- 2013/05/29 Various new stations have been added to the MGEX network by CNES (REGINA network), DLR (CONGO network), and GFZ as well as individual providers (see section [Network](#)). A total of 74 stations is now available, most of which offer real-time data streams in addition to offline RINEX3 data.
- 2012/03/01 All participating institutions have now transitioned to the RINEX3 format for observation and navigation files submitted to the MGEX data archives. RINEX2 has been discontinued for MGEX purposes (but continues to be used for the operational IGS network).
- 2012/12/17 First release of QZSS products by JAXA (see section [Products](#))
- 2012/11/10 Provision of orbit and clock products for Galileo and QZSS (see section [Products](#))
- 2012/11/10 Revised interactive network map (see section [Network](#))
- 2012/11/10 Draft parameters for BeiDou processing (see [BeiDou page](#))
- 2012/10/25 Recommended parameters for Galileo and GIOVE processing (see [Galileo page](#))
- 2012/10/25 Recommended parameters for QZSS processing (see [QZSS page](#))

Constellation Status

Status information for the various navigation satellite systems can be obtained by clicking on the icons below. Primary attention is given to the emerging constellations that are currently deployed and undergoing initial validation.

GPS GLONASS Galileo BeiDou QZSS IRNSS SBAS

Network

An overview of the current MGEX network is shown in the map below. For detailed information on individual stations see the [MGEX station list](#). The latest site logs are available from the [IGS MGEX site log archive](#).

- Central portal for MGEX related information
- Entry point for data and product servers
- Clone for international access at UNAVCO (<http://igs.unavco.org/mgex/>)

- Plenary Session PY07 (Wed. 9:00-10:30)
 - Network and Data (Ruelke et al.)
 - Galileo (Prange et al.)
 - QZSS (Steigenberger et al.)
 - BeiDou (Deng et al.)
 - Biases (Montenbruck et al.)
- Poster Session PS11 (Wed. 14:00-15:30)
 - 12 Posters
- MGWG Splinter (Wed. 16:00-17:30)