



International GNSS Monitoring and Assessment (IGMA)-IGS Joint Trial Project

Call for Participation

Document prepared by: IGMA Task Force Co-Chairs (Satoshi Kogure, Xurong Dong and Urs Hugentobler)

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1. RATIONALE and SCHEDULE

1.1 Background

The International Committee on GNSS (ICG) was established in 2005 to discuss how harmonized multiple GNSS constellations could provide social benefit to the world under United Nations in 2005. GNSS performance monitoring and assessment is one of the important topics and the International GNSS Monitoring and Assessment (IGMA) Task Force was formed and is investigating a future framework to realize a monitoring and assessment function for multiple GNSS constellations.

The “IGMA-IGS Joint Trial Project” was agreed to be established in the recommendation adopted at the International Committee on GNSS (ICG) 10th meeting. The Trial Project will be phased and starts with monitoring of a limited set of parameters. Subsequent phases would expand in monitoring/assessment capabilities based on the Trial Project progress and ICG review.

The Trial Project is the joint activity of GNSS Providers and International GNSS Service (IGS), aimed at creating an international GNSS monitoring and assessment system with results trusted by all parties and worldwide. Taking into account the outstanding role of IGS in GNSS monitoring, IGS is one of the key participants in the Trial Project along with the GNSS Providers. GNSS Provider participation is through their nominated monitoring systems (one Analysis Center called "Monitoring Analysis Center (MAC)" and several monitoring stations for each provider). IGS participation is through one combined product and several monitoring stations, which are to be identified via IGS internal procedures.

1.2 Objectives

The main purpose of the IGMA-IGS Joint Trial Project is to implement a monitoring system for all participating GNSS, with monitoring of a limited number of parameters using existing monitoring infrastructures and developing a set of requirements for monitoring system(s) in subsequent phases of the project. Through the Trial Project, user benefits of consolidated monitoring system products and combined use of multi-constellations are to be demonstrated. The Trial Project should also promote trust in GNSS via an ICG endorsed monitoring system.

1.3 IGMA-IGS Joint Trial Project Schedule

- August 15th, 2016: Distribute Call for Participation
- September 30st, 2016: Proposals due (entities may propose and join at any time)
- October/November 2016: Launch Trial Project
- October/November 2017: End of 1st phase of Trial Project (TBD)

1.4 Organizational Aspects

The IGMA-IGS Joint Trial Project is coordinated and led by the ICG IGMA Task Force, which is composed of members from both Providers and IGS (ICG WG-D).

2. CALL for PARTICIPATION

The IGMA TF is seeking each provider's participation in the IGMA-IGS Joint Trial Project through the following components:

- Multi-GNSS Observing Sites (at minimum 3 stations per each GNSS/RNSS)
- Data sharing/distribution method
- Monitoring Analysis Centers

2.1 Observing Sites

2.1.1 Receivers

Only geodetic-type receivers (capable of collecting pseudorange and carrier phase observations) may be used. Receivers should be able to track GPS or GPS+GLONASS signals and in parallel signals of further systems such as Galileo (IOV/FOC), BeiDou, QZSS and, if possible, IRNSS on at least two frequencies, except for cases where the constellation is not visible due to the site geographic location.

Receiver, antenna and mount configuration is desirable to follow the IGS Site Guideline (<http://kb.igs.org/hc/en-us/articles/202011433-Current-IGS-Site-Guidelines>).

A Site Log must be available to the IGMA-IGS prior to the Trial Project launch (format identical to IGS site documentation form, available at the IGS website, <ftp://igs.org/pub/station/general/blank.log>).

A 4-character acronym for each receiver operated during the experiment should be proposed to ICG IGMA TF in the attached application form. In addition, if the same sites would be included in the IGS network, they should be proposed to and approved by the IGS Central Bureau (igsceb@igsceb.jpl.nasa.gov).

2.1.2 Operational considerations

RINEX observation data shall be provided, either daily (30 sec sampling rate) or hourly (30 sec) or 15 min files (1 sec). The maximum latency for all file types shall be 24 hours.

Receiver, antenna and mount configuration should be kept stable throughout the Trial Project.

The data may be shared among IGMA-IGS Joint Trial Project participants on a daily basis. In any case, the data must be forwarded not later than 48 hours from the end of the UT day on which it was collected.

The exchange file format is the RINEX V3.01 format (or upgraded RINEX version as available prior to Trial Project). Site operators shall perform a data quality control before sharing data among Trial Project participants.

2.2 Data sharing/distribution methods

Each Provider is requested to propose how to share, distribute and archive the observation data as well as monitoring results, hereafter described as “products” among the Trial Project. The proposal should include the following items;

- Network structure
Several options can be considered as shown in following;

- A structure with a consolidated data center or a couple of dispersed data centers, which archive all data sets including observation data and monitoring results,
- Each Provider has their own data center
- Use of the existing IGS Data Center
- Data exchange method
 - FTP server
 - HTTP, via some portal web site
 - E-mail attachment
- Data policy

2.3 Monitoring Analysis Centers (MAC)

The initial phase of the Trial Project is focussed on collecting and making publicly available observations and a limited number of monitoring parameters calculated by post processing analysis. The definition and methodology to calculate the monitoring parameters are defined in “Terms of Reference for IGMA-IGS Joint Trial Project“.

3 Instructions for Submitting a Proposal

Proposals submitted in response to this Call for Participation should contain:

- A cover letter signed by an official representative of the organization
- The attached cover sheet “*Response to the Call for Participation*”
- A detailed plan describing the activities proposed by the organization, and
- Completion of the appropriate attached forms

It should be clear in the proposal which organizations are cooperating or assumed to contribute, and whether the organization(s) would further consider continuing their activities after the end of the initial phase of the Trial Project in October/November 2017.

Please send proposals to:

Satoshi Kogure, Xurong Dong, Urs Hugentobler, Ruth Neilan

IGMA Task Force co-chairs

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Response to the Call for Participation

IGMA-IGS Joint Trial Project

Provider:	
Organization:	
Name of Point of Contact(s):	
Address:	
E-mail address:	
Website:	
Phone:	
Fax:	

Form 1: Tracking Site

Organization

Organization	
Address	
Name of Representative	
Department/Division	
Phone	
Fax	
E-mail address	

Site information

Site Name		Four letter ID	
Location	Country:	City/Town:	
Site Information	<input type="checkbox"/> new site		<input type="checkbox"/> IGS site
	<input type="checkbox"/> Co-location with other geodetic reference		
	If yes, describe what reference is co-located here:		
Proposed antenna location	Longitude		
	Latitude		
	Height		
Antenna mount			
Receiver installation			
External Frequency Standard	If yes, please describe		
Internet access			
Other information			

Receiver Type / Antenna Type / Tracked Signals

Receiver Type	
Antenna Type	
Radome	
Antenna calibration information available for tracked frequencies	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, specify calibration method
Tracked Signals	Please indicate below
GPS	
GLONASS	
Galileo	
BeiDou	
QZSS	
IRNSS	
SBAS	

Provided Data Format (required update rates specified in CfP document)

Format	version
RINEX	<input type="checkbox"/> 3.01 <input type="checkbox"/> Other, please specify
RTCM	<input type="checkbox"/> 3.1 <input type="checkbox"/> 3.0 <input type="checkbox"/> other, please specify

Do you plan to continue data delivery after scheduled end of IGMA-IGS Joint Trial Project	<input type="checkbox"/> yes <input type="checkbox"/> no
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Form 2: Data sharing/distribution methods

Organization

Organization	
Address	
Name of Representative	
Department/Division	
Phone	
Fax	
E-mail address	

Proposal on Data sharing and distribution methods:

Network structure
Data exchange method
Data policy

Form 3: Monitoring Analysis Center

Organization

Organization	
Address	
Name of Representative	
Department/Division	
E-mail address	
Phone	
Fax	
Describe your anticipated efforts for analysis interests	