

Global Geodetic Observing System

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Sharing Geoscience Online
GGOS Session G2.1
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GGOS

(Global Geodetic Observing System)



- **System of International Association of Geodesy (IAG)**
 - IAG's central interface to the scientific community and to society
 - Provides the basis for future advances in geosciences
- **Missions of GGOS**
 - (a) to **provide the observations needed** to monitor, map and understand changes in the Earth's shape, rotation and mass distribution;
 - (b) to **provide the global frame of reference** that is the fundamental backbone for measuring and consistently interpreting key global change processes and for many other scientific and societal applications
 - (c) to **benefit science and society by providing the foundation** upon which advances in Earth and planetary system science and applications are built.

GGOS

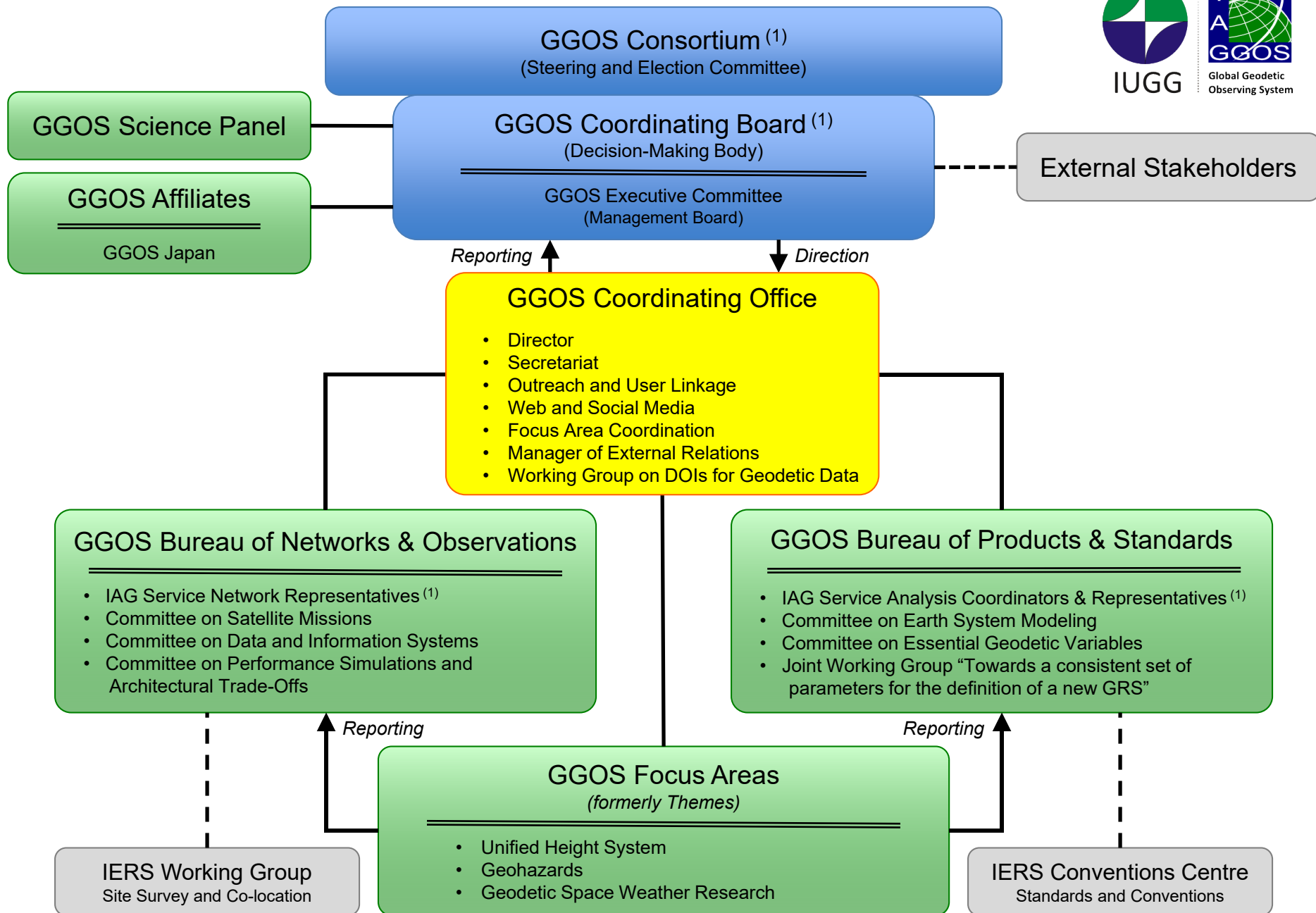


(Global Geodetic Observing System) Cont.

- **Goals of GGOS**

- (1) to be the primary source for all global geodetic information and expertise serving society and Earth system science
- (2) to actively promote, sustain, improve, and evolve the integrated global geodetic infrastructure needed to meet Earth science and societal requirements
- (3) to coordinate with the international geodetic services that are the main source of key parameters and products needed to realize a stable global frame of reference and to observe and study changes in the dynamic Earth system
- (4) to communicate and advocate the benefits of GGOS to user communities, policy makers, funding organizations, and society

- GGOS depends on the **IAG Services, Commissions, and Inter-Commission Committees** since they provide the infrastructure, products, expertise and support.



(1) GGOS is built upon the foundation provided by the IAG Services, Commissions, and Inter-Commission Committees

GGOS Coordinating Office



- Coordinates the work within GGOS and supports the President, the Executive Committee and the Coordinating Board
- Coordinates GGOS external relations
- GGOS Website www.ggos.org



- **New Website is coming soon!**

-> Presentation at G2.1 session EGU2020

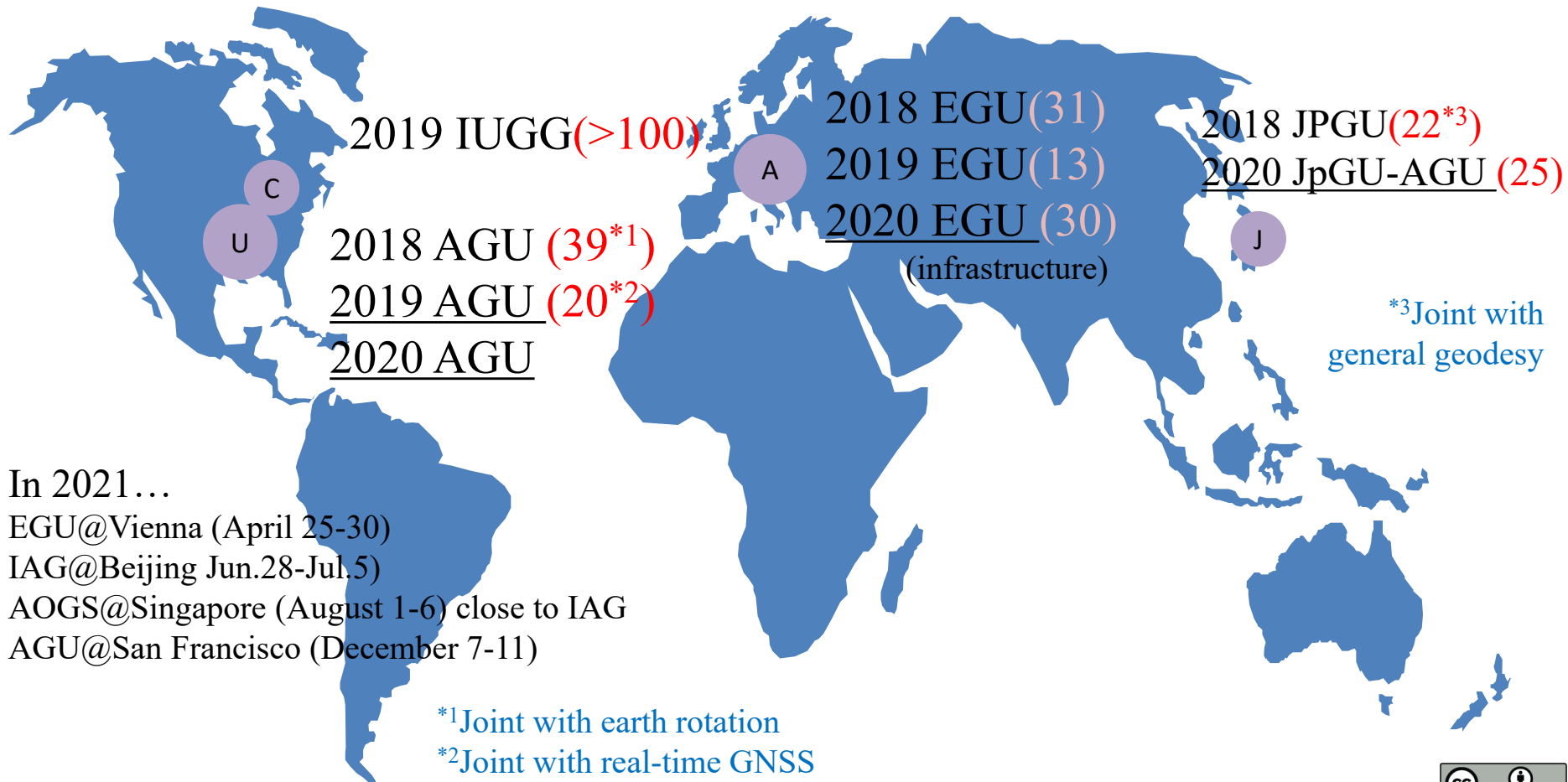
[“GGOS Coordinating Office – Recent Achievements and Activities”](#)

GGOS Science Panel



- Represent the geodetic and geoscience community at GGOS meetings
- Advise and provide recommendations to GGOS

Recent/Future GGOS sessions in major scientific meetings (# abstracts)



GGOS Bureaus

- **GGOS Bureau of Products and Standards (BPS)**
 - Tracks, reviews, examines, evaluates all actual standards, constants, resolutions and products adopted by IAG or its components
 - Recommends their further use or proposes the necessary updates
 - > Presentation at G2.1 session EGU2020
[“The GGOS Bureau of Products and Standards”](#)
- **GGOS Bureau of Networks and Observations (BNO)**
 - Develops a strategy to design, integrate and maintain the fundamental geodetic infrastructure including communication and data flow
 - Monitors the status of the networks and advocates for implementation of core and other co-located network sites and improved network performance
 - > Presentation at G2.1 session EGU2020
[“GGOS Bureau of Networks and Observations: Network Infrastructure and Related Activities”](#)

GGOS Affiliates

- National or regional organizations that coordinate geodetic activities in that country or region
- Allow increased participation in GGOS, especially by under-represented areas

• GGOS Japan (the first GGOS Affiliate)

2013 **Established** as “GGOS Working Group (of Japan)”.

2014 Site list sent to GGOS. Updated in 2017.

2017 GGOS Sp. Issue in 測地学会誌
(JP Geod Journal)

2017 **Became the first GGOS Affiliate.**

2018 Leaflet (□).

2018 Hosted GGOS Days 2018 Tsukuba.

2019 **Renamed: “GGOS Japan”**

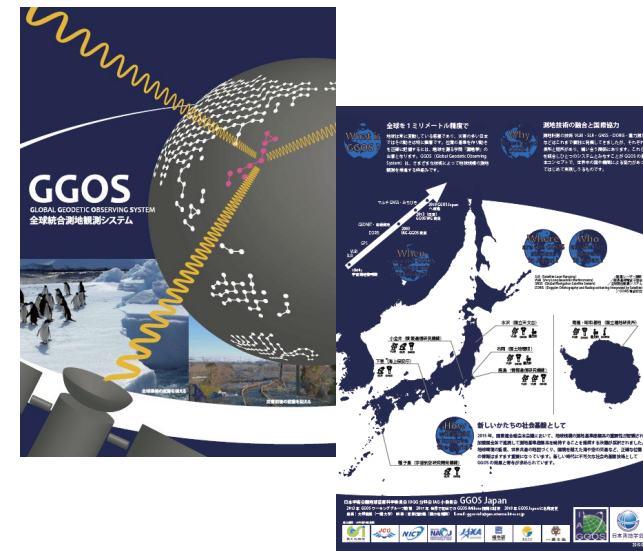
Launch the website.

2019 Established Outreach WG & Data DOI WG.

2020.7 GGOS online Session in JpGU-AGU.

-> Presentation at G2.1 session EGU2020

[“GGOS Japan: Uniting Space Geodetic Activities in Japan”](#)



- Welcoming new GGOS Affiliates from other country and region!

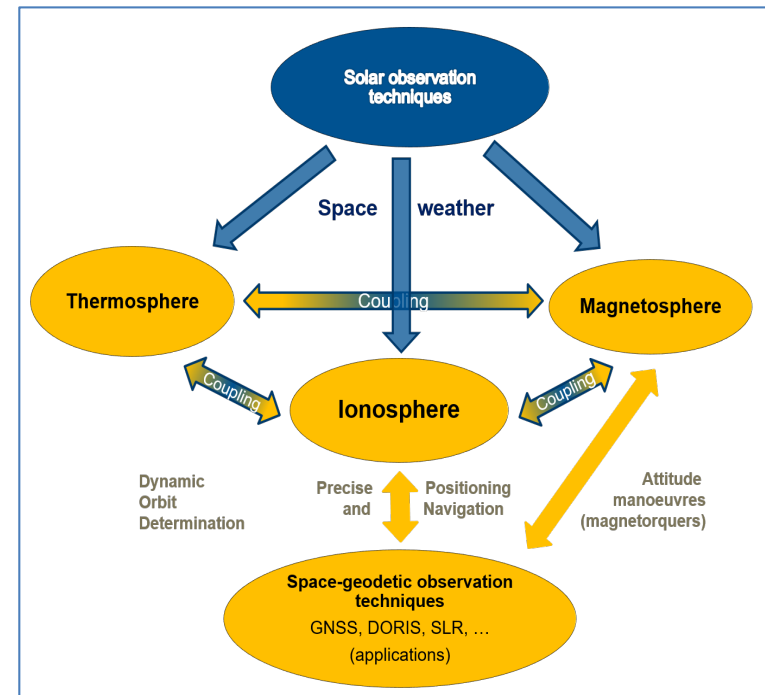
GGOS Focus Areas

- Cross-disciplinary and address specific focus areas where GGOS contributors work together to address broader and critical issues
- **Unified Height System**
 - Outline detailed standards, conventions, and guidelines to make the IAG Resolution applicable
 - Establish the realization of the International Height Reference System (IHRIS) i.e., the International Height Reference Frame (IHRF)
 - > Presentation at G2.1 session EGU2020
 - [“Activities and plans of the GGOS Focus Area Unified Height System”](#)
- **Geohazards**
 - Contribute to Disaster Risk Reduction with geodesy, especially GNSS Early Tsunami Warning System (GETWS) recommended by IUGG Resolution
 - Advocate collaboration between IAG/GGOS and other stakeholders to realize GETWS

GGOS Focus Areas Cont.

• Geodetic Space Weather Research

- High-precision and high-resolution (spatial and temporal) modelling of the electron density
- Precise Orbit Determination (POD) using high-precision and high-resolution thermospheric drag models.
- Links the magnetosphere with the above two objectives by introducing physical laws and principles



-> Presentation at G2.1 session EGU2020

[“GGOS Focus Area on Geodetic Space Weather Research – Current Status](#)

WG on DOIs for Geodetic Data



- **Digital Object Identifiers (DOIs) for publications**
 - **Widely used by publishers**
 - More than 5000 publishers participate in DOI system
 - **Unique identifier of publication**
 - DOI is resolved into URL where the publication can be found (landing page)
 - Landing page contains abstract of publication, PDF, etc.
 - **DOI system managed by International DOI Foundation (IDF)**
 - **DOIs for data sets**
 - **Benefits to users**
 - Easy access to data cited in journal article – just click on DOI
 - Improves traceability of published results – eliminates confusion about data used
 - Improves discoverability of data sets – enables wider distribution of data sets
 - **Benefits to data providers**
 - Providers can include information about data set on landing page (metadata)
 - Easily allows number of data publications to be tracked
 - Allows number of times data is used to be counted
 - Allows data providers to receive proper credit for their published data
 - **Establish Working Group**
 - **Establish Working Group**
 - **Representatives of Services, data centers**
 - **Establish procedures for assigning DOIs to geodetic data set**
 - **First face to face meeting at AGU2019**
- > Presentation at G2.1 session EGU2020
[“Why do Geodetic Data need DOIs? First ideas of the GGOS DOI Working Group”](#)



GGOS Future Events

- **JpGU-AGU 2020 (online only)**
 - Makuhari, Japan, July 12-16, 2020
 - GGOS session “Geodetic Infrastructure for Monitoring the Dynamic Earth: The Global Geodetic Observing System”

-> http://www.jpгу.org/meeting_e2020/
- **GGOS Days 2020**
 - Munich, Germany, October 6-8, 2020
- **AGU 2020**
 - San Francisco, USA, December 7-11, 2020
 - GGOS Session
- **IAAG Scientific Assembly**
 - Beijing, China, June 28 – July 5, 2021