



GGOS Days 2024

Potsdam, Germany

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Welcome

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Introduction



A **Global Observing System** consists of

- numerous individual terrestrial and space-based observing networks/sensors
- that collect data essential for monitoring specific characteristics of the Earth, e.g.



Global Climate Observing System

- Observes **physical, chemical and biological properties of climate system.**



Global Ocean Observing System

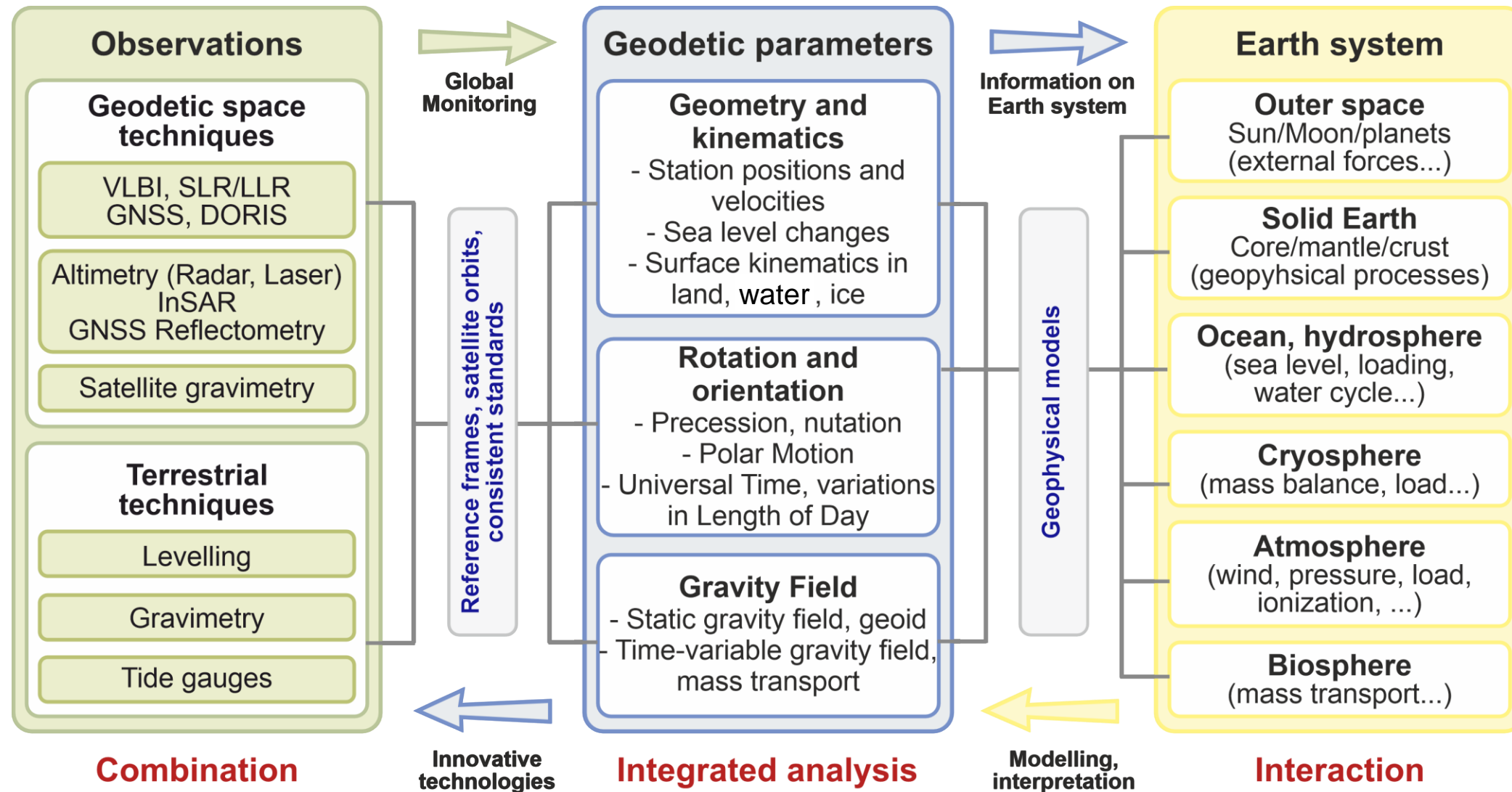
- Observes the **physical, bi-geochemical and ecosystem properties** of the oceans.



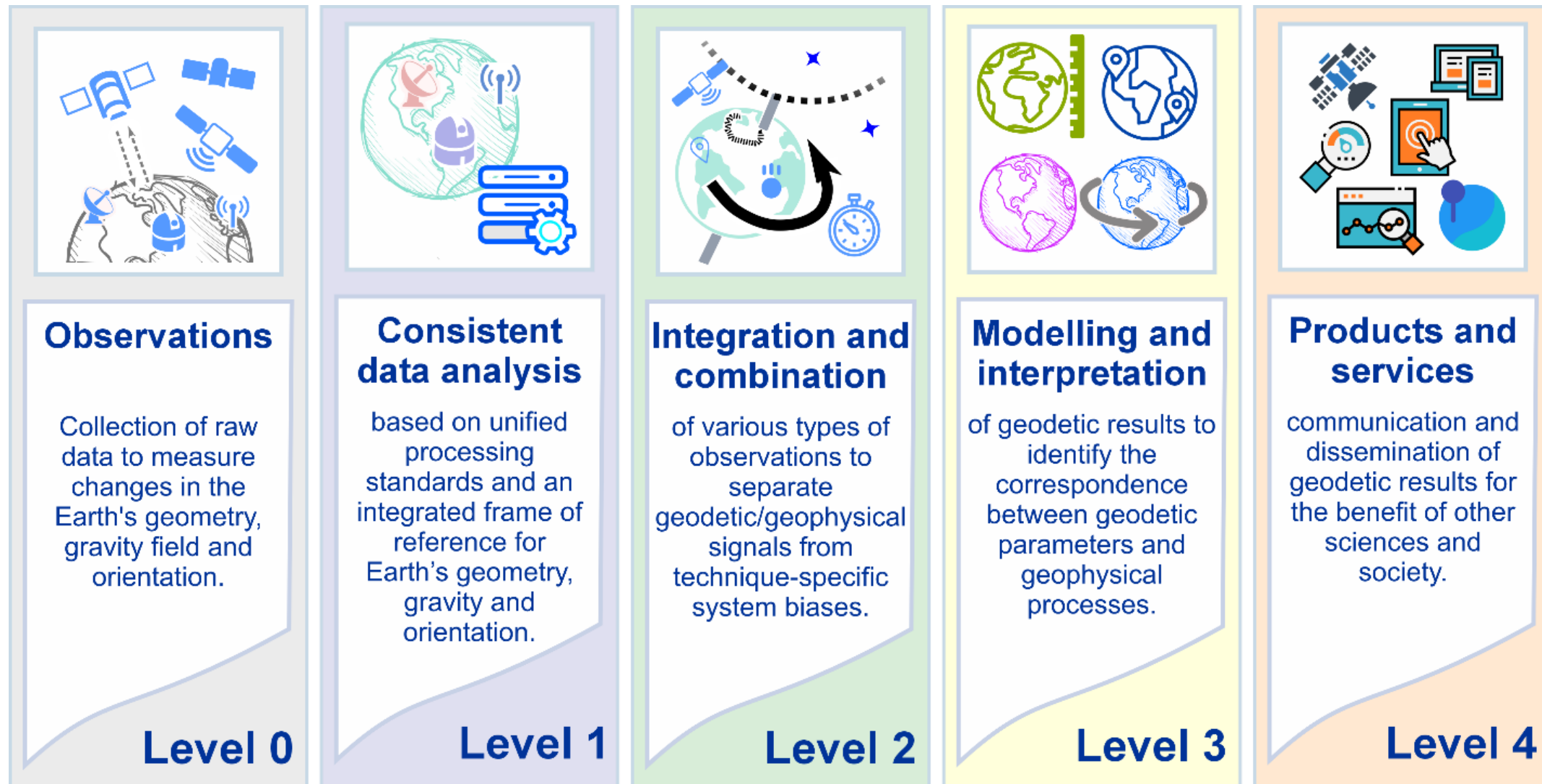
Global Geodetic Observing System

- Observes the **time-varying gravity field, geometry and rotation of the Earth** with respect to **precise and long-term stable geodetic reference frames.**

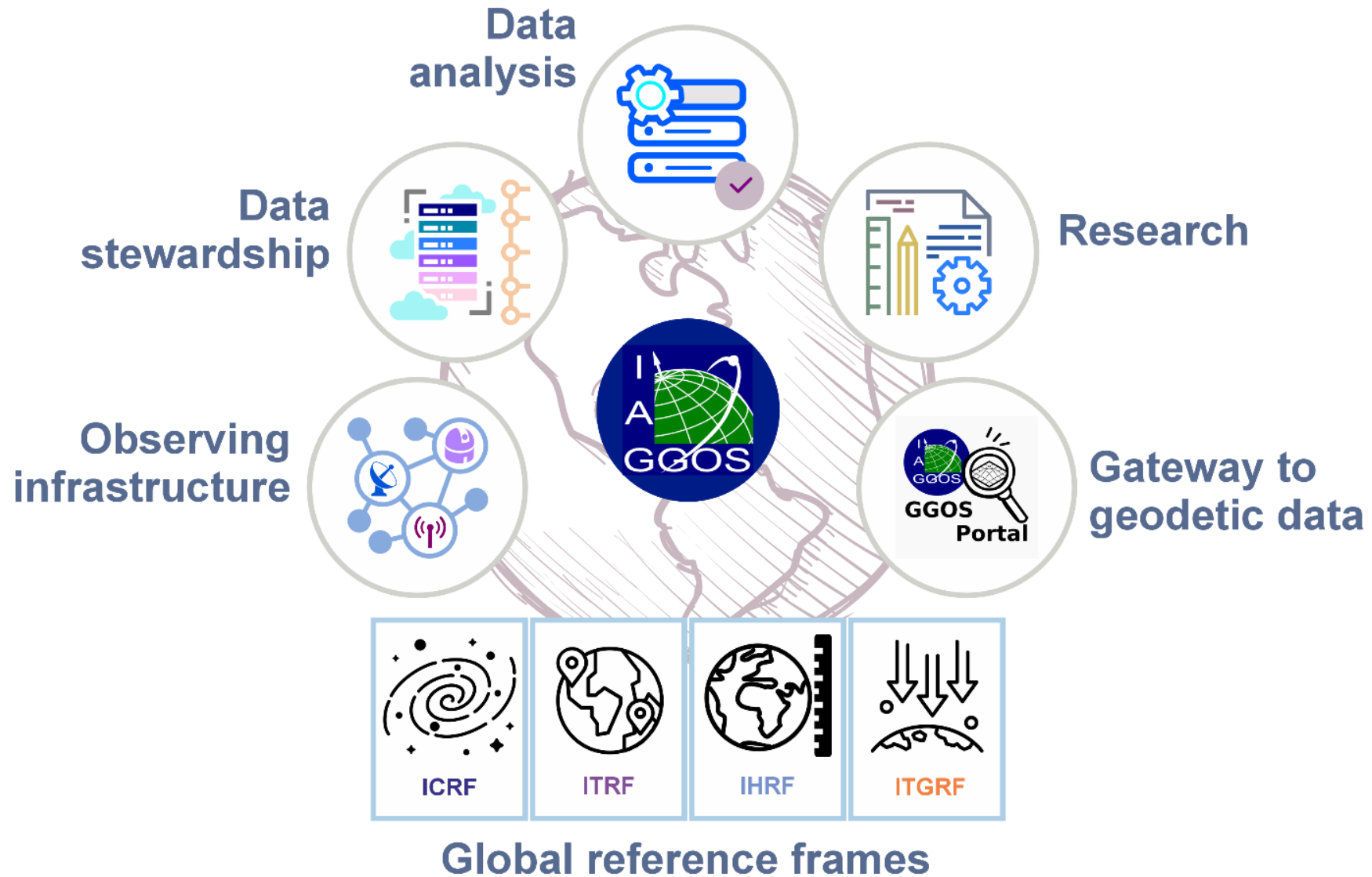
The rationale behind GGOS



From geodetic measurements to Earth system modelling

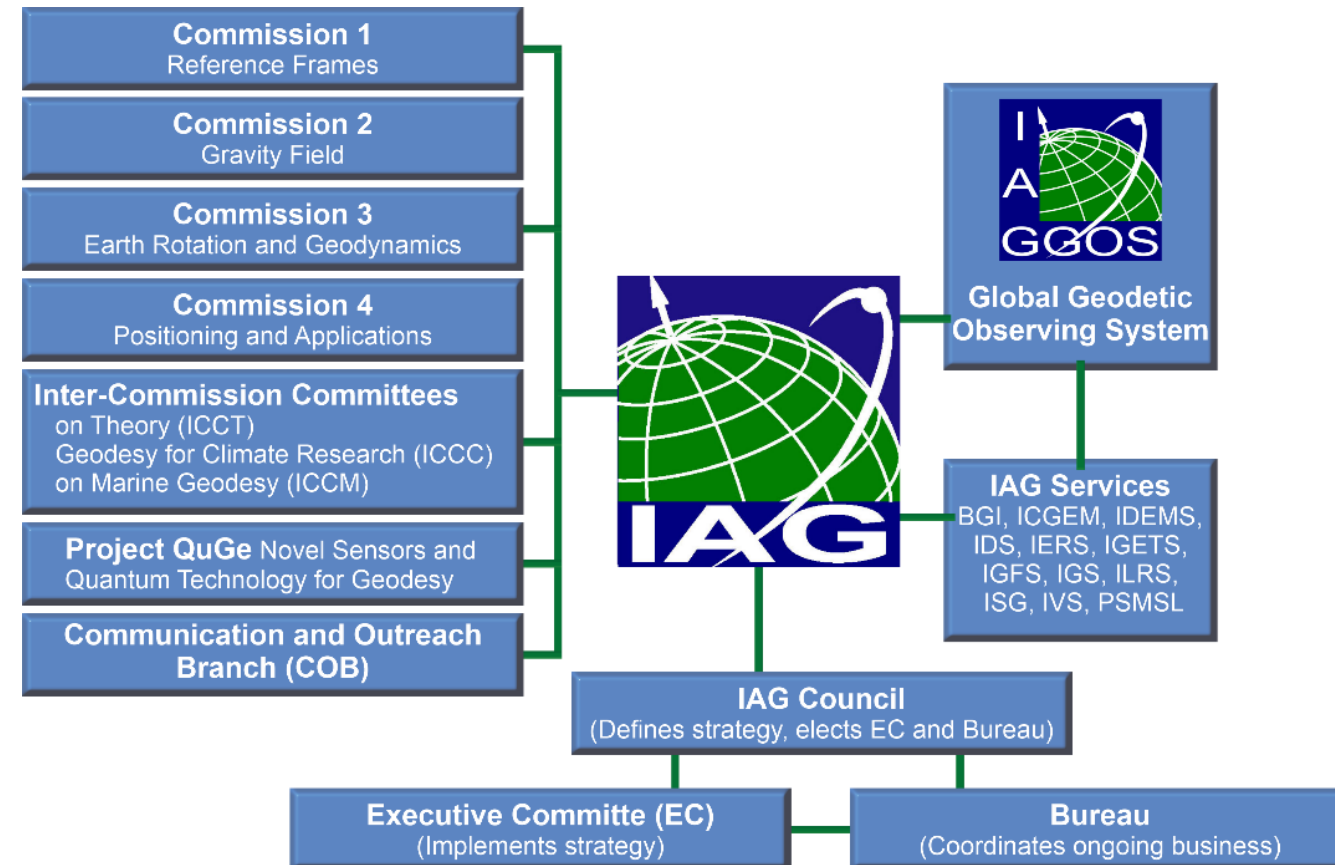


Building blocks of GGOS



GGOS: The observing system of the International Association of Geodesy (IAG)

- IAG is the organisation responsible for the advancement of geodesy.
- **160 years** of geodetic excellence based on strong international voluntary cooperation based on best efforts.
- The IAG **Commissions, Inter-Commission Committees and Projects** address key scientific issues.
- The **IAG Services** facilitate the global coordination of geodetic activities and ensure the generation of high accuracy and reliable geodetic products.



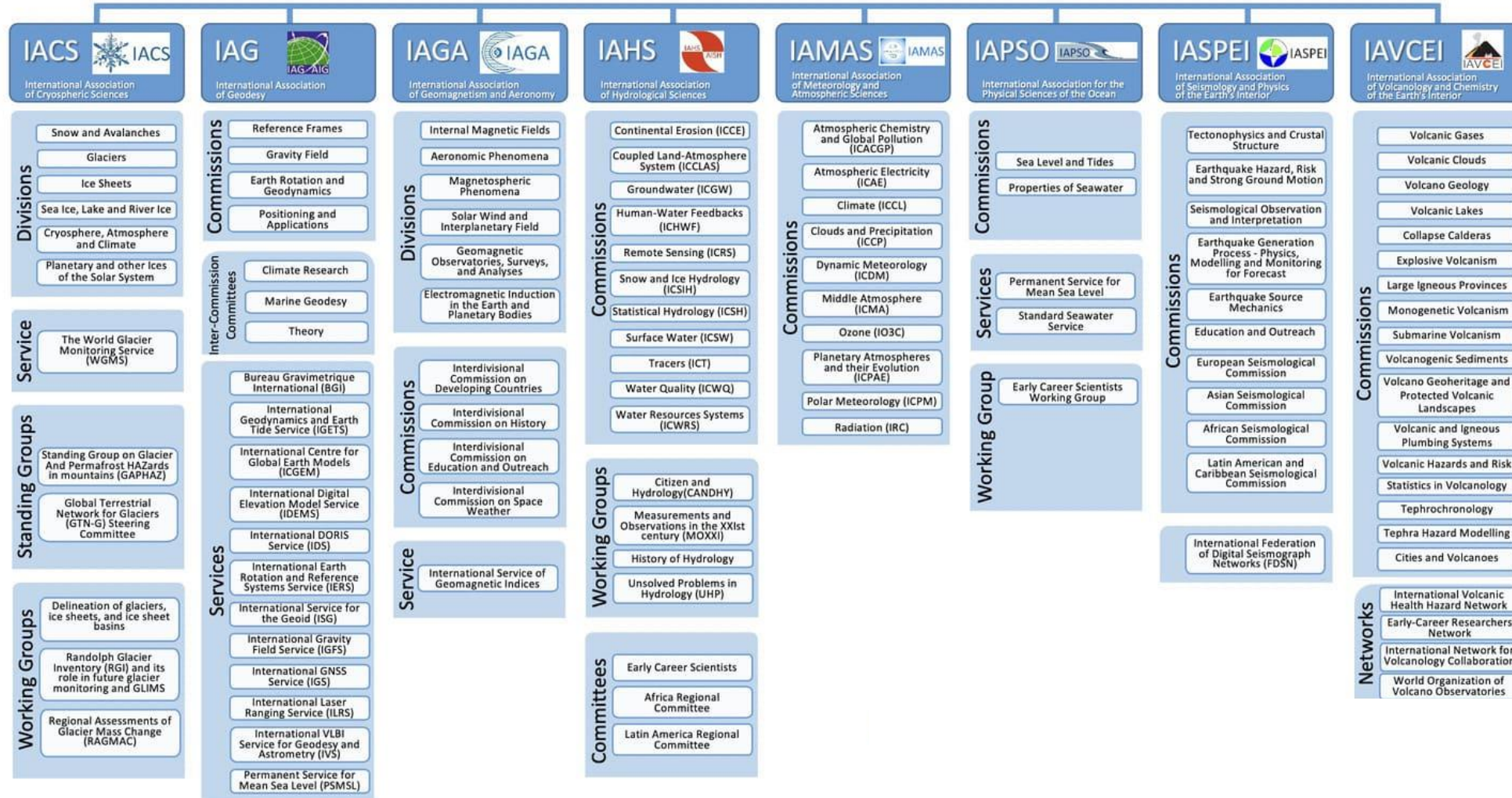
IAIG: An infrastructure like no other International Association



International Union of Geodesy and Geophysics (IUGG)

Source: www.iugg.org

Associations

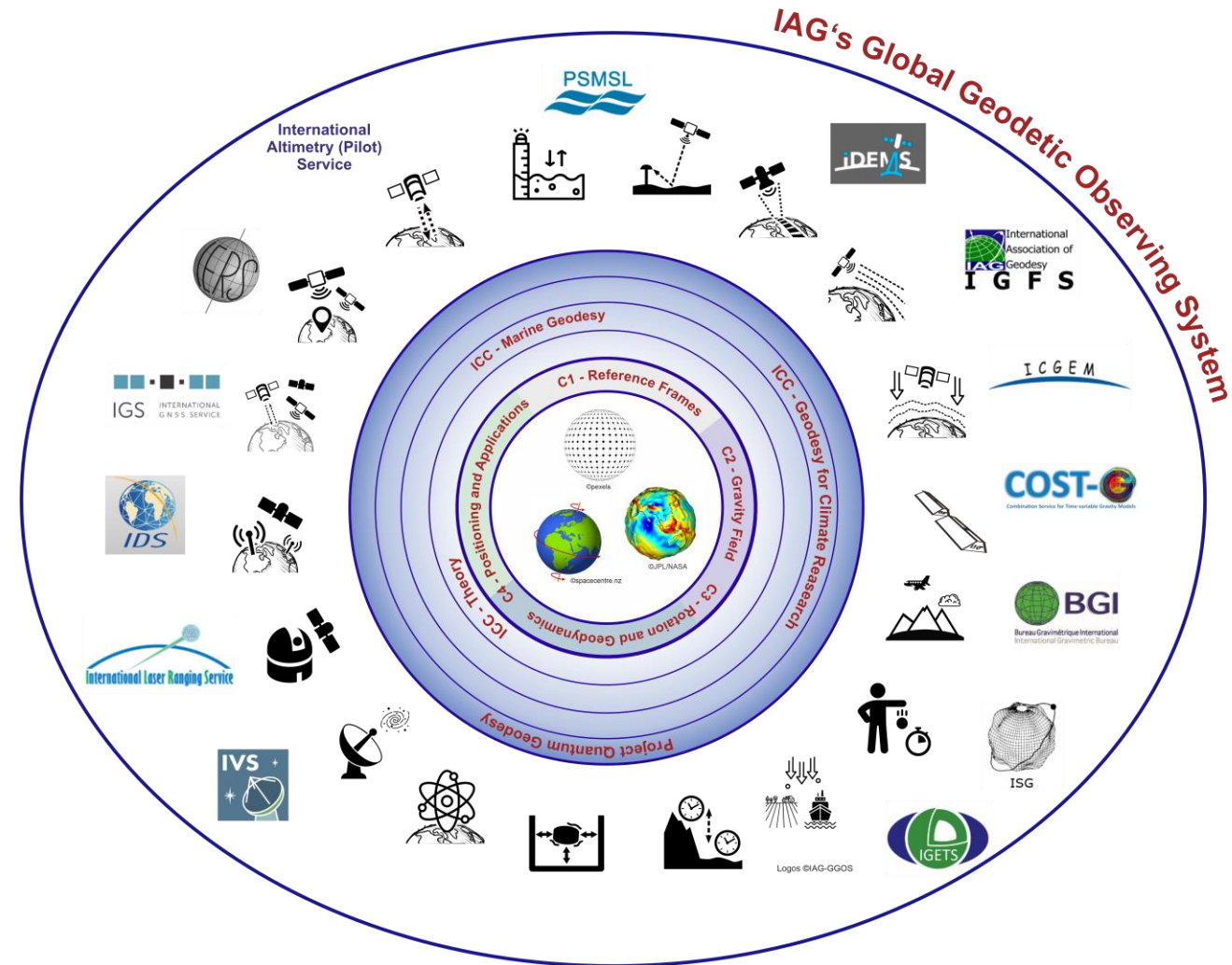


The genesis of GGOS



In the late 1990s, IAG officers had the vision of using geodetic infrastructure, data and products

- to serve science and society far beyond the traditional task of measuring and mapping the Earth's surface,
- to move from the provision of the basic geodetic products (station coordinates, geoid, Earth orientation parameters)
- to a level of consistent modelling and interpretation of Earth system processes and interactions, and
- to ensure an integrated observing system rather than many individual, technique-dependent products.





The **GGOS Bureau of Networks and Observations (BNO)** focuses on the global geodetic infrastructure.



The **GGOS Bureau of Products and Standards (BPS)** focuses on standardisation, integration and optimisation of geodetic products.



The **GGOS Coordinating Office (GGOS-CO)** is responsible for outreach, communication and external relations.



GGOS Affiliates are national or regional geodesy-related organisations that enable greater collaboration across regions, communities and new technologies.

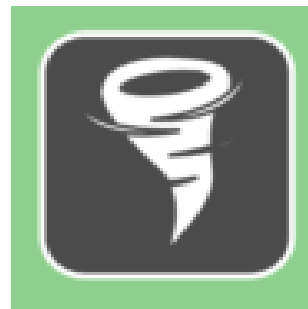
GGOS Focus Areas



The GGOS Focus Areas (FA) are incubators of new research topics, address broader issues, are cross-disciplinary, and are meant to consider gaps and future geodetic products.



**Geodetic Space Weather
Research (GSWR)**

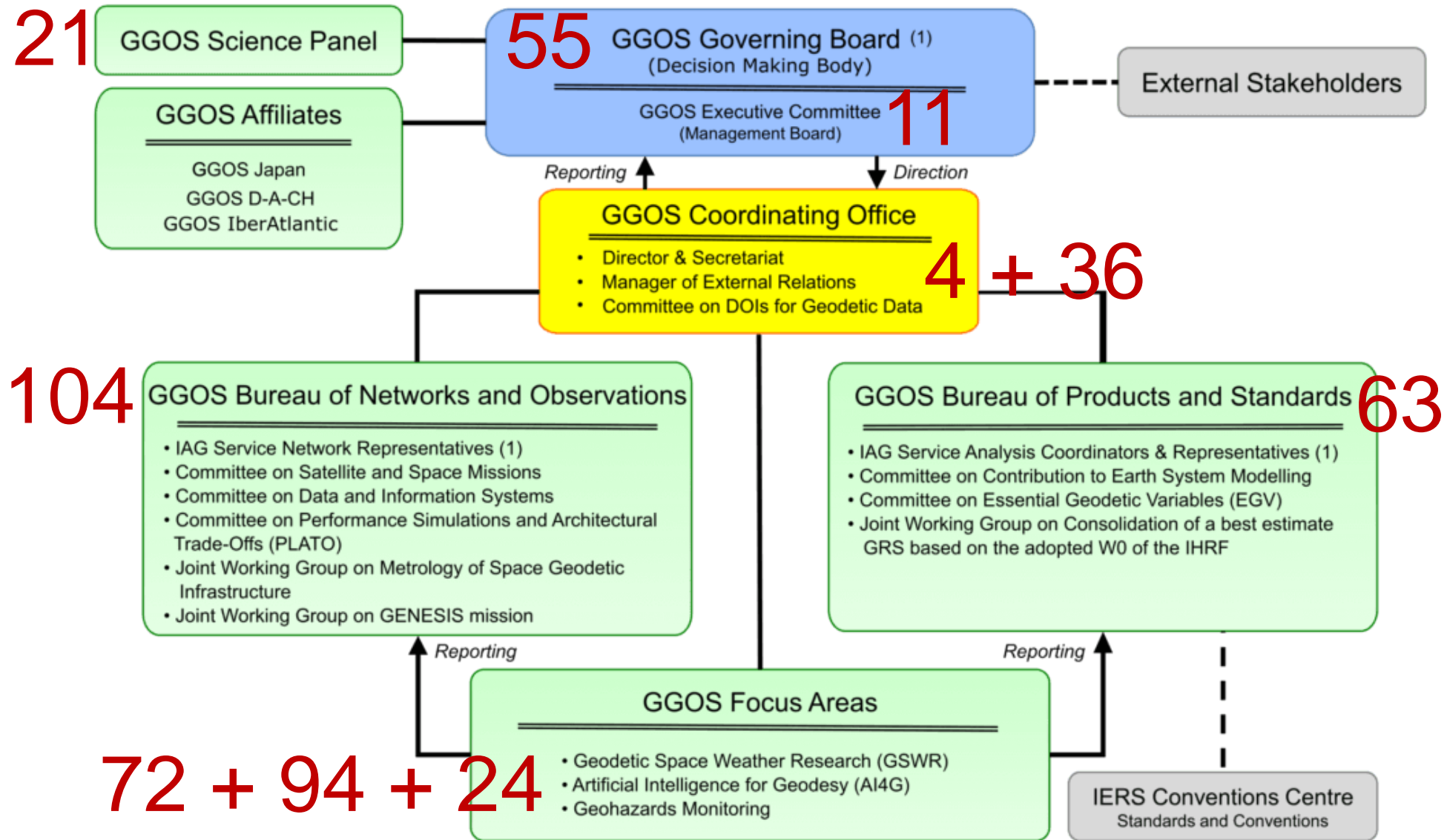


**Geohazards
Monitoring**



**Artificial Intelligence
for Geodesy (AI4G)**

Organisational structure (colleagues involved)



Business meeting to update the IAG and GGOS communities on recent achievements and current challenges faced by the various colleagues involved in achieving the goals of the GGOS.

- **Updates on global geodetic infrastructure**
 - Status of novel satellite missions relevant to Geodesy
 - Optimisation of geodetic infrastructure
 - Updates from the IAG Services
- **Standardisation, integration, and optimisation of geodetic products**
 - Essential Geodetic Variables
 - Review of requirements and standards for geodetic products
 - Management and dissemination of geodetic data and products
- **Networking with external stakeholders**
 - Science-policy networking
 - Communication and public outreach
 - GGOS portal
 - Enhancement of geodetic collaboration at regional level
- **Advances of the GGOS Focus Areas**
 - Geodesic Space Weather Research
 - Artificial Intelligence for Geodesy
 - Geohazards Monitoring

*Many thanks to the members of
the GGOS Executive Committee
for setting the agenda!*

Special thanks to:




- **GFZ** for hosting the meeting
- **Robert Heinkelmann** for making this meeting possible



- **Kirsten Elger, Nataliya Bobenko, Sascha Torkhov, and Alex Brauser**, GFZ, Germany for the **fantastic logistical organisation**.



- The **Austrian Federal Office of Metrology and Surveying (BEV)** and the **Technical University of Munich, Deutsches Geodätisches Forschungsinstitut (DGFI-TUM)** for hosting/supporting the GGOS Coordinating Office and the Presidency of GGOS, respectively.

 Bundesamt
für Eich- und
Vermessungswesen

