

The Global Geodetic Observing System of the International Association of Geodesy

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Federal Office of Metrology and Surveying





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# **Earth System**





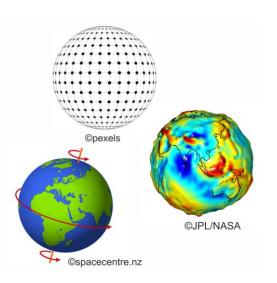


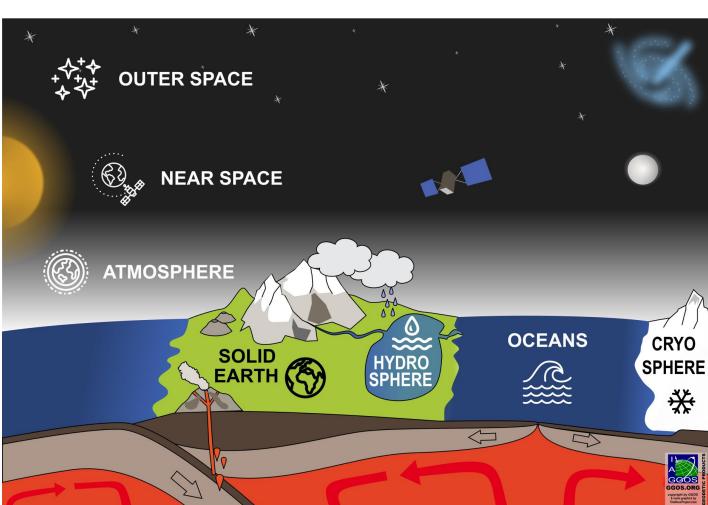
#### **Changes:**

- Earth dynamics
- Transport of mass and energy throughout the Earth system

**Direct impact on geodetic observations** determining Earth's:

- Size
- Shape
- **Gravity field**
- **Orientation**

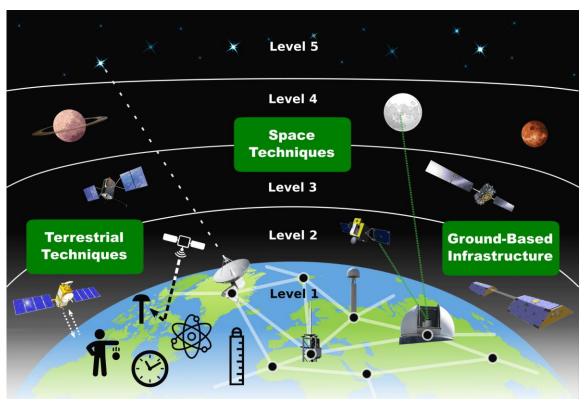




# **Geodetic Observation Techniques**







# www.ggos.org/obs

#### Various sensors and instruments

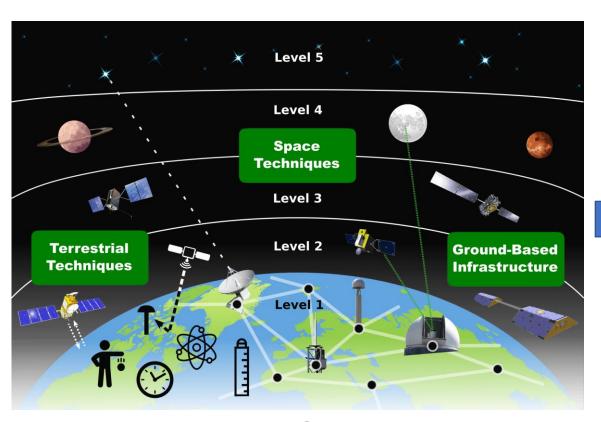
- Space Techniques
- **Terrestrial Techniques**
- Ground-Based Infrastructure

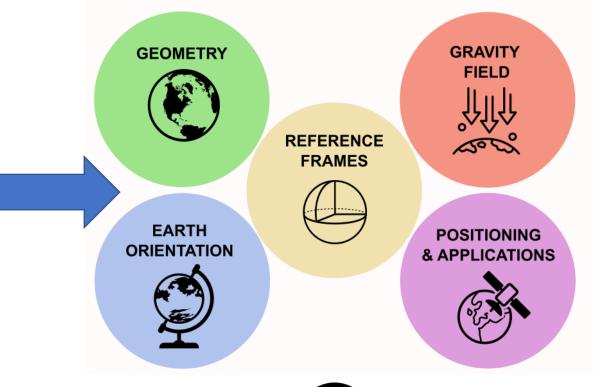
#### From Observations to Products





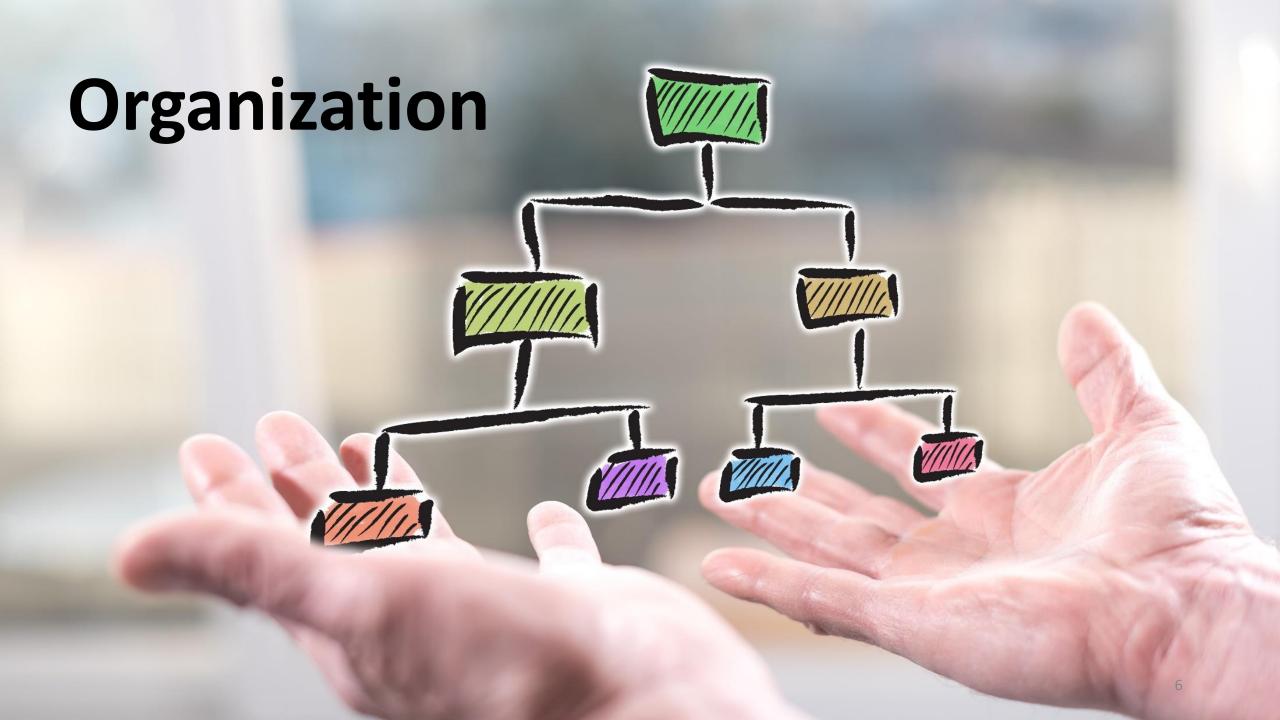




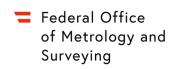








#### **International Association of Geodesy IAG**

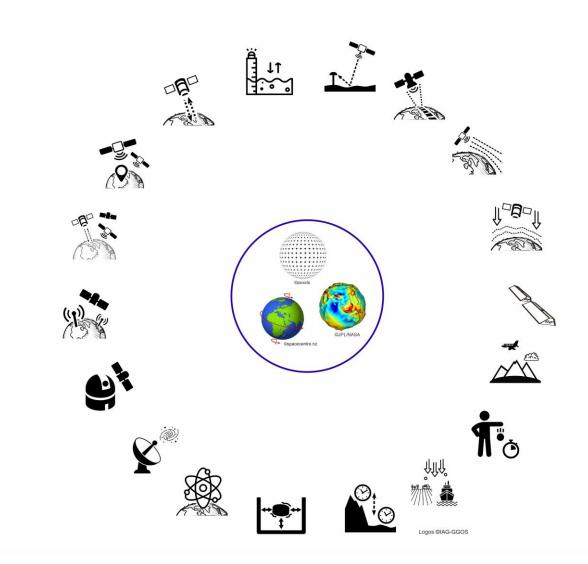






- IAG is responsible for the advancement of geodesy
- **160 years** of geodetic excellence
- Based on strong international voluntary cooperation





# **International Association of Geodesy IAG**

Federal Office of Metrology and Surveying

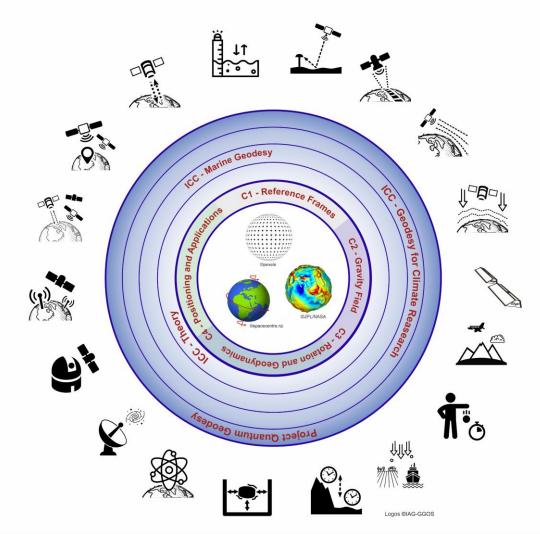




IAG is addressing **key scientific issues** by:

- IAG Commissions
- IAG Inter-Commission Committees (ICC's)
- IAG Projects





# **International Association of Geodesy IAG**

Federal Office of Metrology and Surveying



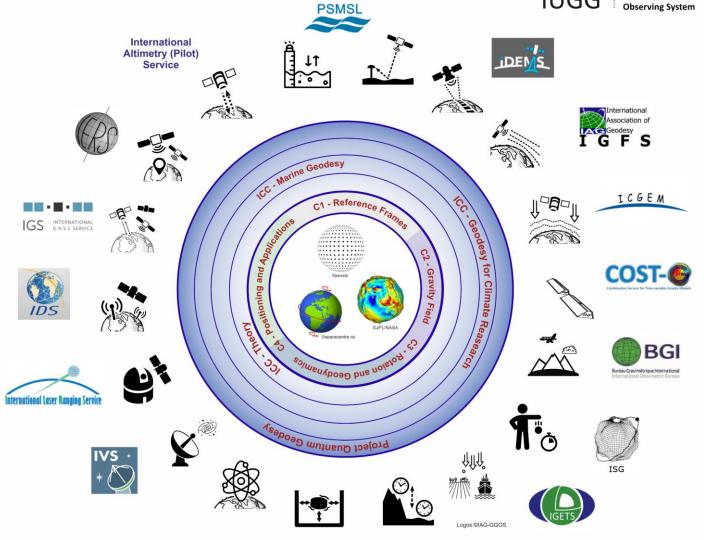


#### **IAG Services**:

 Ensure the generation of high accuracy and reliable geodetic products.



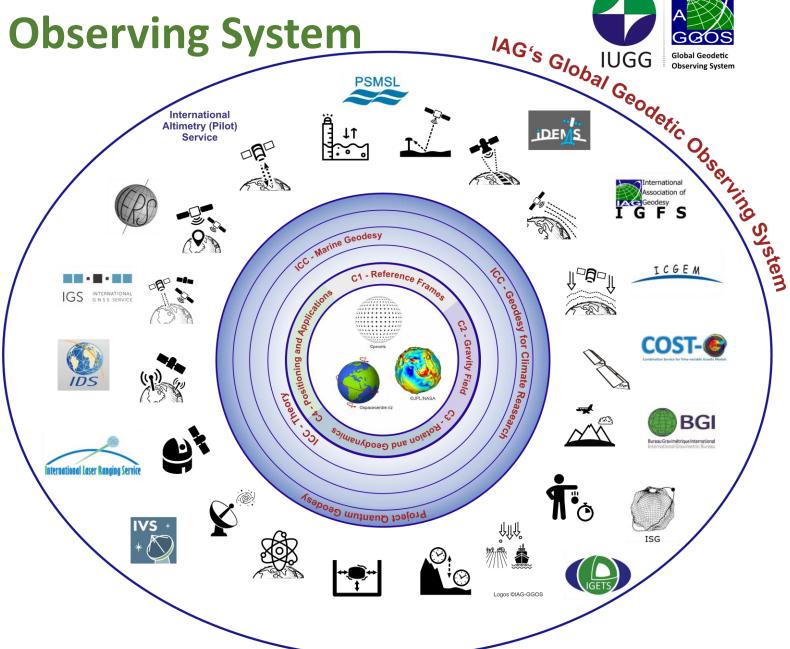




IAG's Global Geodetic Observing System

**GGOS** serves as an **framework** for all IAG components





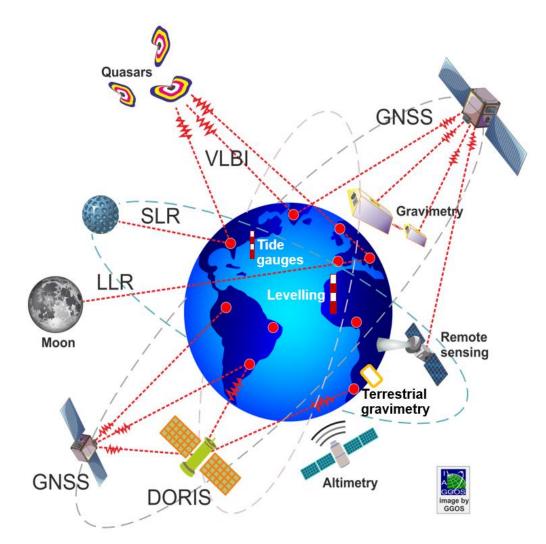
# **IAG's Global Geodetic Observing System**



**GGOS** serves as an **framework** for all IAG components:

To ensure an integrated observing system rather than a flood of technique-specific products.



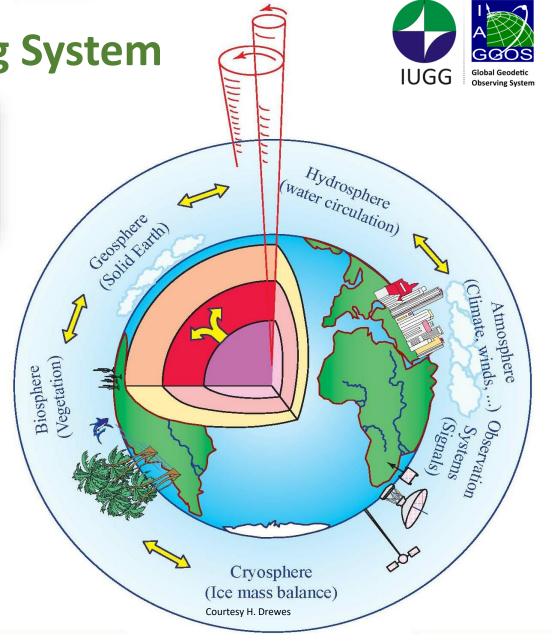


**IAG's Global Geodetic Observing System** 

**GGOS** serves as an **framework** for all IAG components:

- To ensure an integrated observing system rather than a flood of technique-specific products.
- To move from the provision of basic geodetic products to a level of consistent modelling and interpretation of Earth system processes and interactions





# **GGOS - Requirements**

Federal Office of Metrology and Surveying





Enable same standards, conventions, models and parameters in all data analyses.



- Identify scientific and societal needs
- Addressed by (new) geodetic products



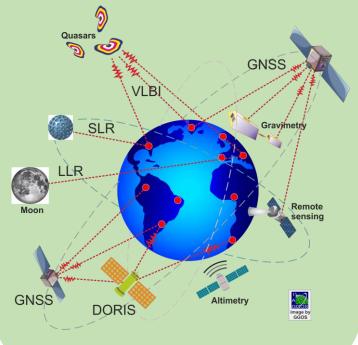
- Identify service gaps
- Develop strategies to fill them.



Promote and increase the visibility of geodesy.



Combining geometric, gravimetric and Earth rotation observations.



#### New: GGOS Strategic Plan 2024-2034

Federal Office of Metrology and Surveying





- New definition of GGOS goals
- Published in November 2023



Raise awareness of the benefits of geodesy to society



Contribute to the sustainability of the UN Global Geodetic Reference Frame (UN-GGRF) through collaboration with key UN initiatives on geodesy



Strengthen
sustainable
geodetic capabilities:
measuring facilities,
data analysis,
geodetic methods
expertise



Engage across geodetic techniques for integrated geodetic research and technological developments





Sánchez, L., Miyahara, B., Craddock, A., Sehnal, M., Angermann, D., Gross, R., & Schuh, H. (2024). GGOS Strategic Plan 2024-2034. https://doi.org/10.5281/zenodo.10571157

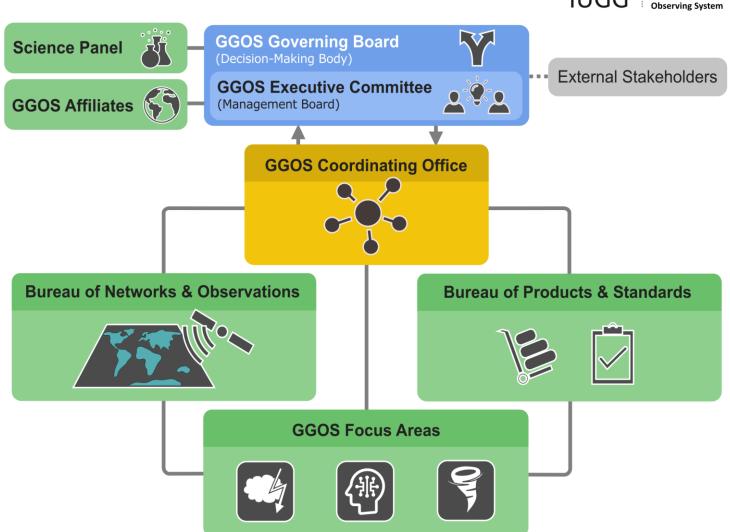
# **GGOS Strategy Implementation**







- GGOS Implementation Plan
  - Update in progress
- Implemented by the GGOS components



# **GGOS Managing Body**

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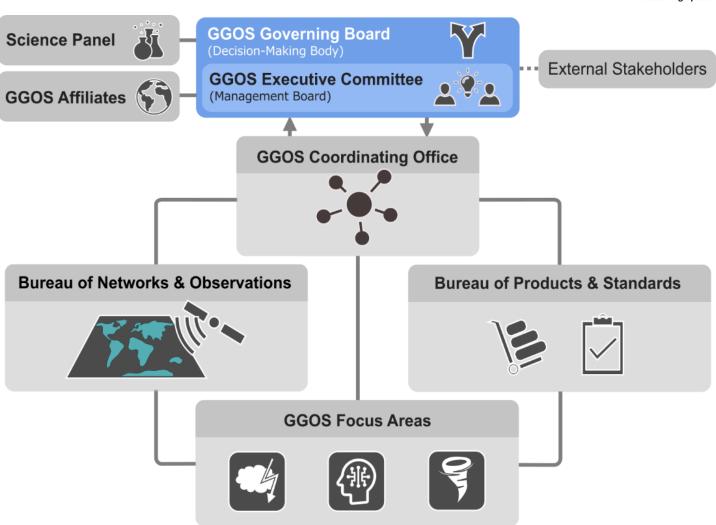


- **New:** GGOS GB Governing Board
  - 57 members (45 voting)

Detlef







**GGOS Executive Committee (2023-2027)** 

https://ggos.org/about/org/mng/ec/

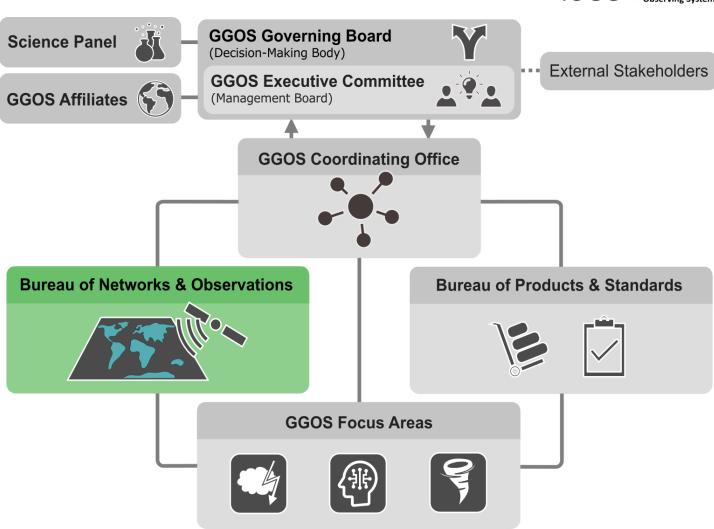
#### **GGOS Bureau of Networks & Observations**



Develop strategies to design, integrate and maintain the fundamental infrastructure

New: director and deputy





#### **GGOS** Bureau of Products and Standards

Federal Office of Metrology and Surveying



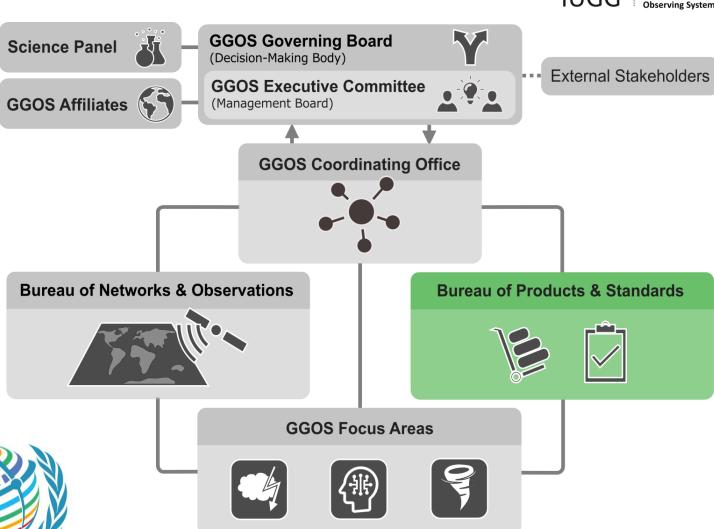


Obtain highly accurate, consistent and long-term stable products.

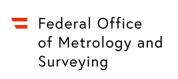
 Standard and conventions across all IAG components

#### **Current main activity:**

- Needs assessment in the global geodesy supply chain (with UN-GGCE, GGOS-BNO, IAG Services)
- Essential Geodetic Variables



#### **GGOS Focus Areas**





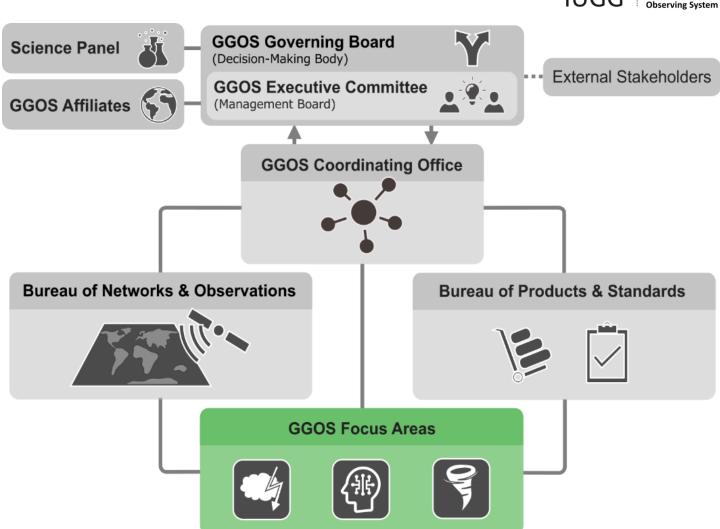


#### **Development of integrated products**

Combination of different observation methods

#### **GGOS Focus Areas:**

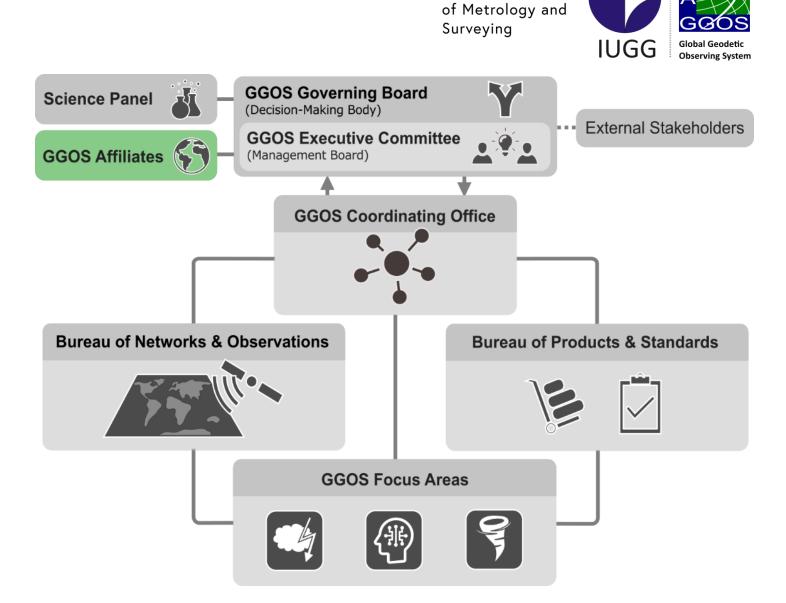
- Geohazards Monitoring
- Geodetic Space Weather Research
- New: Artificial Intelligence for Geodesy (AI4G)



#### **GGOS Affiliates**

Enhance geodetic collaboration at regional level

- GGOS Japan
- GGOS D-A-CH
- New: GGOS IberAtlantic



Federal Office

# **GGOS Coordinating Office**

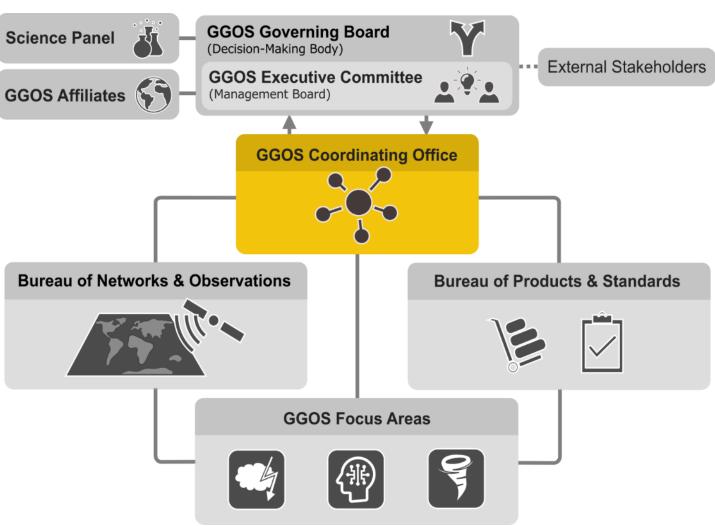
Federal Office of Metrology and Surveying





- Secretariat of GGOS
- Communication & Outreach
   Advertising GGOS & Geodesy
  - Website, Social Media, Booth, ...





# **GGOS Coordinating Office**



**GGOS Governing Board** 

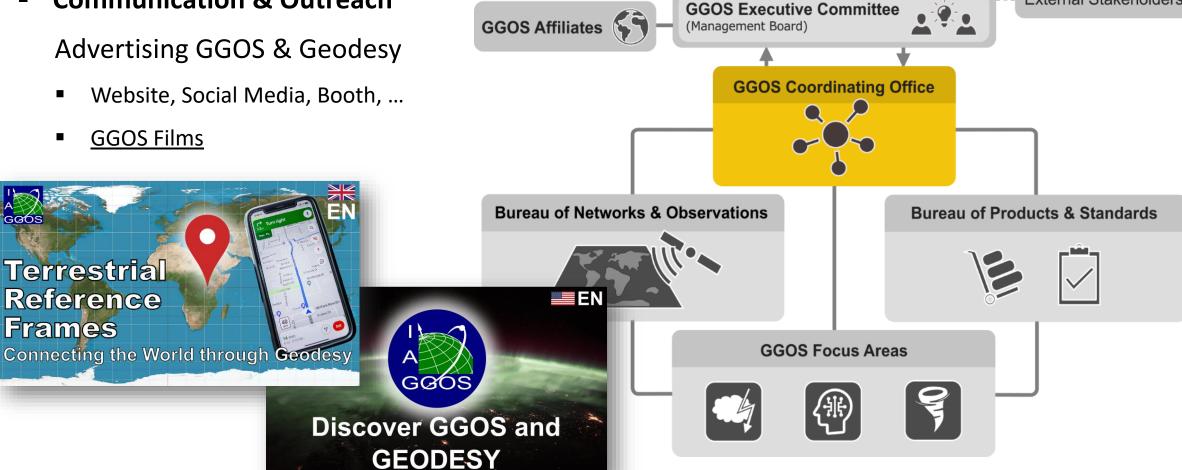
(Decision-Making Body)



External Stakeholders



- **Secretariat of GGOS**
- **Communication & Outreach**



**Science Panel** 

# **GGOS Coordinating Office**

Federal Office of Metrology and Surveying





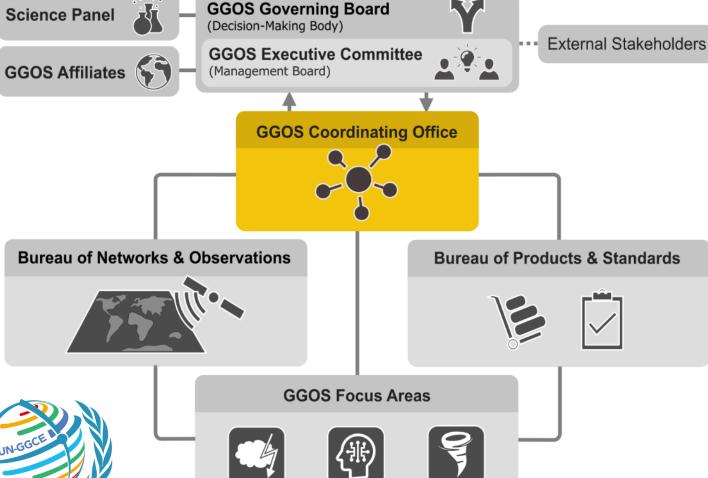
- Secretariat of GGOS
- Communication & Outreach
   Advertising GGOS & Geodesy
  - Website, Social Media, Booth, ...
  - GGOS Films
  - <u>External Stakeholders</u>











#### **Next GGOS Events**

In October 7-11, 2024 | Potsdam, Germany:

- GGOS Topical Meeting on the Atmosphere
  - October 7-9 | in-person only
  - Abstract submission open (until July 31)

ggos.org/event/

- GGOS Days 2024
  - October 10-11 | <u>in-person</u> or <u>online</u>
- -> Now registration open

(no registration fee!)







ggos.org/event/ggos-topical-meeting-atmosphere



# Advancing Geodesy Together

