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# SMART SURVEYORS FOR LAND AND WATER MANAGEMENT CHALLENGES IN A NEW REALITY



**e** WORKING WEEK 2021  
**20-25 JUNE**

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**Update on the UN Global Geodetic Centre of Excellence (GGCE)**

Coordination of Global to Regional Geodetic Efforts through the United Nations  
22 June, 17:30 – 19:00

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## Content

- UN resolution Global Geodetic Reference Frame (GGRF)
- Motivation and basis for establishment of the Global Geodetic Centre of Excellence (GGCE)
- German application for the GGCE - role and tasks
- How the GGCE may support the GGRF
- What's next?



## Global Geodetic Reference Frame - GGRF

- UN-GGIM resolution for a “Global Geodetic Reference Frame for Sustainable Development (GGRF)”
- Adopted on 26 February 2015 by the UN General Assembly, the highest-ranking UN body
- GGRF is the first geoscience-related resolution
- Main GGRF goals:
  - Establish an authoritative, reliable, highly accurate, and global, geospatial referencing infrastructure
  - Support the collection, integration and utilization of all other geospatial data
  - Improve earth observation and positioning







# Role of the UN-GGIM Subcommittee of Geodesy

- In 2016 the “Subcommittee on Geodesy” (SCoG) was established
- Main tasks of the SCoG:
  - Develop the GGRF Road Map and GGRF implementation plan
  - Addressing five focus areas:
    - Governance
    - Geodetic Infrastructure
    - Policies, Standards and Conventions
    - Education, Training and Capacity Building
    - Communication and Outreach



Source: INEGI

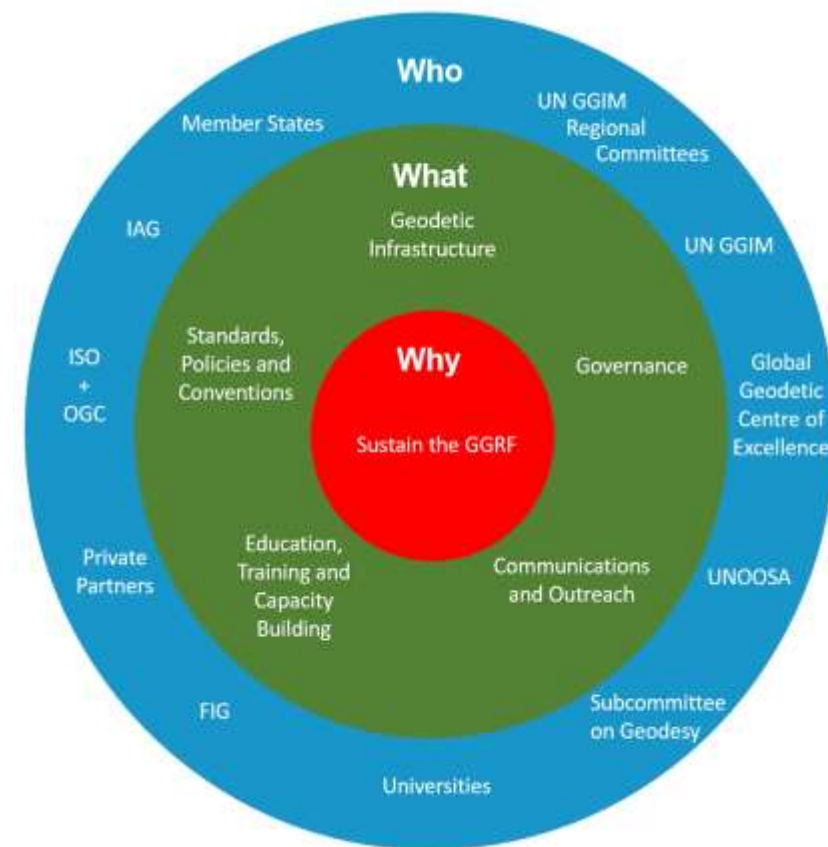


## Many players to sustain the GGRF

To sustain the GGRF the support and cooperation of Member States and organisations are needed.

Global players, amongst others:

- Member States
  - Build and maintain the geodetic infrastructure
- International Association of Geodesy: IAG
  - operational services and product delivery
- International Federation of Surveyors: FIG
  - education, training and capacity development
- United Nations (Statistics Division)
  - works with and supports Member States



Why we need to work together to sustain the GGRF, what needs to be done and who can help.



## New player: Global Geodetic Center of Excellence

The Subcommittee on Geodesy was tasked to develop a

- **Position Paper** on “Sustaining the GGRF”
  - describes the current state and future requirements of the GGRF
  - introduces a range of work packages for each of the five focus areas
  - introduces the potential and role of a Global Geodetic Centre of Excellence
- **Concept Paper** on “Establishing a Global Geodetic Centre of Excellence” (GGCE)
  - describes the potential and envisaged tasks of the GGCE
- Both reference documents were submitted to UN-GGIM-10 in 2020







## Tasks of the Global Geodetic Centre of Excellence

Tasks of the GGCE are tailored to the five focus areas:

- Enhance global cooperation and coordination
- Strengthen geodetic infrastructure
- Assist Member States in line with standards, policies and conventions
- Support education, training and capacity building
- Improve communication and raise awareness





## Establishment of the GGCE in Germany

Offer of the German Federal Government was accepted and supported at the 10th Session of UN-GGIM (2020)

The GGCE in Germany

- located at the UN Campus Bonn
- financed and supported by BKG
- supported with virtual secondment by Norway
- Steering Committee (UN DESA + Germany)
- Technical Advisory Committee (SCoG, IAG, FIG, Space Agencies, ...)

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UN Campus Bonn; Source: Press office of the city of Bonn





## How the GGCE may support the GGRF

- Here: not an in-depth discussion, limited to Geodetic Infrastructure
- MoU / agreements with GGCE or enabled through the GGCE
- Quality management
- Critical infrastructure



## How the GGCE may support the GGRF

### MoU / agreements with GGCE or enabled through the GGCE

- Example: BKG and TU Vienna have an MoU to collaborate on VLBI correlation. BEV is interested to become a partner as well.
  - Letter of Collaboration, to be approved by the GGCE Steering Committee
  - Extension: Distributed Correlator, model agreement that could be signed by MS, institutes
- Trust Fund
  - Multiple Member States donate a smaller or larger amount of money
  - Distributed Correlator is (partially) financed through Trust Fund
- Letters of Collaboration / Trust Fund could also be used to sustain contributions to the IAG Services, to support ETCB, etc.



## How the GGCE may support the GGRF

- **Quality management** is the act of overseeing all activities and tasks that must be accomplished to maintain a desired level of excellence [Investopedia]
- Key performance indicators: e.g. latency, accuracy, reliability, ...
- QM / certification as a condition for agreements with GGCE?
- Enables the derivation of GGRF health indicators?
  - Decision makers
  - Sustainability





## Critical Infrastructure

- Organizational and physical structures of such vital importance to a nation's society and economy that their failure or degradation would result in sustained supply shortages, significant disruption of public safety and security, or other dramatic consequences.
  - GNSS have become primary source of precise position and timing information, critical to safe operation of a number of critical infrastructures like the power grid, telecom networks, financial systems, etc. [European Commission / Department of Homeland Security, USA]
  - National positioning services: a critical infrastructure themselves (TBC)



## Critical Infrastructure

- Geodetic Observatory Wettzell is part of the German critical infrastructure:
  - Essential to Galileo, Earth Orientation Parameters
  - Implies that other geodetic observatories, downstream data analysis, ..., are critical infrastructures
- Advantages and disadvantages
  - Audits, paper work, IT security measures, construction measures (UPS, ...), etc.
  - Contributes to GGRF sustainability & visibility and political relevance
- Possible roles of the GGCE
  - Enhance international cooperation
  - Sharing information and experience
  - Support the development of strategies for CI implementation
  - Support coordination among domestic agencies



## What's next

### Next Steps

- Develop participation of other partners in the GGCE
- Negotiations on a
  - 'Agreement' (streamline the tasks for the GGCE Bonn)
  - 'Verbal Notes' (agree upon the infrastructure on the UN campus)

Negotiations between the German Federal Government and the United Nations began in autumn 2020

