

Factsheet GGRF Roadmap

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UN-GGIM – Global Geodetic Reference Frame Working Group

The UN-GGIM Roadmap for the Global Geodetic Reference Frame (GGRF)

In February 2015 the UN General Assembly adopted the resolution “A Global Geodetic Reference Frame for Sustainable Development” – the first resolution recognizing the importance of a globally-coordinated approach to geodesy.

The GGRF Working Group has developed the Roadmap for the Global Geodetic Reference Frame for Sustainable Development. It addresses each of the key areas of action described in the operational paragraphs of the UN General Assembly Resolution (A/RES/69/266).

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Highlights of the GGRF Roadmap

The roadmap aims to enhance the development and sustainability of the Global Geodetic Reference Frame

The Global Geodetic Reference Frame, #GGRF, supports sustainable development policymaking.

PHOTO: BJØRN-OWE HOLMBERG

Data sharing

Development of geodetic standards and open geodetic data sharing are required to enhance and develop the Global Geodetic Reference Frame (GGRF).

Geodetic data sharing is inconsistent across Member States and the UN-GGIM regions.

GGRF products are made openly available, as are the geodetic data collected at the observing sites. However, many Member States face challenges to share their geodetic data, especially GNSS and gravity data.

The International Association of Geodesy maintains and develops new standards that allow transparent and repeatable geodetic measurement to be undertaken.

Member States are encouraged to support efforts to more openly share their data, develop geodetic standards, standardised operating procedures, expertise, and technology.

Education and capacity building

Appropriate geodetic skills and educational programs are essential for the development, sustainability and utilization of the GGRF.

Utilization of the GGRF is a foundation for a country's economic development and sustainability. Lack of geodetic skills limits this utilisation. Hence, a lack of geodetic competence and capability hinders a country's development and sustainability. The skills required to install and operate geodetic instruments are not widely understood. The expertise required to analyse and combine geodetic observations are even more inaccessible. Neither skill sets are generally taught in mainstream higher education programs.

Actions must be taken to raise geodetic competence and skills, as a lack of geodetic capability limits realization of the sustainable development goals. It also weakens the development and sustainability of the GGRF.



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The key element of the #GGRF is the availability of a sufficient number and globally distributed geodetic observatories.

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Communication and outreach

It is imperative to develop communication and outreach programmes that enable the global geodetic reference frame to be more visible and understandable to society.

If decision makers do not understand the value of an investment in the GGRF, then they are unlikely to prioritise GGRF investments above other initiatives. There is a requirement for good communication to improve the sustainability of the GGRF.

Actions must be taken to raise the general awareness around the value proposition of the GGRF, as this is necessary for its ongoing sustainability.

Geodetic infrastructure

A more homogeneous distribution of geodetic infrastructure is needed to develop and utilize an accurate GGRF.

The current global distribution of geodetic observatories is particularly sparse in developing regions. This poor geometric coverage, coupled with under-performing instruments elsewhere, results in inconsistency that jeopardize the GGRF accuracy and sustainability over time for all Member States.

In the absence of appropriate GNSS infrastructure in many developing countries, the GGRF is difficult to access and is underutilised. As a consequence, interoperability of geospatial data is not easy to achieve, which in turn results in loss of competitiveness and societal disadvantage.

Actions must be taken to maintain and upgrade current national infrastructure and to fill gaps where geodetic observatories are needed in order to ensure Member States accurate access to the GGRF.

Governance

The development and sustainability of the global geodetic reference frame is reliant on an improved governance structure.

There are currently many governance mechanisms in place that loosely coordinate the maintenance and development of the GGRF. These are based on best-efforts collaboration, with no contractual obligation of continuity in the long term.

There exists no intergovernmental governance mechanism that encourages and manages multilateral cooperation. Consequently the development and the sustainability of the GGRF is suffering.

Improved governance is fundamental to reach the roadmap measures of success in the key areas.

