

UN-GGIM: Global Geodetic Reference Frame (GGRF) for Sustainable Development



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"Positioning geospatial information to address global challenges"

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Sustainable Development Goals



The First UN geospatialResolution (1)



General Assembly, 26 February 2015 (A/RES/69/266)

Photo: Kyoung-Soo Eom



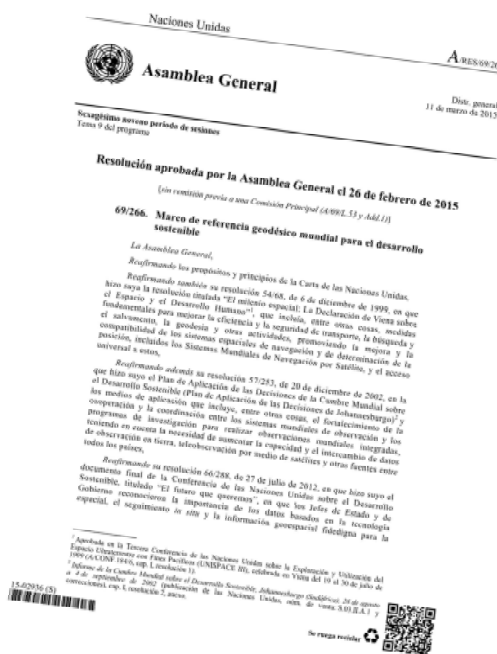
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The First UN geospatialResolution (2)



1. *Notes with appreciation* the **establishment of a working group** by the Committee of Experts on Global Geospatial Information Management to develop a **global geodetic road map** that addresses key elements relating to the development and sustainability of the global geodetic reference frame;
2. *Encourages* Member States and relevant international organizations to **enhance global cooperation** in providing technical assistance, especially for capacity development in geodesy for developing countries, with the aim of ensuring the development, sustainability and advancement of the global geodetic reference frame;
3. *Urges* Member States to **implement open sharing of geodetic data, standards and conventions, on a voluntary basis**, to contribute to the global reference frame and regional densifications through relevant national mechanisms and intergovernmental cooperation, and in coordination with the International Association of Geodesy;
4. *Invites* Member States to **commit to improving and maintaining appropriate national geodetic infrastructure** as an essential means to enhance the global geodetic reference frame;
5. *Also invites* Member States to **engage in multilateral cooperation that addresses infrastructure gaps and duplications** towards the development of a more sustainable global geodetic reference frame;
6. *Further invites* Member States to **develop outreach programmes** that make the global geodetic reference frame more visible and understandable to society.

80th plenary meeting
26 February 2015

GGRF UN Road Map: Governance

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.



GGRF UN Road Map: Data sharing

Data sharing

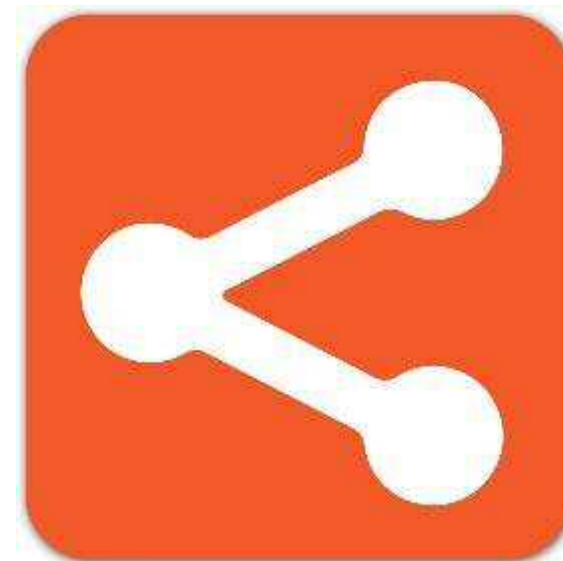
Development of geodetic standards and open geodetic data sharing are required to enhance and develop the Global Geodetic Reference Frame (GGRF).

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.



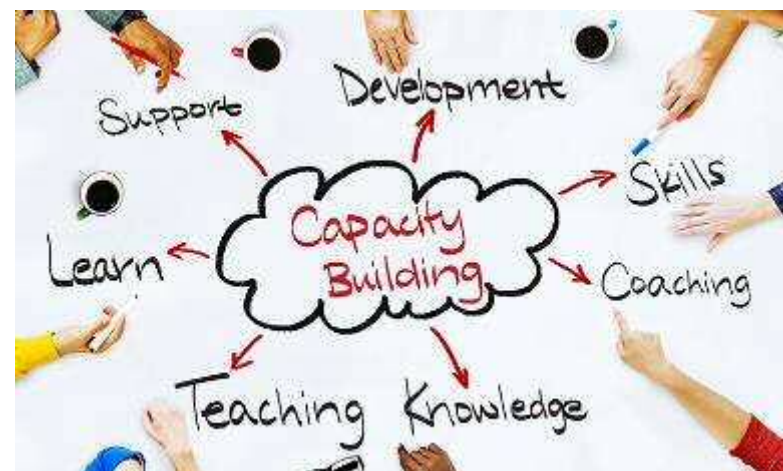
GGRF UN Road Map: Data sharing

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.



GGRF UN Road Map: Communication

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.



GGRF UN Road Map: Infrastructure

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.



Communicate GGRF



The screenshot shows the Twitter profile for UNGGRF (@UNGGRF). The profile picture is a globe. The bio reads: "UN-GGIM Global Geodetic Reference Frame (GGRF) Working Group. Recognizes growing demand for positioning service, GGRF and global cooperation within geodesy." The website listed is ungrf.org. The page shows 275 tweets, 554 followers, and 455 following. A tweet from UNGGRF dated 11 Oct. says: "Have a look @kartverket and the finalization of the VLBI twin telescopes at the new #geodetic observatory #Svalbard #GGRF #geodesy". A retweet from UN-GGIM dated 4 Oct. says: "#GGIM6 report in #UN languages now out: ggim.un.org /ggim_committee...".



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Communicate GGRF



Economic and Social Council
Official Records,
Supplement

E/2016/46-E/C.20/2016/15

Committee of Experts on Global Geospatial Information Management

Report on the sixth session
(3-5 August 2016)

Decision 6/102: Global geodetic reference frame



United Nations • New York,



- (d) Recognizing the critical importance of such a governance structure, supported the suggestions to elevate the Working Group's mandate through the establishment of a UN-GGIM Sub-Committee on Geodesy, to provide the required stability and longer-term planning for the global geodetic reference frame.



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

PHOTO: BJØRN-OWE HOLMBERG



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