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UN-GGCE Global Capacity Development Workshop, Europe

Session WHERE

Bonn, 20 February 2025

United Nations
Global Geodetic
Centre of Excellence

WHERE Session 1:
Making geodesy understandable and visible

Stronger. Together.

Talk to decision makers


Photo: Dag Høgvard

THE GLOBAL GEODETIC REFERENCE FRAME

The United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), established in 2011 by the Economic and Social Council (ECOSOC), recognizes the growing demand for more precise positioning services, the economic importance of the global geodetic reference frame, and the need to improve global cooperation within geodesy.

Geodesy provides a coordinate reference frame for the whole planet, fundamental for:

- *Monitoring changes to the Earth including the continents, ice caps, oceans and the atmosphere*
- *Mapping, navigation and universal timing*

This coordinate system allows us to know where people and features are on the Earth. "Location" is a vital component for effective decision making.


PHOTO: BJØRN-OWE HOLMBERG


PHOTO: ANNE JØRGENSEN


PHOTO: MORTEN BRUN

IMPORTANT APPLICATIONS ARE:

Natural hazard and disaster management

Decision makers need an accurate and stable global geodetic reference frame to make good decisions for the future and to identify areas under threat of flooding, earthquakes or drought and to adopt preventive measurements to protect them. Geodesy provides the location basis for such decisions.

Climate change and sea level monitoring

Climate change is a global challenge that puts stronger requirements on the precision of the global geodetic reference frame. Geodesy provides information about sea level changes, plate movements, land uplift, and ice sheet and glacier changes. Global society requires information about current trends at a scale measured in millimeters to detect changes of the Earth system with sufficient accuracy, for local, regional and global planning.

To be able to monitor and estimate future sea level variations, significant improvements in both geodetic infrastructure and data analysis are needed.

Geospatial information, mapping and navigation

'Location-based' services are becoming increasingly important in modern society.

The global geodetic reference frame supports satellite positioning technology and is a critical enabler of geospatial information interoperability and applications such as land titling and ownership, engineering construction, precision agriculture, intelligent transport and navigation.

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GEODESY - A GLOBAL SCIENCE ON A RESTLESS PLANET

Newsletter
March /April 2014
01

UN-GGIM – Global Geodetic Reference Frame Working Group

UN RESOLUTION

The UN Committee of Experts on Global Geospatial Information Management (UN-GGIM) decided in July 2013 to formulate and facilitate a draft resolution for a global geodetic reference frame.

UN-GGIM recognises the growing demand for more precise positioning services, the economic importance of a global geodetic reference frame and the need to improve the global cooperation within geodesy. The resolution will be tabled at the 2013-14 Session of the UN General Assembly.

How geodesy contributes to strengthen the study of our changing planet

Measuring the planet

Through geodesy, we measure and define the Earth's shape, rotation and gravitational field and changes to these.

Geodesy is fundamental for monitoring changes to the Earth including the continents, ice caps, oceans and the atmosphere. Geodesy is also fundamental for mapping, navigation and universal timing.

THE EARTH TIDE *THE EARTH ROTATION* *PLATE TECTONICS* *GLOBAL MASS TRANSPORT*

***EARTH IS A DYNAMIC PLANET** and is in constant motion. We monitor the different processes which cause these motions.*

Where places and people are

Because the Earth is in constant motion, an accurate point of reference is needed for making measurements. Geodesy provides a very accurate and stable coordinate reference frame for the whole planet: A global geodetic reference frame.

This coordinate system allows us to relate measurements taken anywhere on the Earth with similar measurements taken at a different time or location.

***A GLOBAL GEODETIC REFERENCE FRAME** which allows us to know where people and places are on the Earth.*

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Newsletter 01 | UN-GGIM – Global Geodetic Reference Frame Working Group

Natural hazard and disaster management

To make good decisions for the future, information is needed about sea level changes, plate movements, land uplift and ice sheet and glacier changes.

The global geodetic reference frame provides the basis for such decisions. Without this system, it would be difficult to identify areas under threat of flooding, earthquakes or drought and to adopt preventive measures to protect them.

PHOTO: ANNE JØRGENSEN

PHOTO: BJØRN-OWE HOLMBERG

The basis for geospatial information

A global geodetic reference frame is in growing demand. Monitoring changes to the Earth is important for environmental studies and for the global economy.

It's the basis for geospatial information and navigation used in many Earth sciences and societal applications and in a whole series of industries, such as construction, mining, agriculture, financial transactions and transport.

PHOTO: MORTEN BRUN

More precise observations

Earth observations must become more precise. We require information about current trends at a scale measured in millimetres to detect changes of the Earth system with sufficient precision, to meet society's future needs.

Global Geodesy is dependent on contributions from nations all around the globe, since no single country can maintain the global geodetic reference frame alone.

We aim to change from the current system where contributions to the development of a global geodetic reference frame are undertaken on a "best efforts" basis to one where they are made through a multilateral collaboration under a UN mandate.

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Talk to industry

Photo: Ryan Keenan

United Nations

United Nations Global Geodetic Centre of Excellence

POLICY BRIEF NO 001

Hidden Risk

How weaknesses in the global geodesy supply chain could have catastrophic impacts on critical infrastructure and national economies

INTRODUCTION

Modern society is dependent on satellites. In many countries, satellite information is essential for economic growth, the operation of critical infrastructure, and is a cornerstone of national defence forces.

In some cases, the dependence is so strong that countries have developed sovereign space systems. For example, several countries or regions, e.g., the European Union (EU), have their own Global Navigation Satellite System (GNSS) to provide Positioning, Navigation and Timing (PNT) services for civilian and defence applications including the Global Positioning System (GPS; USA), GLONASS (Russian Federation), Galileo (EU) and BeiDou (PRC). These countries recognize that a loss of PNT services, either due to technological failures or malicious activity, would have catastrophic and cascading effects for their economy and critical infrastructure. This reliance and need for control is not limited to GNSS satellites which provide PNT services, but extends to telecommunications satellites and Earth Observation (EO) satellites.

Observing the Earth

Satellites providing vital defence and civilian applications are reliant on constant updates about their 'place in space' (satellite orbit information) and the Earth's 'place in space' (shape, orientation, gravity field, and coordinate reference frame).

This Earth and satellite 'place in space' information are collectively known as geodetic products. Constant updates to the geodetic products are needed because the Earth and satellites are always moving. Without updates to geodetic products, satellite applications that society takes for granted, and all the benefits they provide would degrade or fail.

GLOBAL GEODESY SUPPLY CHAIN

The geodetic products are created through the global geodesy supply chain (Figure 1) which includes:

- ground observatories and scientists who constantly observe the movement of the Earth and satellites;
- data centres and data centre operators who quality check the data from observatories and make it available to the global geodesy analysis community; and,
- analysis centres, correlation centres and analysts who translate the raw data into geodetic products.

It is a *global* geodesy supply chain because the observatories and highly qualified people need to be distributed around the world to achieve the required accuracy and reliability of the geodetic products.

Recognizing the risk of a degrading supply chain, the United Nations General Assembly adopted resolution 69/266 in 2015, entitled 'A Global Geodetic Reference Frame for Sustainable Development'. The resolution encourages Member States to

Key Messages

- Society's dependence on satellite services for economic development, the operation of critical infrastructure, and defence applications is very high and growing at a rapid pace.
- Satellite services are at risk of degradation or failure due to the lack of resources provided to the global geodesy supply chain.
- For satellites to operate accurately and reliably, their 'place in space' and Earth's 'place in space' need to be observed and analyzed constantly. This information is provided through the global geodesy supply chain.
- The global geodesy supply chain is the collection of ground observing stations, data centres, analysis centres and highly qualified experts who observe the Earth and convert these observations into geodetic products which are essential to communicate accurately and reliably with satellites.
- Although the supply chain is a vital foundation of the space sector, it is relatively unknown and therefore under-resourced. Less than 0.05% of the revenue generated from GNSS and EO services are reinvested in the global geodesy supply chain.
- Member States and partners are forming a Joint Development Plan describing how they will work together to strengthen the supply chain to enhance the reliability and integrity of the geodetic products.
- Key activities for Member States include: strengthening national awareness and governance in geodesy, recognizing the global geodesy supply chain as national critical infrastructure and engaging in bilateral or multilateral agreements with other Member States.

Authors: Nicholas Brown and Sarah Kowal, United Nations Global Geodetic Centre of Excellence, UNDESA.

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Use cases & events

Develop good user cases and present them to decision makers and media

- Search and talk to key users in your country; like industry, research, defence + to find good examples.
- Concrete case stories from users told by users make bigger media coverage and more awareness both by the general public and by decision-makers.

Design and convene an event

- Define goal and mission and takeaways of event
- What do you want your audience to think about after the event
- Prepare the message and agenda in detail
- Combine program with key note speakers (both internal and external) and out in the field (show – don't tell)
- Invite the national press
- Learn and practice key talking points / messaging (+ for media)
- Prepare for Q&As

SHOW – DON'T TELL-EVENTS: Events in the field: Excursion glacier change and geodetic research. Example from an event in Ny-Ålesund, Svalbard. Photo: Bjørn-Owe Holmberg

Events to mark a milestone

NY-ÅLESUND: Inauguration of Norway's Geodetic Earth Observatory.
Photo: Bjørn-Owe Holmberg

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Events to advocate for the decision you want

Photo: Anne Jørgensen

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Media relations

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Make the media come to your events

- Learn how the media works
- Invite journalist exclusively or open invitation – exclusive and targeted better payoff
- Offer good interview situations and sources

The interview situation

Good advise:

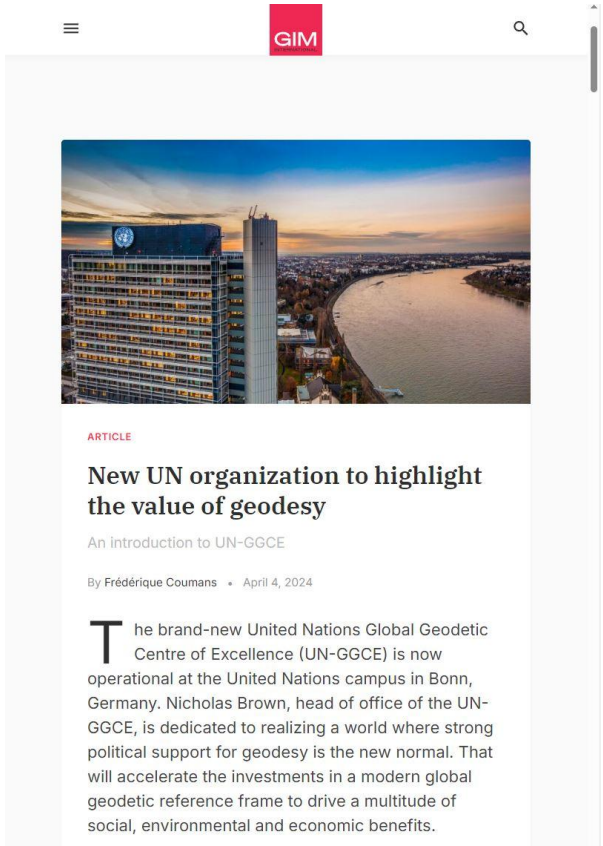
- Be yourself
- Speak the truth
- Be prepared
- Cut away/ kill your darlings
- Ask for review of your quotes/ statements before print or broadcast

Take brakes

Speak clear, use short sentences

Look at the journalist

Understand the news criteria: What makes something «newsworthy»?



- Conflict
- Impact
- Proximity
- Sensational
- Currency

WHERE Session 2:
A) Craft an effective communication strategy


Photo: Kyoung-Soo Eom

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VERSION 5_MAY 2014

Communication strategy on how geodesy contributes to strengthen the study of our changing planet

GOAL

The UN General Assembly adopts a resolution for a global geodetic reference frame for sustainable development

Communication challenge

Geodetic science and the underpinning global geodetic reference frame are not well understood by decision makers, particularly at the political level

Communication objectives

Help the UN delegations to understand the role geodesy and a global geodetic reference frame play in society, and why global geodesy is so important to the ongoing study of our changing planet

Ambitions

- UN General Assembly adopts the resolution in January 2015
- Develop a roadmap for enhancement of a global geodetic reference frame and multilateral cooperation on geodesy under a UN umbrella

Strategy

- Develop a suite of common communication tools including video, factsheet and infographics to explain the importance of geodesy for the study of our changing planet
- Establish meetings with the UN delegations and committees before the General Assembly, where the presenters use the newly developed communication tools to maintain consistency
- Make use of international science networks to communicate the importance of geodesy to their respective science domains
- Raise awareness of the role of a global geodetic reference frame by spreading the message through video/ animation released on the internet and social media

Communication platform

- Geodesy is a global science. Through geodesy we measure and define the Earths shape, motion, rotation, gravitational field and changes to these.
- Geodesy is fundamental for monitoring changes to the Earth including the continents, ice caps, oceans and the atmosphere. Geodesy is also fundamental for mapping, navigation and universal timing.
- Geodesy provides a very accurate and stable coordinate reference frame for the whole Earth. This coordinate system allows you to relate measurements taken anywhere on the Earth with similar measurements taken at a different time or location.
- Global Geodesy is dependent on contributions from nations all around the globe. We aim to change from the current system where contributions to the development of a global geodetic reference frame are undertaken on a "best efforts" basis to one where they are made through multilateral collaboration under a UN mandate.

Target groups	Foreign affairs/ UN delegates	GGIM-committee	International research/ science networks
Messages	Increase the knowledge of geodetic observation, why geodesy is so important for the study of our changing planet and why a multilateral collaboration under a UN mandate is needed	Develop good GGIM ambassadors who will provide advocacy for geodesy in their countries, and encourage greater participation in the multilateral cooperation	Use science networks to influence governmental organizations and NGOs, to share the message about the importance of geodesy and a global geodetic reference frame
Tools			

Meetings · Letters · Factsheet · Preamble/Resolution · Multimedia presentation · YouTube · Social media

How to make the communications strategy work

- Anchor the need for communication work and event making internally
- Invite to an internal workshop in you agency/ project with both experts and a communication adviser
- Work together on defining, wordsmithing and customizing messages to each audience
- Agree on who is spokesperson to each audience

Internal workshop developing UN-GGCE vision. October 2023.
Photo: Anne Jørgensen

Group activities

Develop draft customized messaging to target group

Set up of message matrix

Interview & message training on video

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Group activity: Customized messages

Each group will choose a user case you know well and craft a suitable message/ story from case where geodesy benefits society or industry, without using significant technical terms.

Message matrix
Example from communication strategy

Audience profiles

Audience	Message intent	Current knowledge	Message tone	Communication channel
Examples: Ministry Director general Industry Partners - - -	i.e. what do we want to focus on	Low or high ? Medium	Examples; Upbeat Alarmed Calm Collaborative	Reports Briefs Meetings, events Media Newsletters Website Social Media Earned media

Key messages

Audience	Key Messages

Video interviews
UN-GGCE Communicator Award

- Group of 2:
  Make an interview where you answer this question from a journalist:

  «Why do we have to modernize the national geospatial reference system»?

  Relate to message from group activity and record on video, answer/ message in maximum 20-30 seconds!
- The best pitch or video will be chosen and awarded the Best Communicator Award.
- Send your recording to Walaa by email Otherwise, WhatsApp, Airdrop, or upload to Google Drive Folder.

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