

# UN Resolution About the Importance of Geodesy

## A Global Geodetic Reference Frame for Sustainable Development (GGRF)

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**Abstract** In order to reach the goal of GGOS there is a need for 20 to 30 core stations evenly distributed around the world. It is a challenge to manage a renewal of the existing infrastructure, and it is a huge effort to manage the establishment of new sites in ‘lacing areas,’ especially those who coincide with areas in developing countries. In Norway, we have been working hard for five years to obtain funds for our core station project in Ny-Ålesund. Our experience from this work is that the importance of geodesy, as critical infrastructure for society, is not well known by decision-makers, politicians, or people in the general public. Geodesy is in principle dependent on contributions from nations all around the globe. We have to move geodetic Earth observation from a “best-effort principle” to a multilateral collaboration under a UN mandate. The UN-GGIM (United Nations Committee of Experts on Global Geospatial Information Management, <http://ggim.un.org>) Working Group on a Global Geodetic Reference Frame for Sustainable Development has been established and is working on this issue. We outline the importance and status of this activity, and what is necessary to be successful. The goal is to get a resolution adopted by the UN General Assembly in May/June 2014.

**Keywords** UN, resolution, GGRF, Global Geodetic Reference Frame

Norwegian Mapping Authority

### 1 Introduction

Through the process to raise funds for our new core station in Ny-Ålesund, Norway we experienced that ‘what geodesy is and why there is a need for a global reference frame’ is not at all well known by politicians or the general populace. We really had to work hard to make the decision-makers understand the importance of geodesy and a sustainable global geodetic reference frame for our society today and in the future. We think this is the situation in other countries as well. It is our belief that, if there had been a common understanding and a commitment in the world that stated the importance of this, for example a UN resolution, the efforts regarding our project in Ny-Ålesund would have been less.

### 2 Manage to Take Decisions in Due Time

To make a sustainable global reference frame for the future, core sites, evenly distributed around the world, are necessary. This is not the situation today. Especially there is a huge lack of stations in the southern hemisphere. Today it is not possible to measure small changes, such as sea level variations, precisely enough in order to know what is going on. The global geodetic reference frame is not good enough. We have to be able to measure what is going on and establish time series; then we can make more reliable predictions for the future, allowing politicians and decision-makers to take action in due time. A huge amount of people live in equatorial areas, just above sea level. Our geodesists reckon that the sea level rise will be highest in these areas. When do these people have to be moved? A global

geodetic reference frame allows us to relate measurements taken anywhere on the Earth to similar measurements taken at a different time or location. It provides the opportunity to monitor changes and is the basis for natural hazard and disaster management. It is essential for geospatial information and navigation used in many Earth sciences and societal applications as well as in a whole series of industries. The global geodetic reference frame is in growing demand, being important for environmental studies and the global economy.

### 3 Move from a Technical to a Diplomatic Community under a UN Umbrella

How geodesy contributes to strengthen the study of our planet and why a sustainable global geodetic reference frame is so important for our society has to get on the decision-makers agenda all over the world. The effort done by the geodetic communities, based on best effort principles, has been great, taking us to where we are today. But to manage to establish a sustainable global geodetic reference frame with a one-millimeter precision, something more has to be done. Professor Paul Cheung stated at the UN: “The game must be moved from the technical community to the diplomatic community.” To do this through the system of UN gives us an opportunity to get results on this. Make the decision-makers understand and adopt that a sustainable global geodetic reference frame for the future is necessary.

### 4 Actions Taken

On the basis of initiatives from the UN-GGIM Asian Pacific Group, GGOS, and several countries, a UN group of experts that handles geospatial questions took actions: United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). This group was established by the UN Economic and Social Council (ECOSOC) in 2012. The UN-GGIM second high-level forum in Doha in February 2013 made a declaration in which they commit themselves to work together as an international community, under the coordination of the UN, to work with stakeholders to improve a sustained operational global geodetic reference

frame and infrastructure as well as to support the increasing demand for positioning and monitoring applications with associated societal and economic benefits. The UN-GGIM decided in Cambridge in July 2013 to formulate and facilitate a draft resolution for a global geodetic reference frame (GGRF). They stated: “UN-GGIM recognizes 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. In January 2014, a working group was established consisting of 20 countries and the International Association of Geodesy (IAG). Australia and Norway are co-chairing with Norway having the communication management. The work in this group is done the UN way: ‘keep the process open and inclusive.’

### 5 Main Goals

The two main goals are:

1. The UN General Assembly (UN-GA) adopts a resolution for a global geodetic reference frame for a sustainable development.
2. Develop a roadmap for enhancement of a global geodetic reference frame and multilateral cooperation on geodesy under a UN umbrella.

### 6 Time Frame

The time line of activities is staked out as follows:

- **February/March 2014:** Prepare draft concept note and draft resolution text, prepare communication material.
- **March/June 2014:** Transfer of understanding from us to the UN-missions, countries are encouraged to arrange meetings of their foreign affairs people with UN-delegates and UN-missions. Meetings and informal consultations will be held in New York for all the UN-missions in May/June, geodetic experts will give the information.
- **June 2014:** Hopefully the UN General Assembly adopts the GGRF resolution.

- **August 2014:** Present a draft roadmap at the UN-GGIM fourth meeting.
- **October 2014:** Present status of the roadmap work at UN-GGIM high-level meeting.

using good examples that make them understand their benefits and why they should put priority on this. Ambassadors that can help to transfer this understanding to the politicians and decision-makers are more than welcome.

## 7 Communication Challenge

Geodesy and what-a-global-geodetic-reference-frame- is are not well understood by decision-makers, in particular at the political level. Politicians and UN delegates are not even familiar with the word ‘geodesy’. The time you have for giving explanations is usually short. Typically there is no time to explain UT1, nutation, and so on. They want to know what is in it for them and for society. That is what we have to answer,

## 8 Collaboration

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 effort basis, to one, where they are made through a multilateral collaboration under a UN umbrella.