

# UN-GGIM: Europe GRF – Geodetic Reference Frame



UN-GGIM  
EUROPE

UNITED NATIONS  
COMMITTEE OF EXPERTS ON  
GLOBAL GEOSPATIAL  
INFORMATION MANAGEMENT

Markku Poutanen



# Global Geodetic Reference Frame

- 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.
- The United Nations General Assembly adopted resolution 69/266 on a Global Geodetic Reference Frame for Sustainable Development in February 2015. Total of 53 Member States sponsored the resolution.



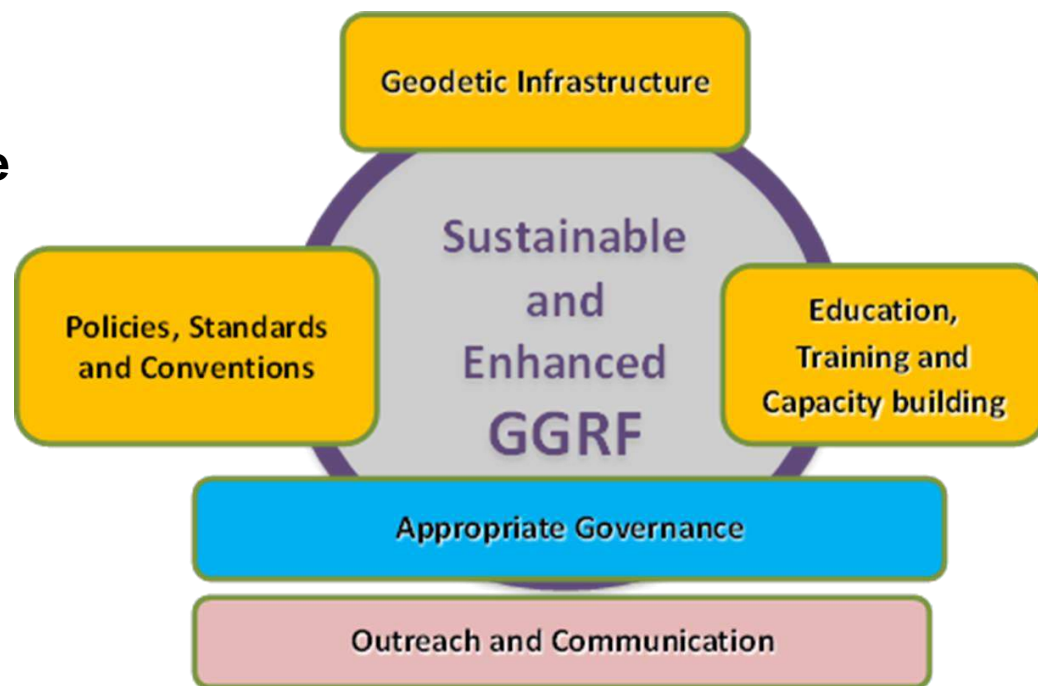
# Subcommittee on Geodesy (SCoG)

- At the UN-GGIM 6<sup>th</sup> session in New York in August 2016, the UN-GGIM endorsed the GGRF Roadmap and decided to establish a permanent sub-committee on geodesy.
- The UN-GGIM at its 7<sup>th</sup> session in August 2017 adopted decision, in which it endorsed the formal establishment and composition of the **UN GGIM Subcommittee on Geodesy (SCoG)**,
- The roadmap and position paper of SCoG was adopted in the 8th session of the UN Committee of Experts of the GGIM in New York, 2018.
- The revised position paper of governance of the SCoG is prepared and to be presented in the 9th session of the UN-GGIM Committee of Experts, August 2019 -> a plan for Geodetic Center of Excellence
- Nominated members in SCoG, 10 from Europe



# Subcommittee on Geodesy, SCoG

- SCoG provides an intergovernmental forum for cooperation on issues relating to the maintenance, sustainability and enhancement of the GGRF
- The SCoG will work closely with the **Regional UN-GGIM geodesy working groups, the national geodetic agencies and the global geodetic community**
- An ongoing role is in the **provision of geodetic expertise** to the UN-GGIM and the broader intergovernmental community, especially relating to the Sustainable Development Goals, but also to hazards, the environment, peace and security, and economic development.



# Relation to geodetic organizations

- SCoG pursues the implementation of the GGRF Roadmap in cooperation with the International Association of Geodesy (IAG) and the International Federation of Surveyors (FIG)
- IAG plays an important role by being the main actor in developing the GGRF science plan as recommended in the road map.
- Closer interaction between the SCoG and IAG is necessary to realise the UN GGRF resolution and the roadmap.
- **EUREF**, the IAG Reference Frame Sub Commission 1.3a for Europe is the regional entity in Europe to fulfill these demands and being the natural partner on regional level.



# European participation on the SCoG

- The members of the SCoG count experts from 40 Member States **nominated by the UN-GGIM regions.**
- At the regional level, the UN-GGIM regional entities (Africa, Americas, Arab States, **Europe** and Asia-Pacific) and the IAG regional components (AFREF- Africa, APREF-Asia-Pacific, **EUREF-Europe**, NAREF-North America, SIRGAS- Latin America and the Caribbean and SCAR-Antarctica) make partially coordinated contributions.
- Countries representing Europe in SCoG (10): Belgium, Finland, France, Germany, Moldova, Norway, Russia, Spain, Sweden, UK



# EUREF as a regional entity

- Europe is more developed in terms of geodetic infrastructures and geodetic Core Sites than many other parts of the world
- IAG Subcommittee EUREF is responsible for geodetic reference frames in Europe, running the permanent GNSS network which is the basis of European reference frame and link to the global frame
- EUREF has a liaison to many European or global organizations;
  - Partners: EUPOS, Eurogeographics, EUMETNET, CEGRN
  - Collaborations: IAG Services and working groups, ICG, FIG (Com.5), Wegener, ...
- National Mapping and Cadastre Authorities of 35 European Countries are participants in the Plenary of EUREF and 130 organizations in Europe are participating in the work of EUREF



# GRF – Europe 2018-2019

## ➤ Background

- New ToR and action plans of SCoG
- Regional representation in SCoG exists with its new structure
- 2018-19 there have been several discussions on the relations between GRF – Europe and UN GGIM: Europe ExC, EUREF GB and individual members/groups
- EUREF cannot act as the UN entity for GRF in Europe

## ➤ Goals:

- To avoid duplication, but to fill identified shortcomings
- To take into account the already existing infrastructure in Europe,
- To organize the activities and governance in most effective way
- To get the value added function for the GRF-Europe





# GRF – Europe 2018-2019

- Meeting in April 2019 in Vienna
  - Agenda
    1. Opening and introduction of participants
    2. Background and current status
    3. GRF organization, governance, relation to EUREF and other regional entities
    4. Roadmap and next steps, (re)organizing the group and proposed actions to be forwarded to the UN GGIM-Europe
  
- The current status of GRF-Europe was discussed.
  - No consensus on the tasks and position of the GRF-Europe
  - It was concluded that there are different views and opinions so that further clarification about the organization and objectives is needed
  - **A position paper to be drafted**



# GRF – Europe beyond 2019

- Support European countries to respond to the General Assembly Resolution on A Global Geodetic Reference Frame for Sustainable Development and implementation of the Roadmap
  - Technical level partly exist (e.g. EUREF), missing some functionality e.g. VGOS
  - UN GGIM: Europe has the connection to the Nations, but in practice this may not work on topical issues like geodesy or reference frames
  - Member States may need their own topical platform for exchange, but does this overlap existing platforms, like EUREF?
- Develop promotion and outreach programmes to make the geodetic reference frames (coordinates, height, gravity) more visible and understandable to the society, support open-data policy and foster the usage of geodetic products in geo-referencing tasks
  - Done on global level?



# GRF – Europe beyond 2019

- EUREF has a central role in Europe in defining and maintaining National implementation of European reference frame and height system. Could GRF-Eu ensure that the geodetic infrastructure, and capacity and capability to use those, are in place? It will be not only the basic infrastructure, but also the European component of GGRF (Global Geodetic Reference Frame of IAG), like VLBI (plus correlators), SLR and analysis centres to secure European interests and needs.
- GRF-Eu would act as a platform to exchange geodetic component between Member States and/or other European organisations
- Capacity building. European focused, but also reach out to less developed regions, e.g. Africa. There could be a direct link between the regional GRFs. Even though ETCB needs are global, a regional focus strategy is needed because various regional challenges
- European focused Outreach and Communication is needed to ensure that knowledge and competence is readily available and openly shared, and educational and capacity building resources available

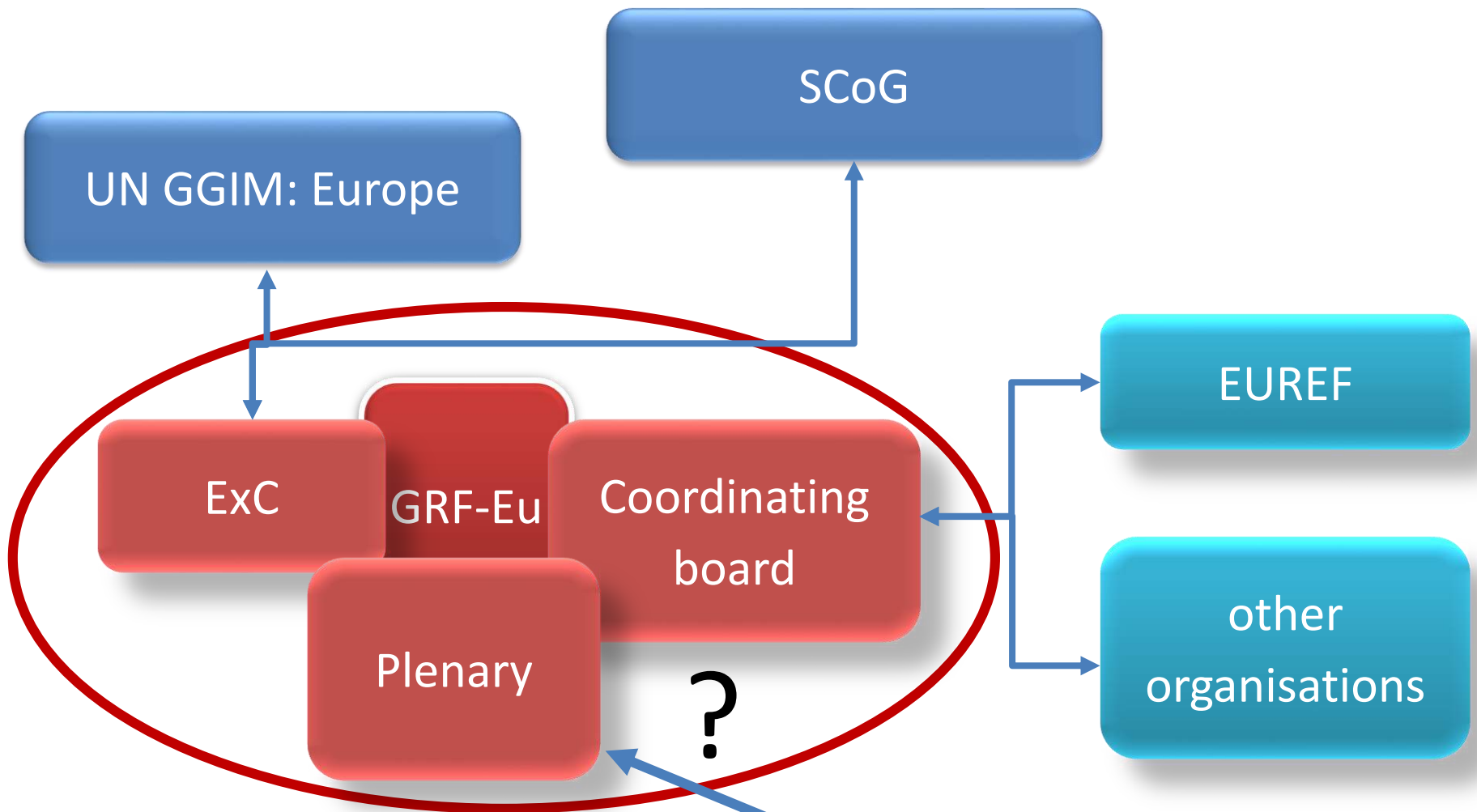


# GRF – Europe, resources

AKA Greg:

[THIS PAGE IS LEFT INTENTIONALLY BLANK]





This structure is to be further discussed.

- Contacts to UN entities
- Contacts to expert organisations
- Contacts to user community

European user community



# GRF – Europe, future and plans

- Looking the development of other regions: all are different; cannot be copied here; Reference frames related topics are arranged in Europe (EUREF)
- Resources (personal and funds) are limited; same people
- Development in positioning (e.g. dynamic reference frames) implies further co-operation and advice between the user community and NMAs/Universities; **this will be the biggest challenge in the near future**
  - Dynamic reference frames
    - No national frames, all in global, crustal deformation need to be known
  - Increased demands for accuracy
    - Current techniques will be outdated, deficiencies will become visible
  - Crustal deformations and movements
  - Climate change, global and regional sea level rise



# GRF – Europe, future and plans

- What are the value-added things we can offer?
- **Forum for user community not covered e.g. within EUREF**
  - GRF should offer a forum for European geodetic infrastructure discussion
  - Connections between actors in geodesy should be ensured, e.g. precise positioning, navigation, reference frames
  - Topical issues UN GGIM: Europe cannot cover in general
- Annual plenary or similar occasion for European Member States?  
(there have been some wishes for a common European geodetic infrastructure related forum beyond the EUREF Symposium which is more technical oriented...)
- (...and a proposal to the ExC for a new chair of GRF; MP nominated recently as Secretary General of IAG,...)

