

EUREF Activities

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Reference Frame Sub Commission 1.3a for Europe of the
International Association of Geodesy (IAG)



EUREF

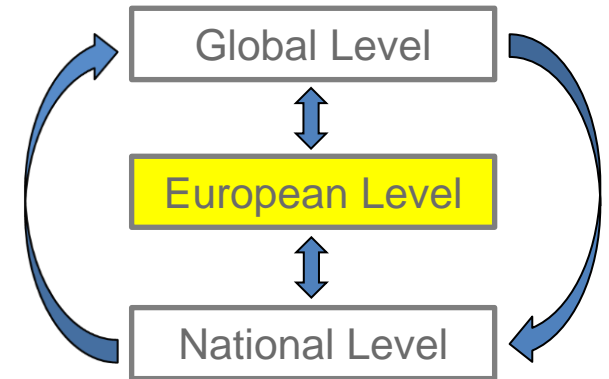
Reference Frame Sub Commission 1.3a for Europe of the International Association of Geodesy (IAG)

- The **IAG Sub-commission EUREF** is responsible for the maintenance of the European Terrestrial Reference System (**ETRS89**).
- EUREF is composed of representatives from **European IAG member countries**; annual symposium (plenary) and Technical Working Group (TWG)
- Links to about **130 European organizations**, agencies, universities from more than 30 countries – related to geo-referencing, positioning, and navigation
- The **TWG** is composed of members elected by the plenary, members in charge of special tasks and ex-officio members. Governance of EUREF activities and policy.
- Provides all of its products and services on the “best effort” basis and **free of charge** to the public
- **EUREF is both a user and a provider of GNSS**



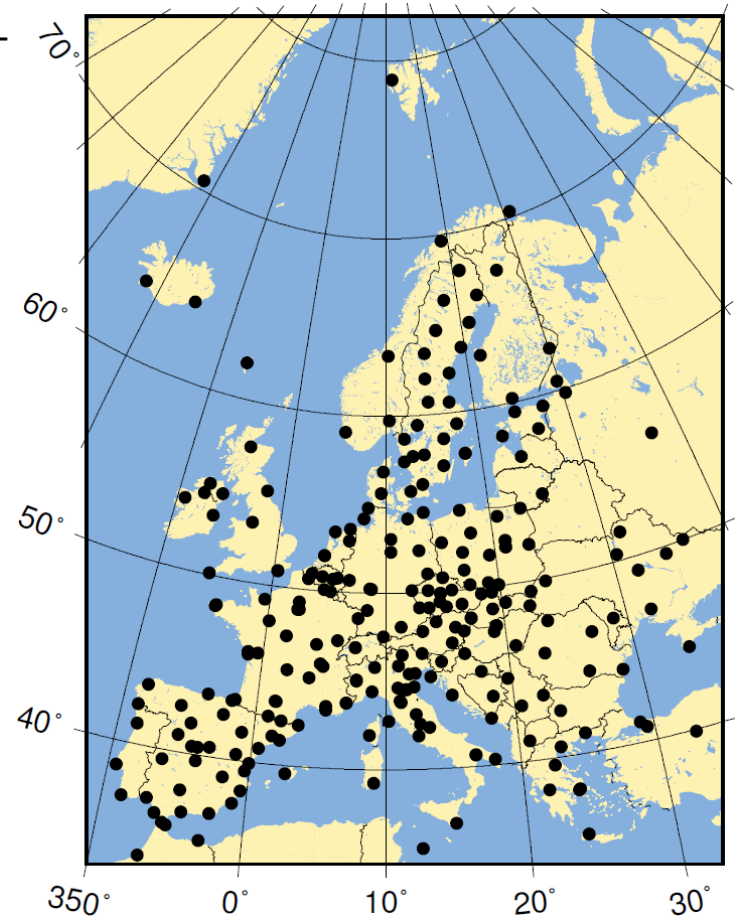
Main activities of EUREF

- Develop the **EUREF Permanent Network** (EPN) for the maintenance of the European Reference Frame, as contribution to the ITRF and as infrastructure to support other relevant projects, e.g. European initiatives related to Galileo;
- Implement necessary projects for the long-term maintenance of the **ETRS89** (European Terrestrial Reference System) and the **EVRS** (European Vertical Reference System);
- Promote the adoption of the reference systems defined by EUREF (ETRS89 and EVRS) in the European countries and European-wide organizations involved in georeferencing activities;
- Improve the **Unified European Levelling Network** (UELN) by extending it to all European countries, taking into account the perspective of a geokinematic computation



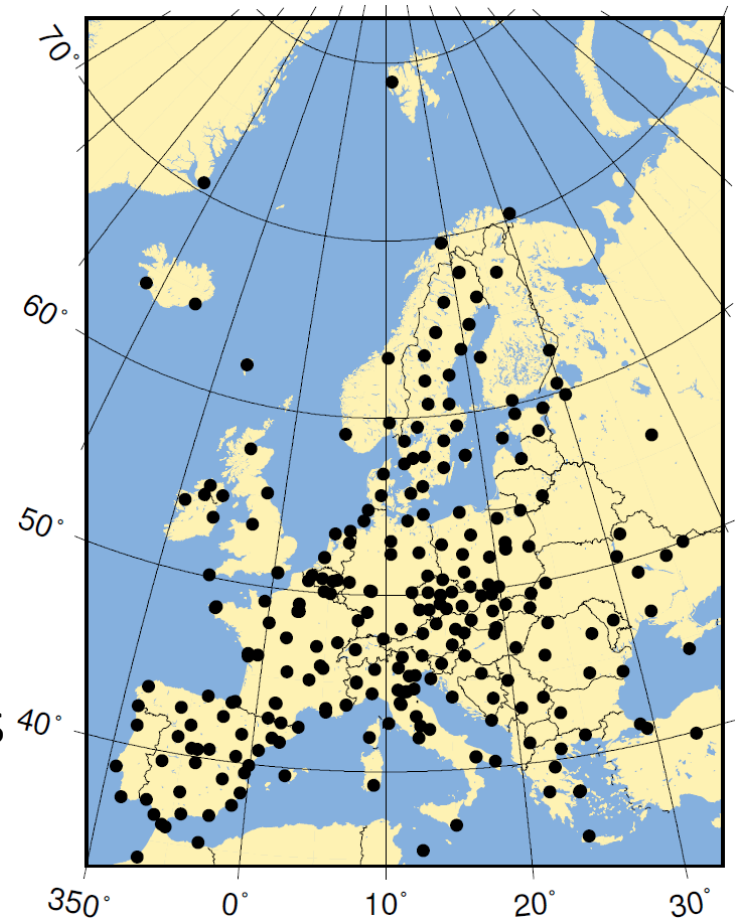
EPN

- The **EUREF Permanent Network (EPN)** is a science-driven network of permanent **GNSS tracking stations** whose weekly computed positions are used by EUREF to realize the European Terrestrial Reference System (ETRS89), the **backbone for all geographic and geodetic projects on the European territory**.
- The EPN is also valuable for scientific applications such as geodynamics, sea level monitoring and weather prediction.
- Almost 250 EPN stations, distributed all over Europe, provide in **near real-time and real-time high quality GNSS data** archived at local and regional data centres.
- EPN analysis centres **routinely analyse the data** and deliver products to the GNSS community.



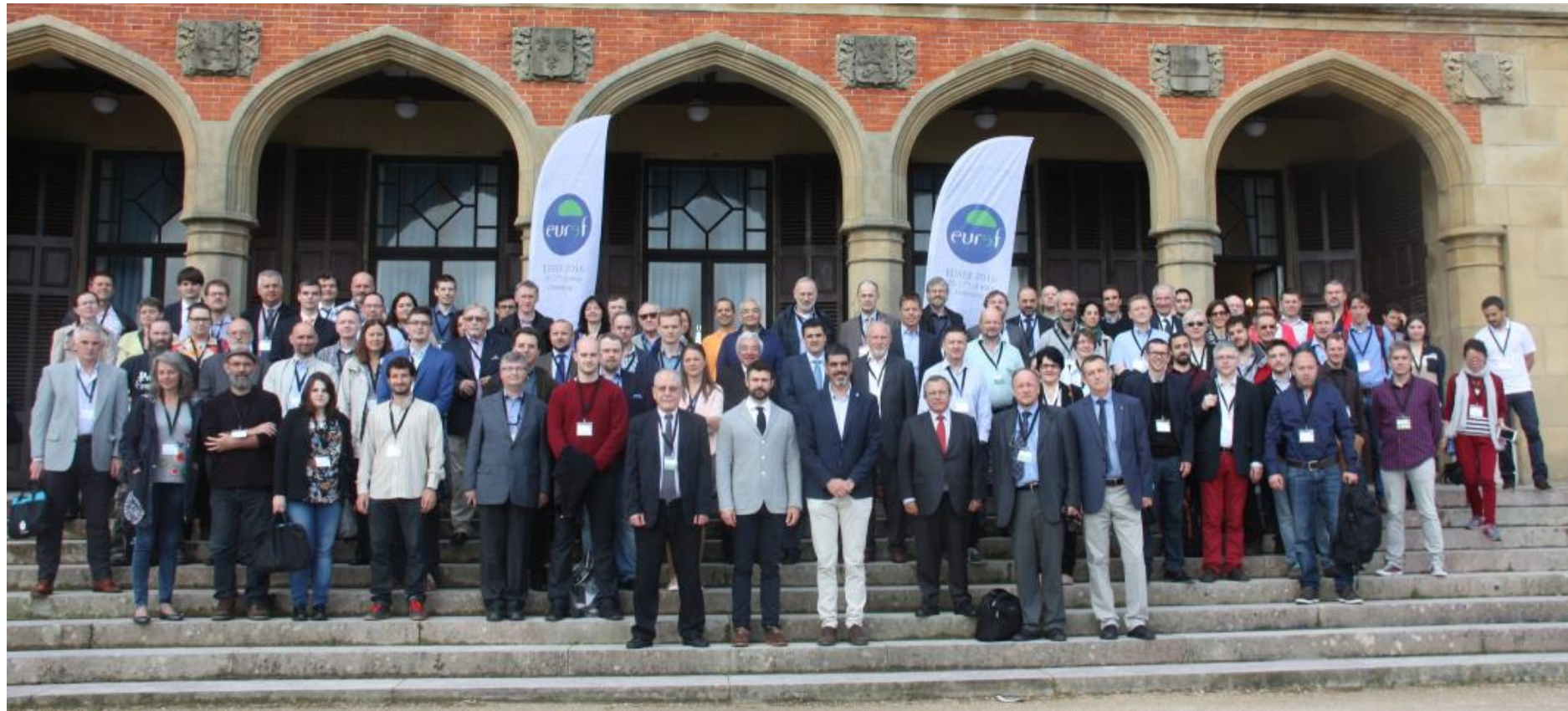
EPN Data, Products, Activities

- Observation, navigation and meteorological **data files** (hourly, daily and high-rate 15-minute)
 - **Real-time** observation data
 - ITRS/ETRS89 **station positions** and velocities
 - **Tropospheric** zenith path delays
 - Real-time satellite **orbit/clock** corrections
 - **Data reprocessing**: Reprocessing historic data to improve station time series, antenna corrections, satellite orbit information,...
 - **Multi-GNSS**: New GNSS are available. More stations are able to observe all GNSS satellites. EPS is adopting new systems.
 - **RINEX3 format**: Adoption of RINEX3 format for GNSS data submission, archiving and analysis.
- Resolution of EUREF Symposium 05/2016**



EUREF symposium 2016

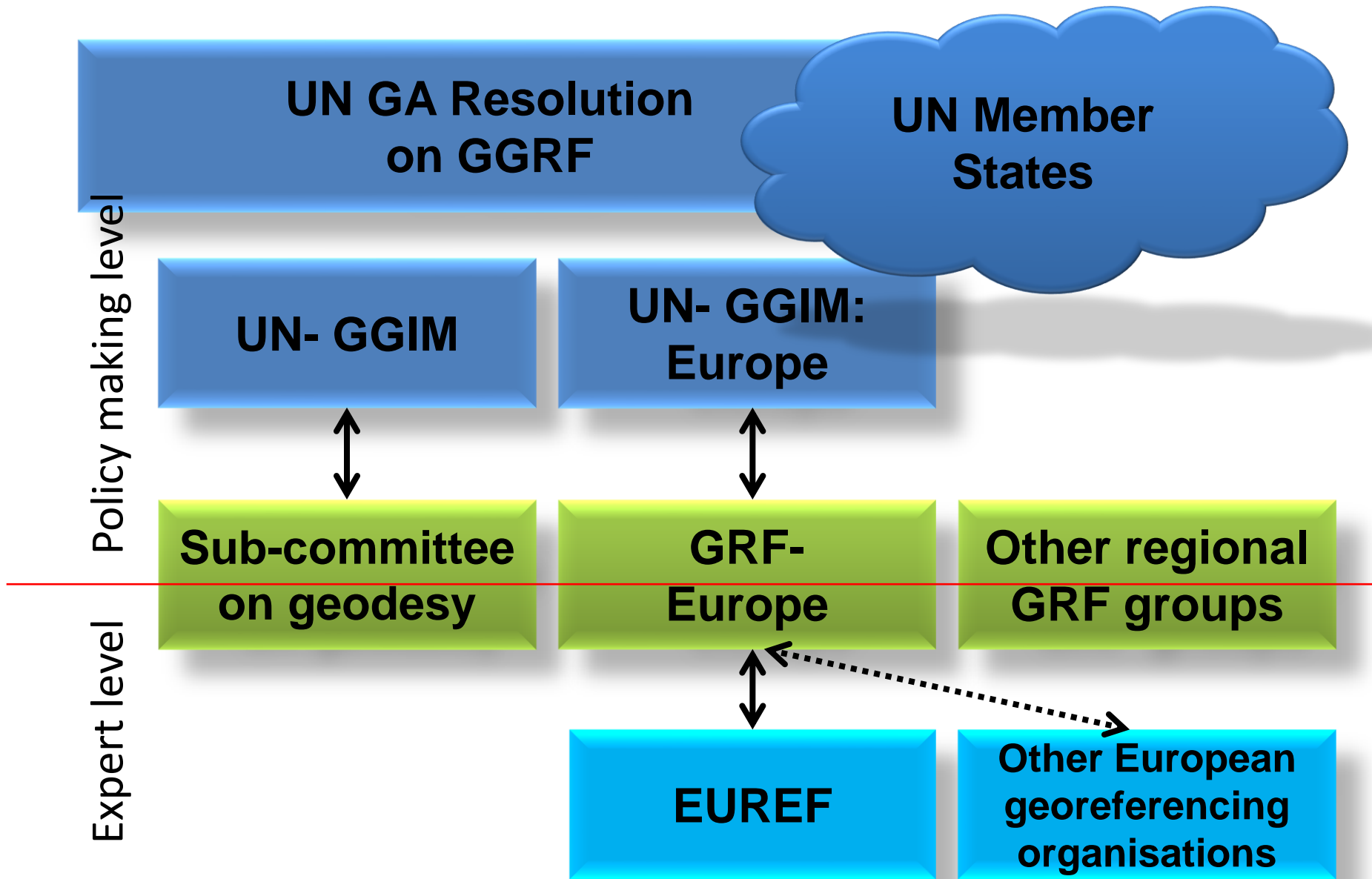
San Sebastian , Spain



Global Geodetic Reference Frame for Sustainable Development - the European Contribution: “GRF-Europe”

- UN-GGIM established 08/2016 permanent sub-committee on geodesy (earlier GGRF working group)
- A working group GRF-Europe was established under the regional expert group UN-GGIM: Europe
- Position Paper on status in Europe:
 - Current georeferencing-related organizations in Europe either do not have political or economical power or they are not expert organizations in Geodetic Reference Frames.
 - **EUREF will have a central role as an expert group**, and as the provider of data and reference frames, it defines and maintains coordinate reference systems, deliver products,...





Future activities

- Next EUREF symposium May 17-19, 2017, Wroclaw, Poland
- Renewal of ToR
- Questionnaire on ETRS89 to the NMAs, a need of improved ETRF
- Reprocessing #2 of the whole network; soon finished
- New navigation satellite systems imply:
 - RINEX 3 and long file names and adoption of multi-GNSS analysis
 - Discussion on antenna calibration issues for future Galileo and BeiDou processing
 - Real-time multi-system applications



EUREF links

- EUREF web page: <http://www.euref.eu/>
- EUREF permanent Network EPN: <http://www.epncb.oma.be>

Thank you for your attention

