Current status of the Geodetic Component of EPOS

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EGU 2011

EPOS EUROPEANPLATEOBSERVINGSYSTEM

Working group WG4

GNSS data and other geodetic data

under the frame of

EPOS WP6 Technical Work

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EUROPEANPLATEOBSERVINGSYSTEM

Preliminary steps

- **Understand where we are** (geodetic community)
- **What can be expected from EPOS?**
- Wide promotion of WG4 and identification of groups interested in collaboration in WG4 activities.
- Establishment of WG4 affiliation and nomination of responsible.
- Establishing links with National organizations responsible for GNSS networks.
- Awareness for the need of a more efficient GNSS data (and other geodetic data) access in Europe.

Preliminary steps

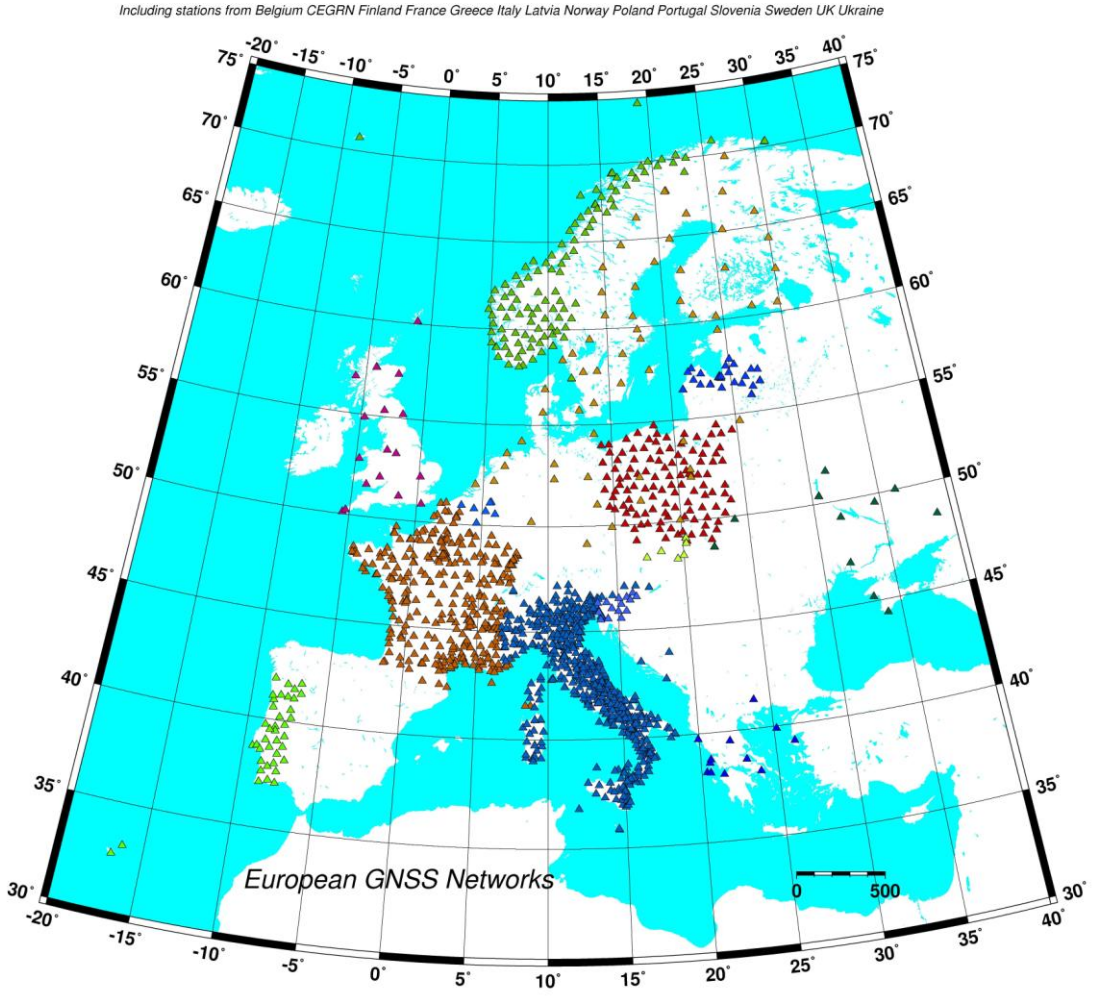
- Identify and contact GNSS infrastructures (data-infrastructures, processing centers and data repositories) at a national level.
- Identify and contact other GNSS infrastructures run by public or private entities.
- Inventory of possible data providers to EPOS.
- Learn from existing public and private experience in data distribution (EUREF, CEGRN…, SAPOS, EUPOS,…).
- **Understand what can be improved with EPOS.**

Survey results

- 42 answers (~20% of mailing list) representing National & Regional Institutions and Research groups from 23 countries (several not in EPOS).
- Generally open to establish/discuss cooperation with EPOS.
- Mostly GNSS networks, but some other techniques as well (VLBI, Gravimetry, SLR and airborne laser).
- First perspectives on possible type of collaboration.
- Action itens suggested.

Survey results - GNSS networks

Location of stations that can be linked to EPOS (inc.)



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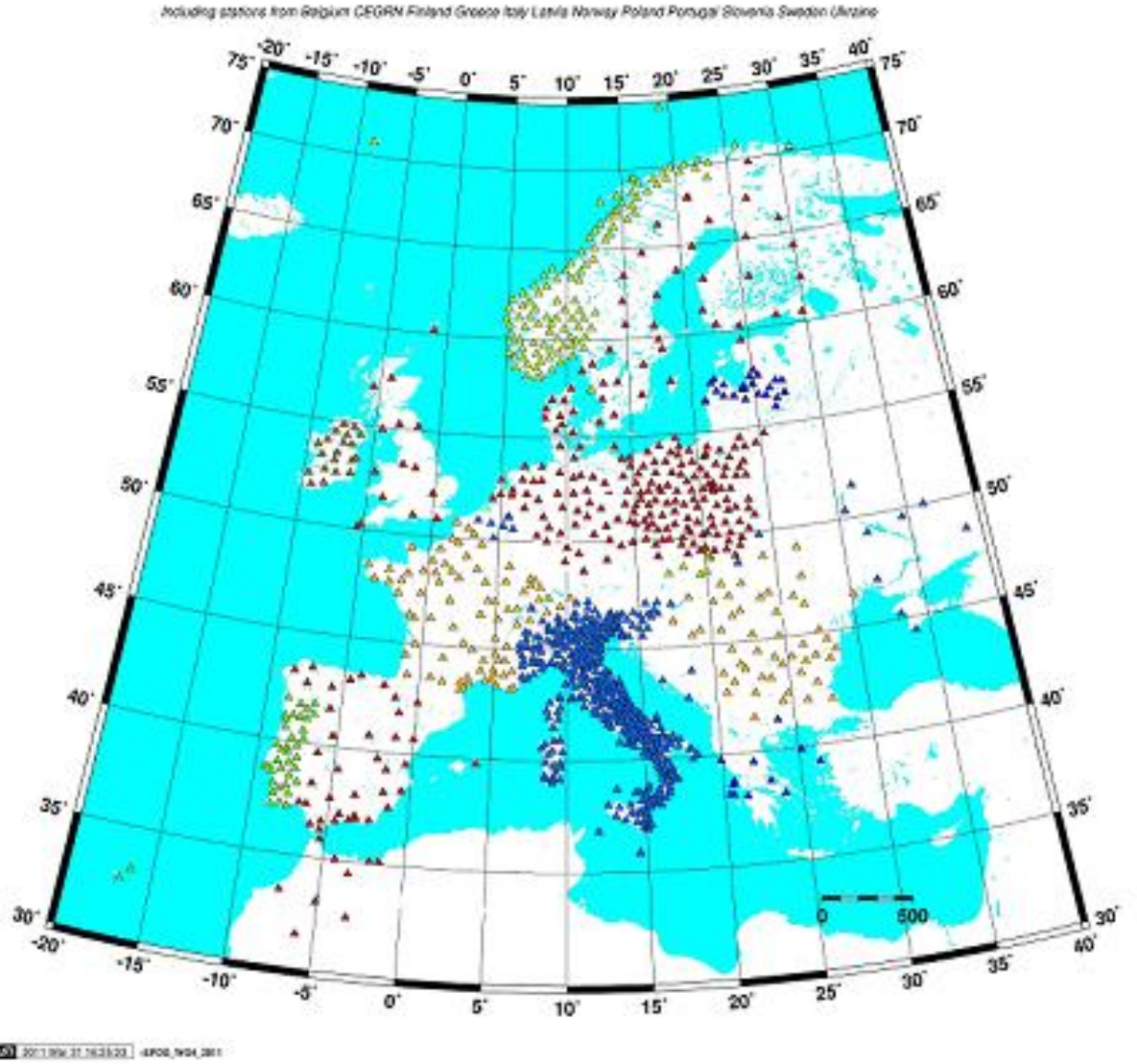
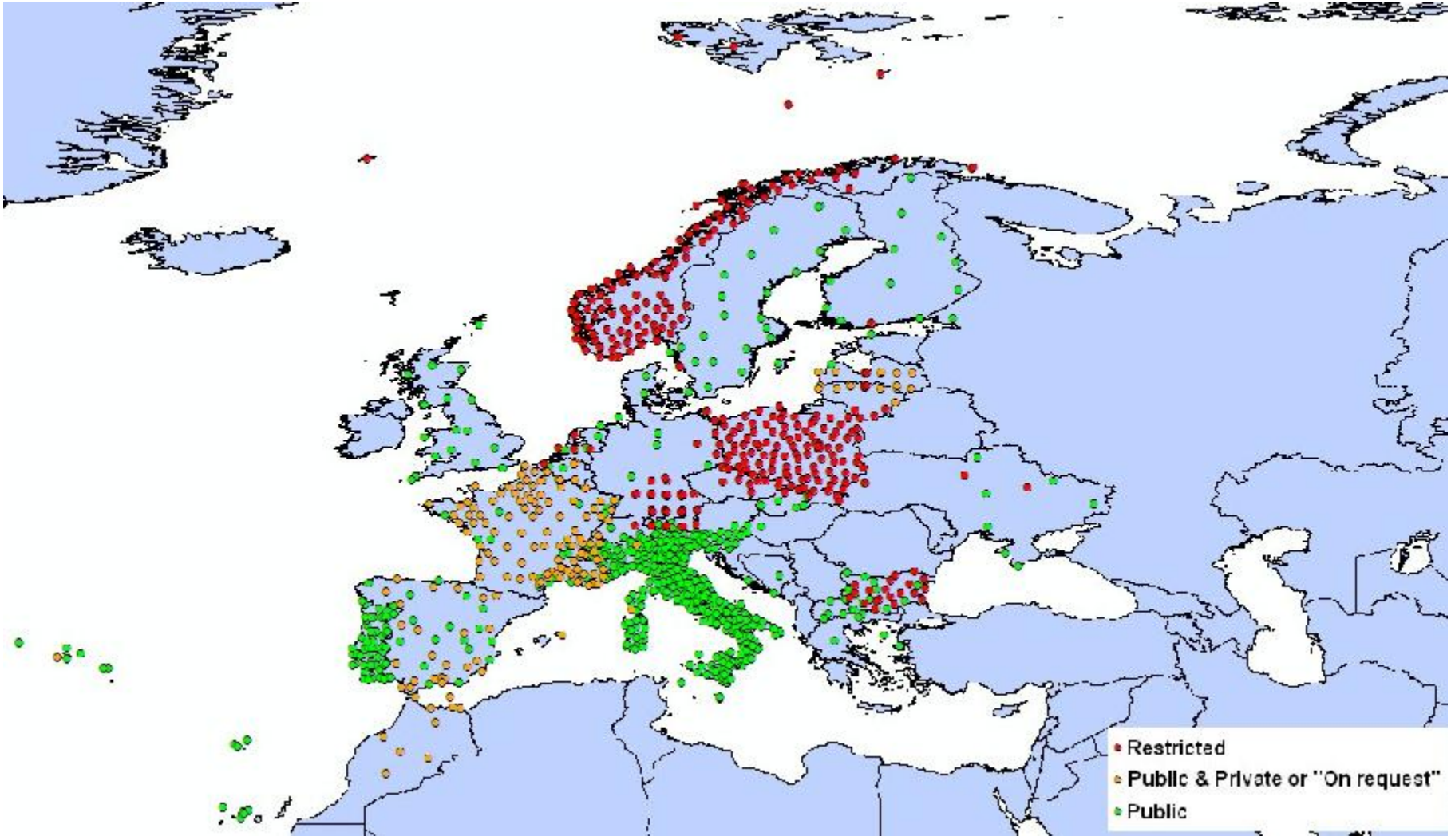
Survey results - GNSS networks



Survey results - GNSS networks

Station type of access (>1500 not complete)



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Survey overview (1)

Several entities maintain GNSS networks

- Data are recorded at different rates (30 s, 5 s, 1Hz, 10Hz)
- Both open access & restricted data (usually NO open access in real time)
- Many GPS and GPS +GLONASS stations
- Data archiving is not uniforme (daily 30s, hourly 5 s, 1s)
- Data processing supported in the three main academic software (GAMIT, GIPSY, Bernese)
- Several centers do data processing and/or analysis (also using in-house software)

Survey overview (2)

Several centers use data in different ways:

- To derive
  - Time series; Velocities; Velocity fields; TEC; TZD;...
- To analyse data and products
  - Data quality control; Time series analysis; velocity estimates with associated errors...

But

- Resulting produtcs are available in different forms and adopted processing methodologies not always well documented.
- Procedures for archiving products are not clear/uniform.

Survey overview (3)

- Other geodetic infrastructures are available (Gravimetric, VLBI, SLR).
- Improve control through inter-comparison of techniques.
- Links can be established with SLR, VLBI, DORIS and gravity networks/services.
- Other geodata (SAR, airborne laser, airborne gravimetry) can be exploitated/integrated.

Next steps

- Where do we want to go within the geodetic community?
  - Multi-sensor integration
  - Multi-disciplinary interpretation
  - New look on the data time series
  - Preserve historic data & products
- How can EPOS contribute?
  - Support infrastructure maintenance
  - Provide better e-infra for data access & management and support the use of efficient computing facilities (HPC & Grid)
  - Interdisciplinary geosciences network is an added value

Questions to be addressed during the preparatory phase of EPOS

- Identify the relevant scientific objectives and major challenges for the next decades.
  - Seamless data access (ALL)
  - Real Time data access
  - Data preservation (expected exponential data growth from a nn GB/station/year to 30 to 300 x nn GB/station/year)
  - GNSS data integration (episodic and permanent)
  - Integration with other Geodata (VLBI, Gravimetric, …)
  - Coordination towards production of “EPOS products”

Questions to be addressed during the preparatory phase of EPOS

- Define plan to produce a collaborative white paper about Geodesy in Europe.
- Identify strengths and weaknesses of established groups (EPN, CERGOP, ….).
- Promote free data access policies.
- Discussion/contribution through the EPOS site

WG4 Meeting at EGU

Tuesday - 13:30m to 15:00 room SM6

- Topics to be addressed
  - Establishment of WG4 affiliation and nomination of responsible.
  - Define near term action itens.
  - Identify a national representative to collect complete info on country.
  - Cooperation with countries that are not EPOS members
- Wide participation/discussion welcome.

EPOS is an opportunity to strenghten EU Geodesy

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