



Current status of the Geodetic Component of EPOS

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The onset of the European Plate Boundary Observing System (EPOS, <http://www.epos-eu.org>) offers the opportunity to build a research infrastructure at the European and Mediterranean level, for the next generation of Solid Earth Scientists. This presentation identifies some of the questions that should be addressed during the preparatory phase of EPOS in order to set up the basis for the definition of a new geodetic e- infrastructure concept within EPOS, with the aim of fostering discussions within the European geodetic community. The definition of a new e-infrastructure should undoubtedly be based on community wide discussion in order to identify the relevant scientific objectives and major challenges for the next decades. We therefore propose to work on a collaborative white paper about Geodesy in Europe.

Today, a few thousands of permanent continuously recording GNSS stations are collecting data all over Europe and the Mediterranean and this number will increase rapidly in the next years. These existing data constitute an incredible wealth of observation to describe the Earth's surface motion and sense the atmosphere with a high spatial and temporal resolution. The integration and full exploitation of existing GNSS data is a major challenge for the next decade. The first step towards a unified access to GNSS data should start with the public data coming from national infrastructures indicated in the roadmap for each country as a contribution to EPOS. Nonetheless, aside publicly funded GNSS networks, GNSS stations are being installed for applied geodesy purposes, real-time positioning products, surveying, topography, and local land motion monitoring. At the moment, only a small percentage of all existing data can be easily accessed by researchers and a significant part of these data is not properly archived and is finally lost for scientific studies. How to integrate such data has to be discussed, in terms of the model for data distribution, data policy, archive and analysis.

The primary concerns of the WG4 are therefore:

- Identify and contact GNSS infrastructures (data- infrastructures, processing centres and data repositories) supported by public institutions in Europe, starting with national GNSS networks;
- Establish partnership/collaboration between EPOS partners and ongoing initiatives, such as EUREF-EPN, CERGOP, as well as with other groups already in the field with well establish dedicated deformation monitoring network, which is mandatory for the success of the WG activities;
- Identify and contact other GNSS infrastructures run by public or private entities at a national or transnational level;
- Define recommendations and guidelines to enable the integration of GNSS data collected and promote the use of best practices.
- Establish and foster the use of common standards for data exchange and data quality check. This will warrant the interoperability of data centres.
- Set up the basis for a new data access policy through discussion and wide participation with data providers willing to contribute to EPOS.
- Identify and preserve 'old' data, including recovery of historical campaign data, and bring the archives to public domain.
- Prepare to receive data from the new GNSS systems.
- Enable access to high-rate data with special emphasis in access to real-time data.
- Provide a list of GNSS data providers and analysis centres and a definition of the products, guidelines for processing GNSS data, analysis centres structure and the data flow.
- Contact possible GNSS data providers, define policy of data use and exchange, and identify the e-resources necessary to receive and provide GNSS data and services.
- Define inter-operability with others component of EPOS e-infrastructure.

- Discuss the integration of non-GNSS geodetic data.

Finally, in the future, the new EPOS data e-infrastructure shall be also able to provide a set of integrated products and services, which are yet to be defined.