ABSTRACT

Europe is covered by various networks of GNSS stations maintained by different agencies with different technical and scientific objectives. The EPOS-IP (European Plate Observing System – Implementation Phase) project aims to harmonize and standardize data collection and processing and to design and establish dedicated products and services that benefit the existence of national and pan-European infrastructures (in particular EUREF), optimized for Solid Earth Research applications. In particular, the EPOS-GNSS Enterprise Service (EPOS-GNSS ES) project aims to facilitate access, through EPOS, portals and web sites to relevant GNSS data, meta-data, and data products coordinate the archiving of relevant GNSS data, metadata and data products promote best practice for GNSS station operation, data quality control and data management maintain and distribute open source software for GNSS data and metadata discoverability maintain and develop GNSS data products in partnership with EUREF, the International Association of Geodesy (IAG) sub-committee for the European Reference Frame.

PRINCIPLES AND ARCHITECTURE

GNSS Data archival and dissemination within EPOS was based on a set of Use Cases Requirements for Solid Earth Scientists within EPOS, described in full in the Epos Deliverable Report on Use Cases, Requirements, Metadata and Interoperability of EPOS-GNSS WG Examples of such Use cases are:

- Obtaining GNSS data for the estimation of Volcano deformation
- Co-seismic displacements associated with a Mw7 earthquake
- Compute Eurasian strain rates from EPOS stations velocities

A new software system was developed that focuses on: GNSS station uniqueness, Data redundancy, Data monitoring, Efficiency and where GNSS data remains fully controlled by the data suppliers and physically located at the underlying data nodes. GLASS (Geodetic Linkage Advanced Software System) provides:

- Management of GNSS data and metadata from distributed repositories:
  - collect data + generate metadata, quality control + validate metadata, disseminate data + metadata
- Provision of GNSS products and metadata: coordinates and time series, velocity fields, strain rate fields.

The GLASS system encompass the following key elements:

- Physical components – repositories/data centers
- Web Based Applications – Web Portals and Application Programming Interfaces (API’s)
- Monitoring tools, data and products mining solutions

Metadata Management M3G system for Multiple GNSS Networks is used by EPOS (and EUREF) data providers to update site logs, information about local networks, DOI, nominal data submissions, data license, and embargo times on the data. http://gnss-metadata.eu.

• GNSS data quality checking is performed using the G-Nut/Anubis software and standard report developed specifically for EPOS GNSS TCS.

DATA, PRODUCT & SOFTWARE DISSEMINATION


SOFTWARE Availability

Software Distribution:
- Source Code: GitLab GNSS Europe Group https://gitlab.com/gnss-europe
- Virtual Machine Images: http://glass.c4g-pt.eu/epos_vm Formats: Vagrant BOX, OVA.

AGU 2018, Washington