EPOS-GNSS - Improving the Access to GNSS data and Products from CORS Stations in Europe

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SUMMARY

The majority of the GNSS CORS stations installed in Europe are maintained by many different agencies with different technical and scientific objectives. In fact, many of these networks have been installed to provide support for geo-referencing applications, mainly datum definition and materialization, and surveying. This creates large difficulties when someone attempts to access data and derived products at a Pan-European level.

EPOS (European Plate Observing System) is a European Union Research Infrastructure created with the goal to integrate Infrastructures for Solid Earth Sciences Research across Europe. It is formed by a consortium of potential stakeholders and users from academy, governmental and industrial institutions, scholars, and students that need data, data products, software, and services on different areas of Solid Earth.

One of the EPOS Thematic Core Services is GNSS Data & Products, which members aim to harmonize and standardize GNSS data collection and processing and to design and establish dedicated products and services that benefit the existence of national and pan-European infra-structures (in particular EUREF), optimized for, but not limited to, Solid Earth Research applications.

We present here a distributed software architecture called GLASS, a tool for quality-controlled dissemination of RINEX data and derived products for Solid Earth (time-series, velocities, and strain rates) of thousands of CORS stations in Europe but that can be potentially used anywhere in the world. We describe how the data flow from the agencies managing the GNSS networks to the analysis centers and to the various EPOS data portals. We also describe the quality control steps that are performed in the GNSS Data and Products by validating the station metadata, obtaining

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quality metrics of the RINEX files, and by checking the stability of time series by detecting outliers and offsets.