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STATUS

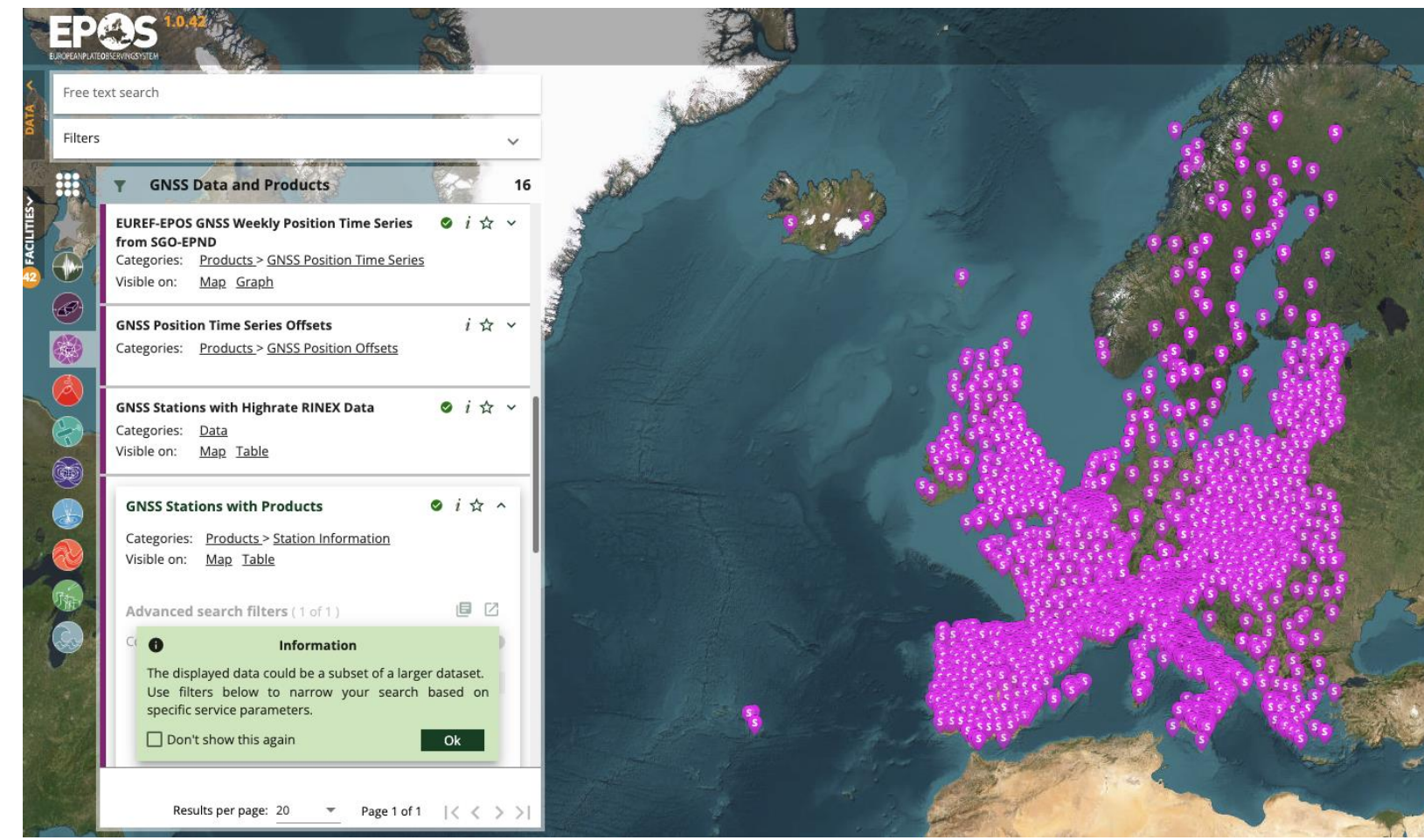
GNSS Data & Products Thematic Core Service (TCS) aims to:

- facilitate access, through EPOS, portals and web sites to relevant GNSS data, metadata, and data products;
- coordinate the archiving long-term storage of relevant GNSS data, metadata and data products;
- promote best practice for GNSS station operation, data quality, and metadata management;
- maintain and distribute GLASS, an open-source software for GNSS data, metadata, and data products discoverability;
- maintain and develop GNSS data products.

Members of Consortium Agreement:

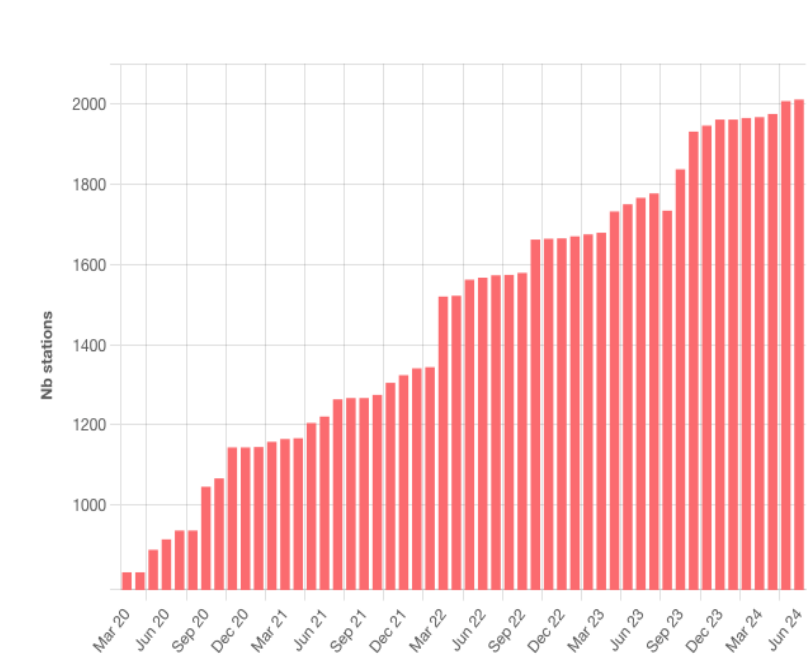
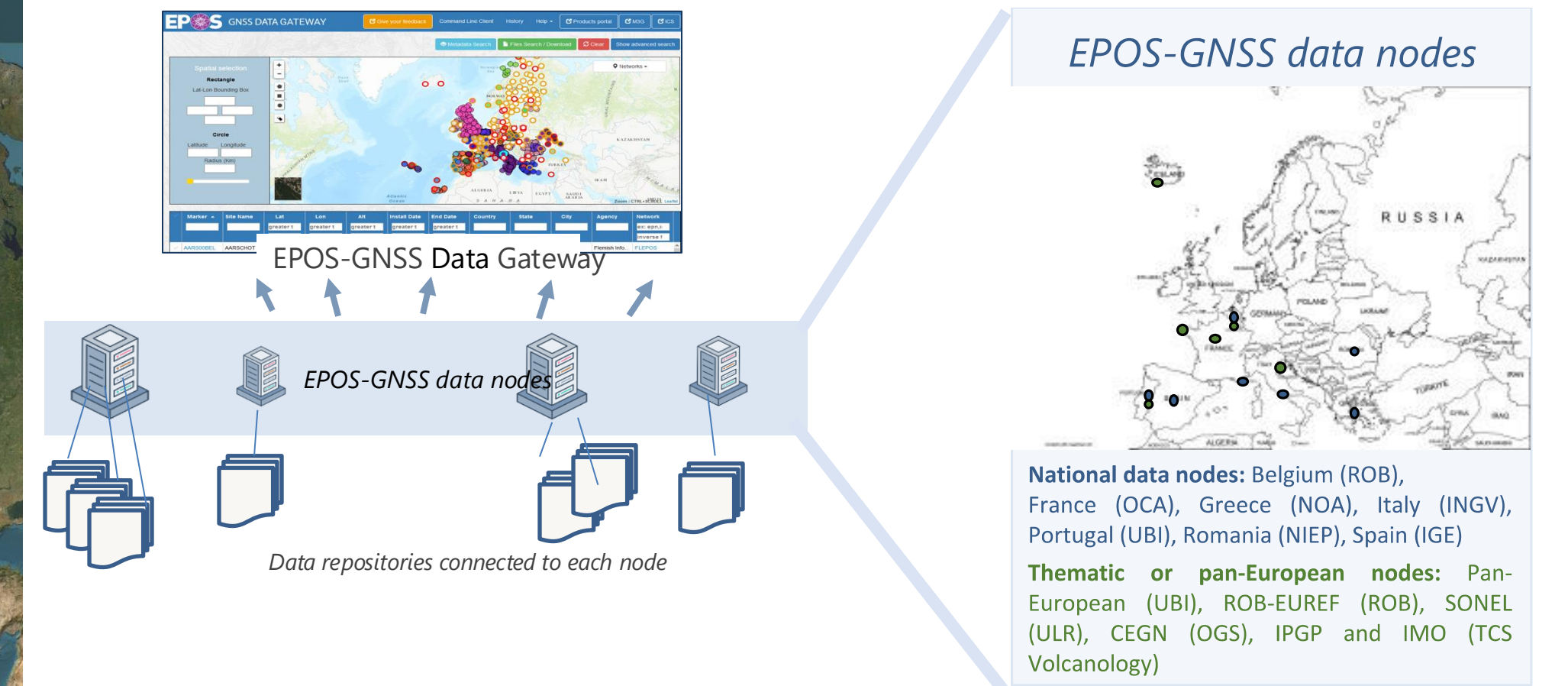
initial members:

- BKG** Bundesamt für Kartographie und Geodäsie, DE
 - INGV** Istituto Nazionale di Geofisica e Vulcanologia IT
 - LM** Lantmäteriet, SE
 - OCA** Observatoire Cote d'Azur, FR
 - ROB** Observatoire Royal de Belgique, BE
 - UBI** Universidade da Beira Interior, PT
 - UGA** Université Grenoble Alpes, FR
 - SGO** Space Geodetic Observatory, HU
 - WUT** Warsaw University of Technology, PL
- end of 2024 / begin of 2025:**
- IGE** Instituto Geográfico Nacional España, ES
 - NOA** National Observatory of Athens, GR
 - OGS** Istituto Nazionale di Oceanografia e di Geofisica Sperimentale
 - ULR** La Rochelle Université, FR

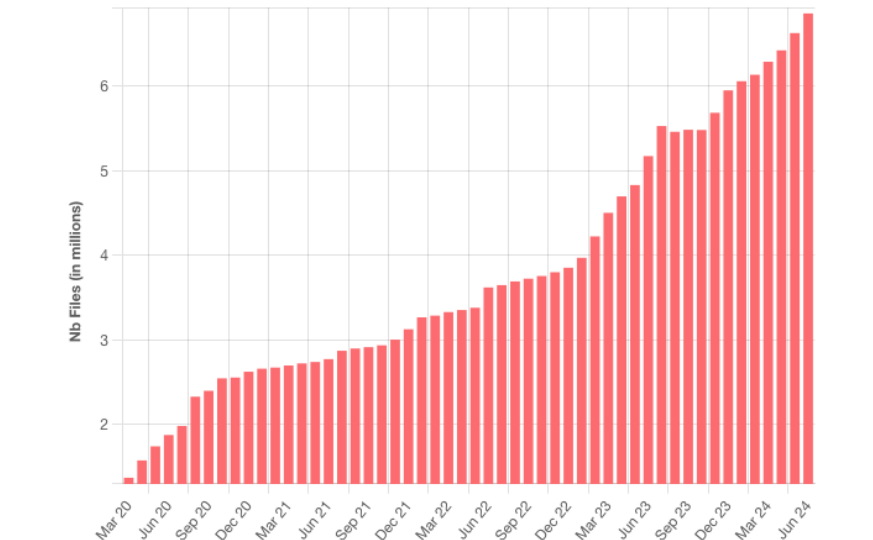
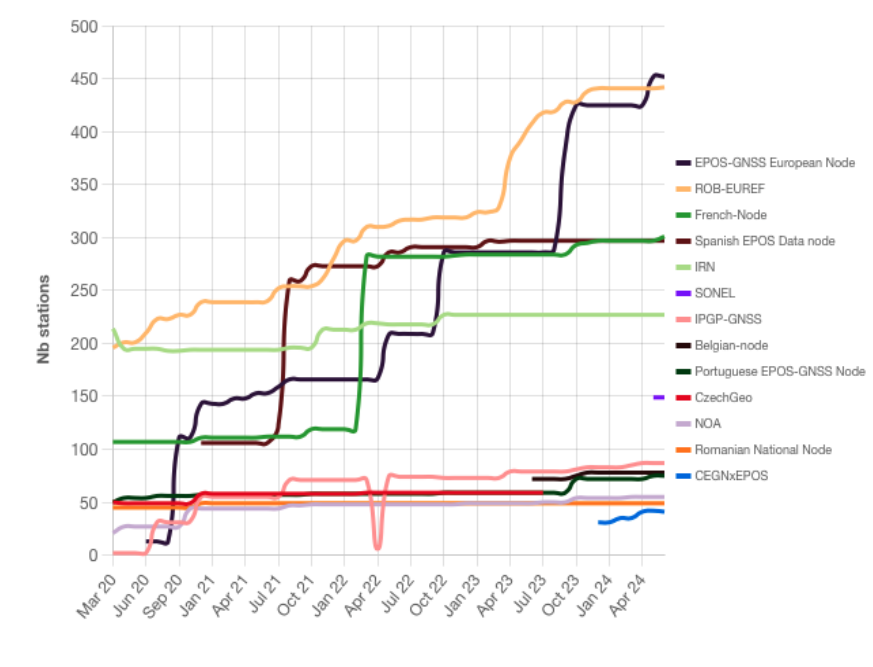


EPOS-GNSS is fully integrated in the EPOS Platform by providing 16 Services (3 implemented in 2024) to access Metadata, Data and Products:

- List RINEX Files Search Parameters
- GNSS Stations with RINEX Daily Data
- Metadata and url of RINEX Daily Files
- GNSS Stations with RINEX High-Rate Data
- Metadata and url of RINEX High-Rate Files
- GNSS Stations with Products
- 4 Services for Positions Time-Series (4 providers)
- 4 Services for Velocities Solutions (4 providers)
- Strain Rates
- Offsets



More than 2000 GNSS stations agreed to share data with EPOS



AMBITIONS

• STRATEGIC:

- Extend the network of data providers (add additional GNSS datasets and data nodes)
 - Focus on less dense zones and new EPOS ERIC members
- Include additional members on TCS consortium
 - Spread the workload
 - Improve sustainability
- Strengthen collaboration with other organizations:
 - EUREF Symposium 2025 will be organized in collaboration with EPOS-GNSS (June 2025)
 - EarthScope, AusPOS
 - standardization of metadata (DOI)
 - sharing of data & products

• TECHNICAL:

- Improve and extend GNSS products (e.g., real-time data)
- Improvement of GLASS
 - GNSS node software
 - web services
- Application of FAIR data principles to GNSS data and products
 - Agreement on standardized metadata schema
- Continue to assign DOI to digital GNSS assets
 - web services, nodes, datasets, products

• COLLABORATION WITH OTHER TCS:

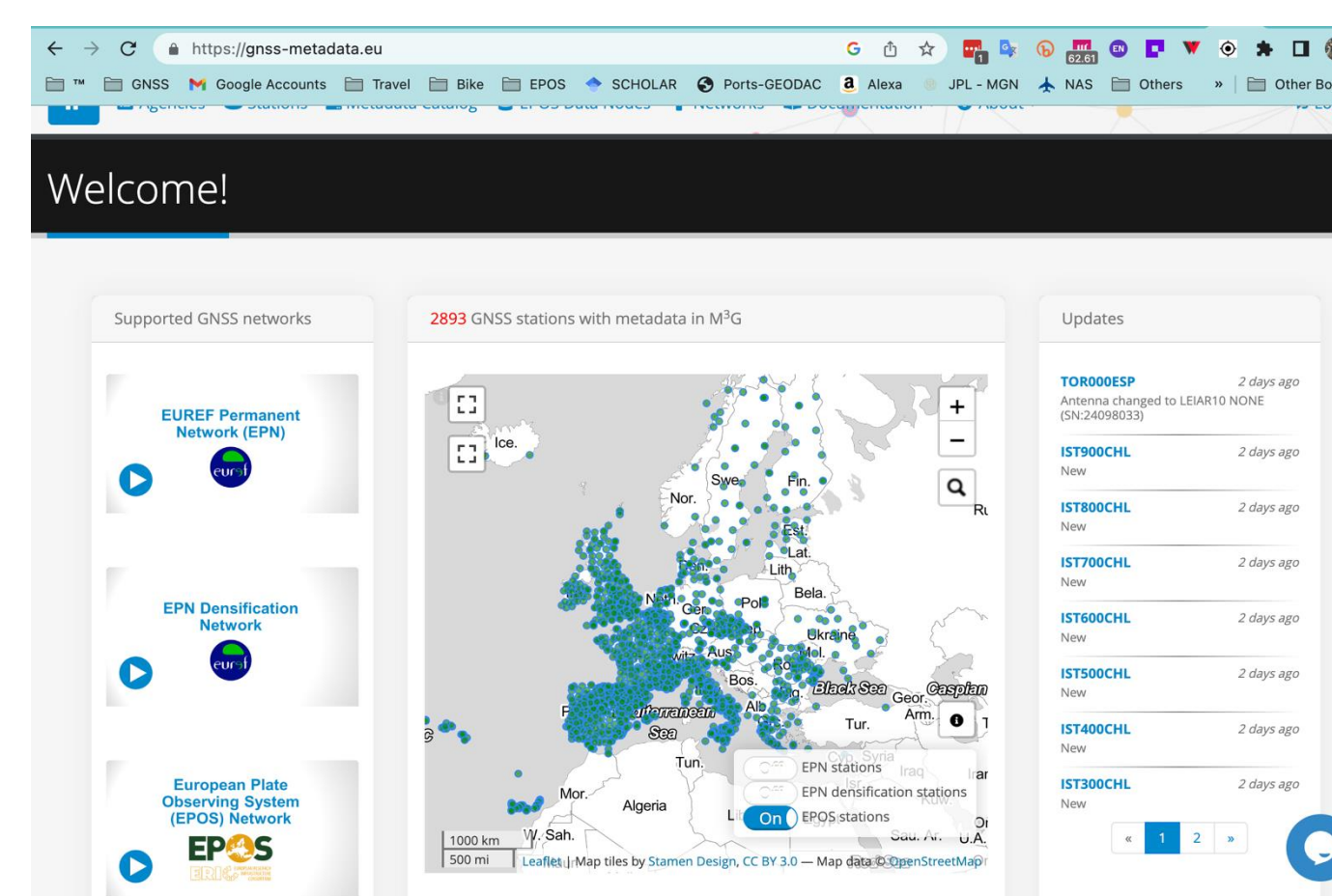
- Agree on a common approach to the distribution of GNSS data:
 - Near Fault Observatories
 - Volcano Observations
- Investigate the added-value of developing new services
 - e.g., ShakeNet – Seismology
- Investigate the role of GNSS within other TCSs –
 - provide services on data processing and analysis

EPOS-GNSS PORTALS

M3G – Metadata Management (<https://gnss-metadata.eu/>)

M3G validates the station metadata (site logs) and gathers other metadata related to networks, agencies, doi, etc.

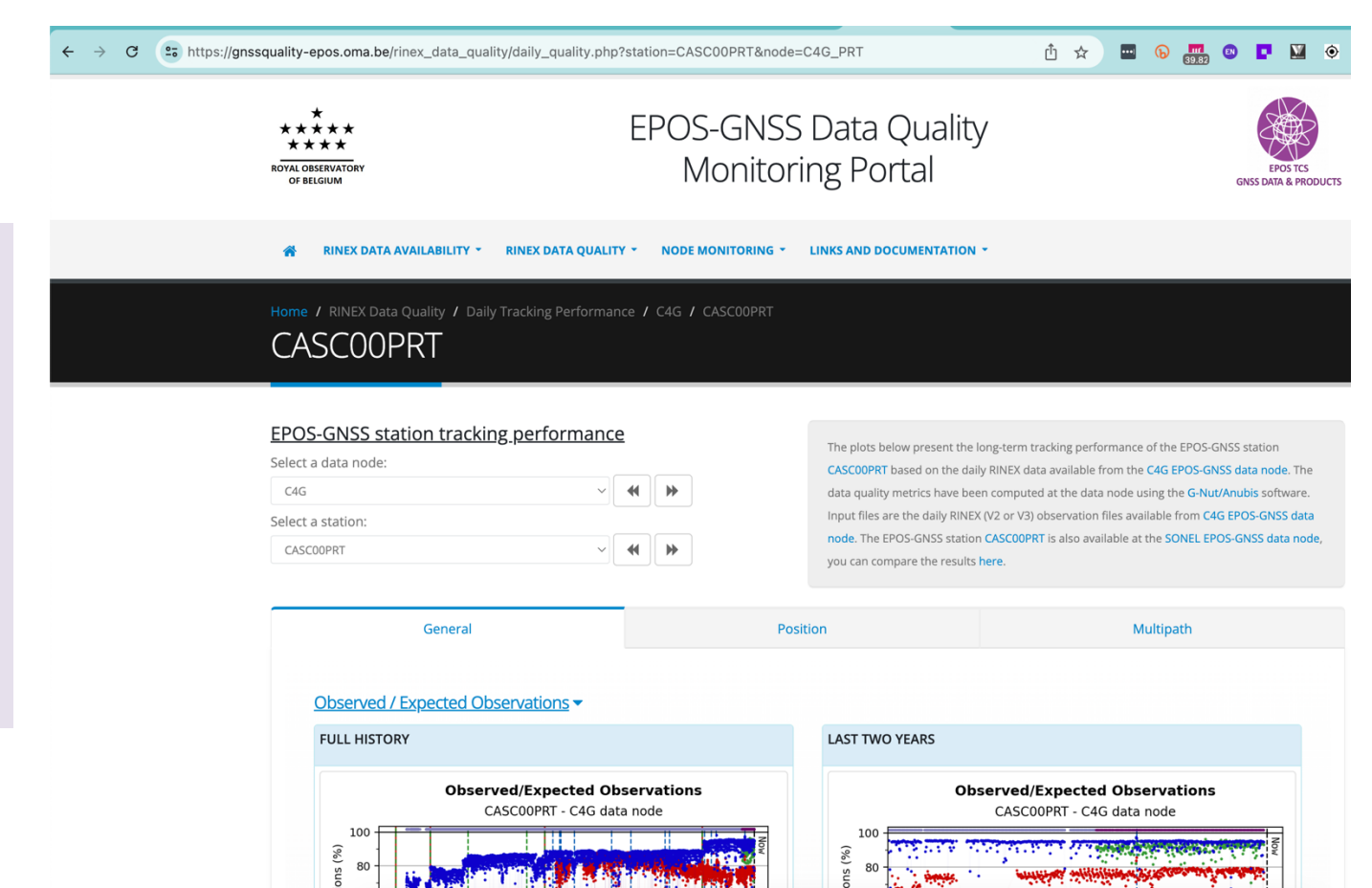
GLASS system is designed to cross-check the consistency between the station metadata and RINEX header and to alert data providers if necessary.



DQM – Data Quality Monitoring Portal (<https://gnssquality-epos.oma.be/>)

DQM monitors the availability and quality of daily GNSS observation data that are discoverable through EPOS.

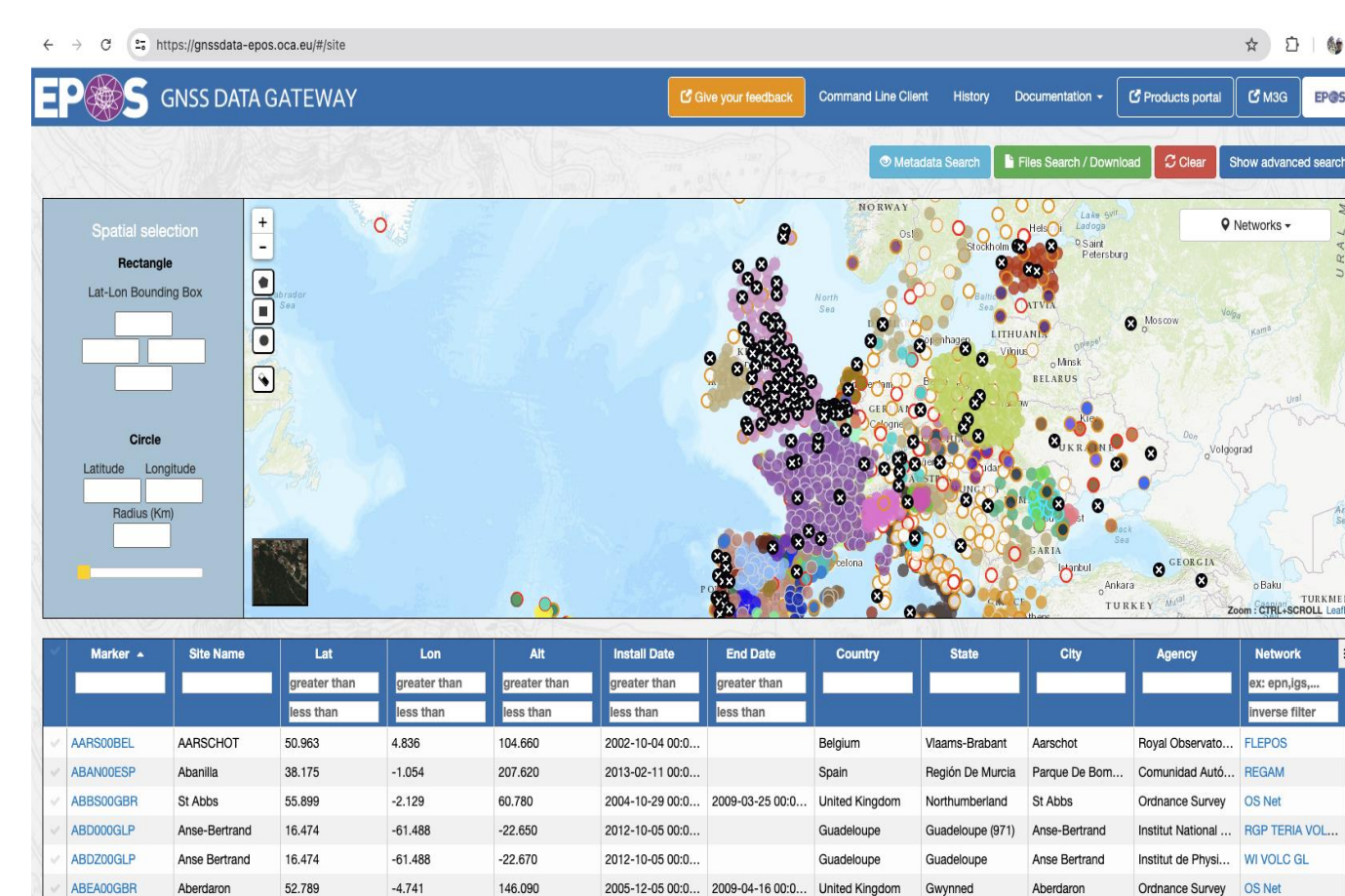
It collects the results of the quality-control carried out at each node (using Anubis) when a new RINEX file enters in the system and provides several Data Quality Indicators (DQI) about the station and files.



DGW – GNSS Data Gateway (<https://gnssdata-epos.oca.eu/>)

The EPOS GNSS DGW is designed to be the gateway for accessing the data and metadata of more than 2000 stations from different regional, national and Pan-European data centers. The DGW hosts the centralized station and file metadata.

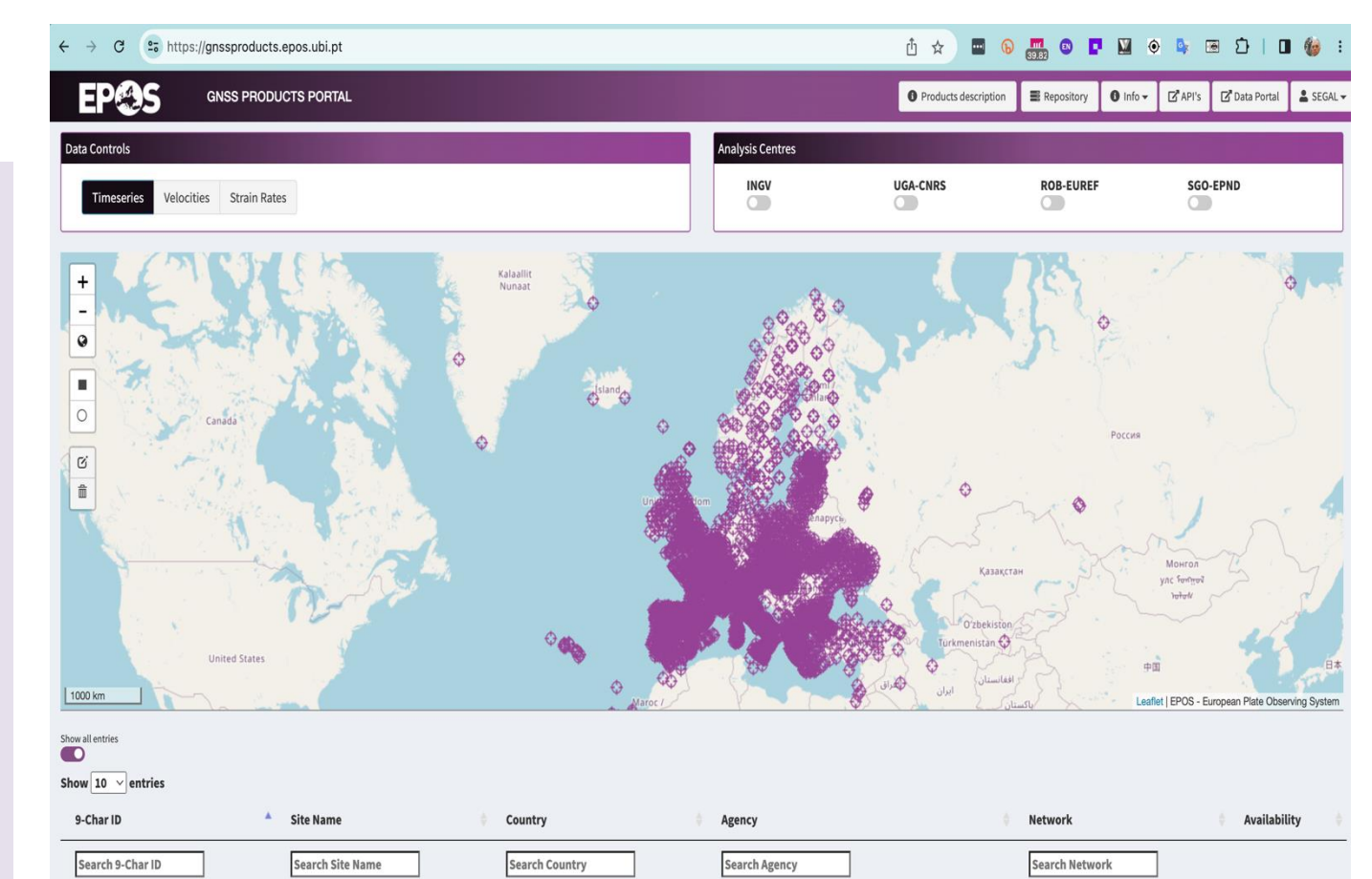
Station metadata provide information about the GNSS stations and are received from the M3G portal and then synchronized from the Data Portal to the relevant GLASS nodes. File metadata provide information about the files, allow to download data, and are synchronized from the local GLASS nodes to the DGW.



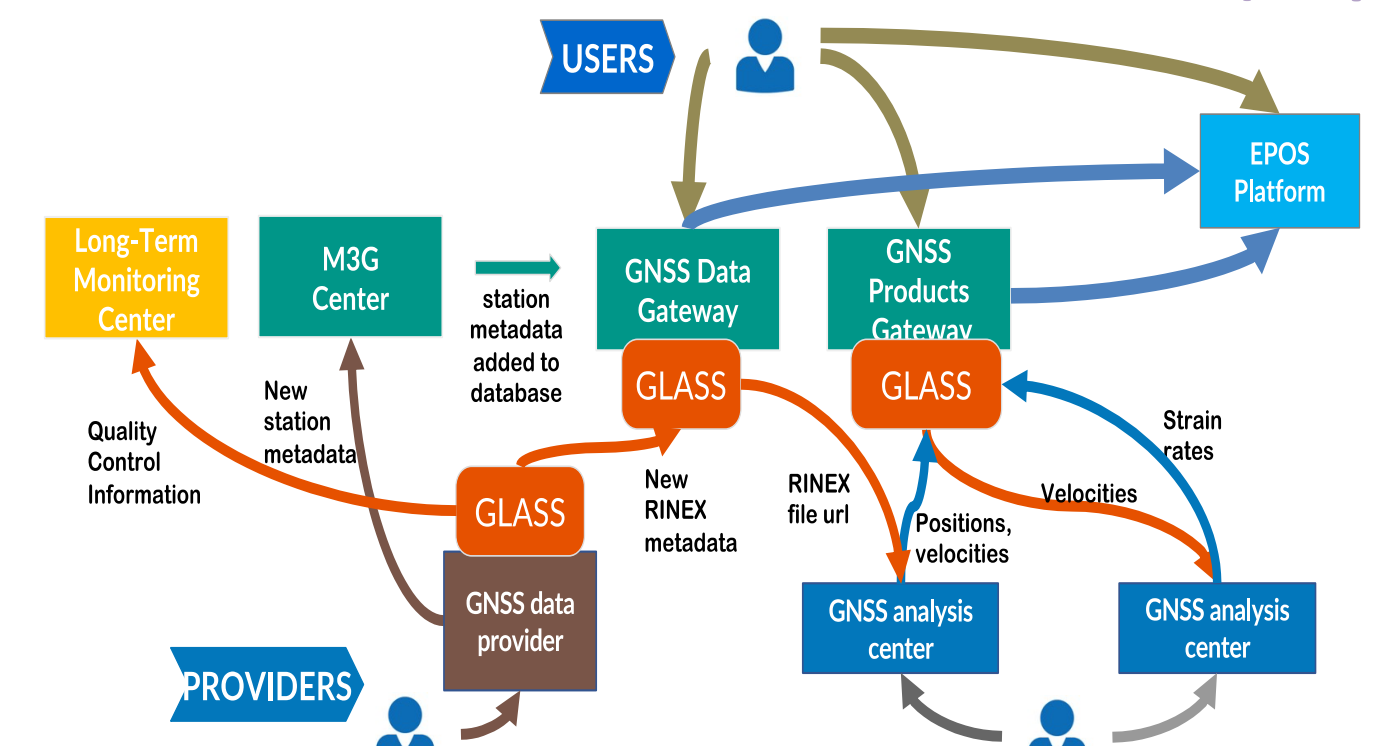
PP – GNSS Product Portal (<https://gnssproducts.epos.ubi.pt/>)

The European EPOS GNSS Product Portal is the gateway for the EPOS-GNSS Products. It disseminates products computed in four dedicated EPOS Analysis Centers (CNRS-UGA, France; INGV, Italy; SGO, Hungary; LM, Sweden). In addition, it provides solutions computed by EUREF partners: WUT, Poland; ROB, Belgium).

The Product Portal provides (a) coordinate time series and velocity solutions; (b) time series and velocity combined solutions that also include EUREF solutions and other external solutions (for which station metadata are provided); (c) strain rates; (d) offsets due to anthropogenic and seismic events.



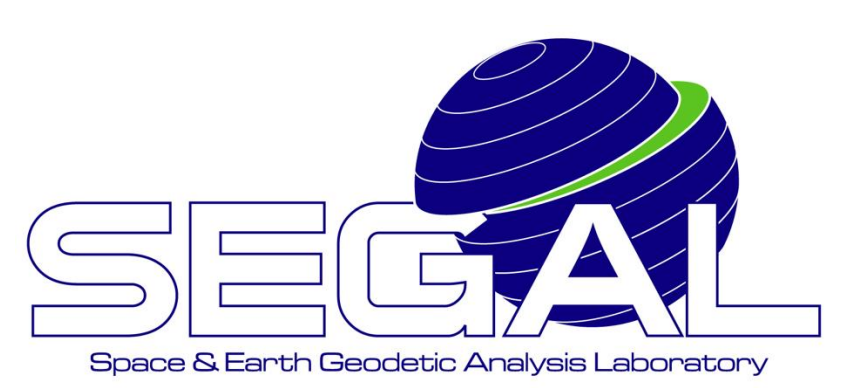
SOFTWARE GLASS (<https://doi.org/10.25768/epos-gnss-glass>)



- Source Code <https://gitlab.com/gpseurope>

API'S AND INTEROPERABILITY (towards FAIR data)

- Site log – geodesy XML
- GLASS REST API – json, xml, geojson, csv
- GLASS REST API – Swagger Documentation
- EPOS Web Service Description – RDF - Turtle Triples
- Metadata Catalogue – EPOS uses CERIF (Common European Research Information Format)



EPOS Days 2025
17-20 March 2025 – Hotel Gio – Perugia – Italy