



## **Towards Operational Data Quality Monitoring of EPN Stations**

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GNSS is the primary means to access (international or regional) Terrestrial Reference Frames (TRF). When using network-based differential GNSS processing techniques, the analyst includes TRF stations in its data analysis in order to tie its network to the chosen reference frame. The selection of the most appropriate reference stations depends not only on their geographical location, but also on station performance. In Europe, the EUREF Permanent Network (EPN) provides the GNSS reference stations to access the European Terrestrial Reference Frame. For the user, it is important to know at each epoch, which EPN stations perform according to expectations so that they can be effectively used as reference station during the data analysis.

For that reason, the EPN Central Bureau (CB) is operationally monitoring EPN station performance in terms of data availability, correctness of metadata, and data quality. The data quality checks are partly based on G-nut/Anubis developed by the Geodetic observatory Pecný, Czech Republic (Václavovic P, Dousa J, 2016), and complemented with in-house developed software. Based on a reprocessing of all EPN data since 1996, a initial set of the data quality metrics relevant for EUREF applications has been derived. However, due to the increased complexity of the tracked satellite constellations and signals, the interpretation of the temporal variations in these data quality metrics and the generation of operational alarms remains challenging. A first analysis of the results showed already: a) the importance of using RINEX v3 (above RINEX v2), even if only processing GPS and GLONASS, b) the need to keep receiver firmware up to date, and c) the necessity to careful select the tracked satellite constellations for receivers with a limited number of channels.