



GNSS monitoring at the EPN Central Bureau in support of geodynamics

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The EUREF Permanent Network (EPN) is a network of about 250 continuously operating GNSS stations installed throughout the European continent. The EPN Central Bureau (CB) was created in 2000 as an answer to the growing number of responsibilities of the EPN network coordinator. Headed by the network coordinator, the Central Bureau maintains the EPN ftp and website and acts as the liaison between station operators and analysis centres, providing necessary station configuration metadata and ensuring the datasets meet the requirements of the analysis.

Within the EPN guidelines exist for monumentation design, equipment changes, data flow and maintenance of meta-data. However, different institutes use different practices and there is no formal guarantee that EPN stations are operated following the guidelines. This explains the need for an extensive central monitoring of the EPN as is done at its Central Bureau. The results of the monitoring are made available through different paths such as the EPN CB ftp and website (<http://epncb.oma.be/>), the EUREF mailing list, and in case of urgent problems: personal emails to the managers of the stations, data centers or analysis centers.

Originally installed to maintain and provide access to the European Terrestrial Reference System, the data and products of the EPN are used today to learn more about the geodynamics of the western part of the Eurasian plate. However, due to the small amplitude of the intra-plate deformations in the stable part of Europe (<1 mm/yr), GNSS-based deformation monitoring is reaching the limits of its capabilities.

So, even while the GNSS-based EPN site velocities have the potential to provide information on the geodynamics over Europe, extreme care is necessary during the interpretation in order to avoid 'false positives'. Using examples from the EPN CB monitoring, we will show how GNSS instrumentation can produce apparent position changes and we will demonstrate that a rigorous quality check of the GNSS tracking data is a prerequisite for the correct interpretation of position changes resulting from the data analysis.