



Present-day deformation in Europe, as seen by the EPOS-GNSS prototype solution in double difference, and first co- and post-seismic displacements associated with 2016 Amatrice and Norcia earthquakes (Italy)

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We present here a new pan-European velocity field, obtained by processing 500+ cGPS stations in double difference, in the framework of the implementation phase of the European Plate Observing System (EPOS) project. This prototype solution spans the 2000-2016 period, and includes data from RING, NOA, RENAG and European Permanent Network (EPN) cGPS networks.

The data set is first split into daily sub-networks (between 8 and 14 sub-networks). The sub-networks consist in about 40 stations, with 2 overlapping stations. For each day and for each sub-network, the GAMIT processing is conducted independently. Once each sub-network achieves satisfactory results, a daily combination is performed in order to produce SINEX files. The Chi square value associated with the combination allows us to evaluate its quality. Eventually, a multi year combination generates position time series for each station. Each time series is visualized and the jumps associated with material change (antenna or receiver) are estimated and corrected.

This procedure allows us to generate daily solutions and position time series for all stations. The associated “interseismic” velocity field has then been estimated using a times series analysis using MIDAS software, and compared to another independent estimate obtained by Kalman filtering with globk software.

In addition to this velocity field we made a specific zoom on Italy and present a strain rate map as well as time series showing co- and post- seismic movements associated with the 2016 Amatrice and Norcia earthquakes.