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Velocity field estimated from HEPOS permanent GNSS network in Greece, preliminary results.

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The analysis of data from permanent Global Navigation Satellite System (GNSS) stations plays a pivotal role in the assessment of ground motion within a given region. Greece, situated at the convergence zone of various tectonic plates, experiences heightened seismic activity and other geotectonic phenomena. The Hellenic Positioning System (HEPOS) constitutes a network of 98 permanent GNSS sites strategically installed across the entire Greek territory, serving as a critical infrastructure for data provision within the country. In the framework of this study, daily data collected at a sampling rate of 30 seconds for four individual years, ranging from 2011 to 2022, were analyzed. The data was processed via the Bernese GNSS Software v5.2. For the realization of IGb14 reference frame, 19 permanent stations of the IGS network were used, additionally incorporating final products (satellite orbits, clocks, and antenna calibration parameters). Comprehensive analysis was conducted on position time series for all stations, resulting in the estimation of tectonic velocities, harmonic signals, and permanent displacements attributed to seismic events in proximity to each site. Subsequently, preliminary results of the deformation field for the entire Greek region are presented, employing diverse algorithms for the estimation of strain and rotational rates.

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