



## **The crustal velocity field mosaic of the Alpine Mediterranean area (Italy): Insights from new geodetic data**

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A new horizontal crustal velocity field of Alpine Mediterranean area was determined by continuous long time series (6.5 years) of 113 Global Navigation Satellite System (GNSS) permanent stations.

The processing was performed using state-of-the-art absolute antenna phase center correction model and recomputed precise IGS orbits available since April 2014. Moreover, a new more accurate tropospheric mapping function for geodetic applications was adopted.

Results provide a new detailed map of the kinematics throughout the entire study area. This area is characterized by a complex tectonic setting driven by the interaction of Eurasian and African plates. The eastern Alps, Corsica, Sardinia and the Tyrrhenian Sea (which is covered only by interpolation data) show small velocity residuals with respect to the Eurasian plate. The whole Apennines axis discriminates two different velocity patterns, the Adriatic and the Tyrrhenian area. The area around Messina Strait, which separates peninsular Italy and Sicily, represents a poorly understood region. Results identify an important boundary zone between two different domains, Calabria and Sicily, which are characterized by different crustal motions. The northeastern part of Sicily and Calabria move like Adriatic area, whilst the rest of Sicily, Malta and Lampedusa are dominated by African motion.