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KINEMATICS OF SOUTHERN ITALY IN THE FRAME OF THE AFRICA-EURASIA CONVERGENCE

We present a new integrated GPS velocity field, obtained by combining 4 years of CGPS data (more than 398 sites globally and regionally distributed stations) with a decade of regional and local GPS surveys (Fig. 1). Euler rotation poles have been computed for the major tectonic plates, to provide information about the first order central Mediterranean geo-kinematics. We present a block-like interpretation of the African-Sicilian domains, which correctly explains the geological and seismic deformation in the study area. We observe significant NE-SW extension along the Sicily Channel (Pantelleria Rift), significant N-S compression is observed in the southern Tyrrenian domain, from Ustica toward the Aeolian archipelago. A local network in the Messina Strait area provide about $2 \pm 0.6$ mm of NNW-SSE extension between the Sicily and Calabrian coasts. NW-SE extension is present in the Calabria and Ionian domains. Directions of principal geodetic strains are coherent with the geometry of seismic deformation, and the kinematics of major tectonic boundaries is described in the frame of the complex seismotectonic setting of this area, which is a key region to understand the central Mediterranean geodynamics.

Fig. 1 - Velocity field.

Relatively simple rigid block models cannot exhaustively explain the seismotectonics and kinematics of tectonic boundaries in areas of distributed deformations, like the Africa-Eurasia plate boundary system, but considering the
geodetic data available, and the geography of the study area, this approach can significantly help in constraining first order values of geodetic slip rates along major fault systems, providing fundamental information for more detailed studies of seismic hazard estimates.