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Intraplate coupling distribution along the Calabrian Subduction Interface as imaged by GPS data

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The degree of coupling of a subduction interface (i.e. the fraction of the motion accommodated by elastic strain accumulation with respect to the total plate convergence rate) is a key parameter to understand the seismogenic and tsunamigenic potential of subduction zones. While some results have been recently proposed for the Hellenic subduction, based on GPS velocities, informations about the state of interseismic coupling of the Calabrian subduction thrust are still elusive. Previous works have already shown that the degree of coupling of the subduction interface beneath the Calabrian arc, and the related elastic strain signal measurable at the Earth's surface can directly impact the behavior of other active faults in the region, with all the consequences this implies in terms of regional seismic hazard. In this work we use a dense GPS velocity field covering the Sicily and Calabria region, which is part of a wider Euro-Mediterranean and African solution, to investigate the kinematics and the inter-seismic coupling of the Calabrian subduction thrust, using an elastic block model approach. We use our previously published models, seismicity distributions and GPS data from more than 300 continuous stations to define the geometry of the regional active faults. We also realize a detailed 3D model of the slab interface based on the profiles released by The European Database of Seismogenic Faults in the frame of the european SHEAR project. The results of this study help constraining the location and geometry of the seismogenic portion of the Calabrian slab interface in the Ionian sea, which are discussed in the framework of seismic and tsunami hazards associated with the Nubia-Eurasia plate interactions and the tectonics of the Central Mediterranean region.