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Interseismic strain accumulation in the Gargano Promontory, Central Italy

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The Gargano promontory is a ENE-WSW topographical and structural high located at the inner border of the Apulia foreland. The post-Miocene tectonics of the Gargano area is characterized mainly by E-W strike-slip and NW-SE normal faults, whose present state of activity is debated, since there have been no large earthquakes in the instrumental era. Still, the Gargano is well known as a seismically active zone: destructive earthquakes (and even a tsunami) have occurred in historical times, with felt effects up to XI MCS, although the exact location of the seismogenic sources is uncertain. The level of background seismicity is low, with a maximum magnitude Mw=5.4 occurring in the central part of the promontory. We have investigated the surface deformation in the area using the PS-InSAR processing technique. We have analysed 83 descending, and 31 ascending images, obtaining good coherence over about 200.000 Permanent Scatterers. We have modeled the ground velocity field using elastic dislocation models and a non-linear inversion scheme. The modeling preliminary results suggest that the area is presently accumulating strain along the E-W Mattinata fault, with locking depths in the range 10 to 15 km