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Plio-Quaternary tectonic evolution offshore the Capo Vaticano Promontory (W Calabria, Italy)

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We reconstruct the Plio-Quaternary tectono-stratigraphic evolution in the offshore Capo Vaticano (W Calabria, Italy) by integrating data obtained from single- and multi-channel reflection seismic profiles and a reprocessed version of the CROP M2A/III line.

NW-trending, high-angle normal faults, dipping $\sim 70^\circ$ to the south-west formed along the continental slope connecting the south-west continental shelf of the Capo Vaticano Promontory to the Gioia Tauro Basin (Pepe et al., 2014). Faults generally have small displacements up to 40 m and are sealed by Pleistocene deposits.

West of the Capo Vaticano promontory and in the Gioia Basin, a SE-dipping, normal fault system, more than 32 km long, is recognized. Faults affect lower (?) Pleistocene and are sealed by probably post-0.7 Ma deposits. These faults are here tentatively interpreted as the antithetic faults of major, Late Pliocene to Quaternary, NW-dipping, normal faults, which form the currently active tectonic belt along the Calabrian Arc (e.g. Monaco and Tortorici, 2000; Faccenna et al., 2011).

In the Santa Eufemia Gulf, reverse faults affecting Plio-Quaternary and older sedimentary successions are observed. Faults also offset the seafloor thus indicating their recent activity. A normal fault system has been also inferred on the basis of the present day depth variations of the edges of submerged depositional terraces and associated abrasion platforms, along which a vertical displacement of ~ 21 m during the Late Pleistocene-Holocene has been inferred.

The information derived in offshore the Capo Vaticano Promontory represents an important step towards an accurate 3-D kinematic description of the tectono-stratigraphic evolution of the western (Tyrrhenian) side of the Calabrian Arc orogenic wedge during the Plio-Quaternary.

Faccenna C., Molin P., Orecchio B., Olivetti V., Bellier O., Funicello F., Minelli L., Piromallo C. & Billi A. 2011. Topography of the Calabria subduction zone (southern Italy): Clues for the origin of Mt. Etna. *Tectonics*, 30, TC1003, doi:10.1029/2010TC002694.

Pepe F., Bertotti G., Ferranti L., Sacchi M., Collura A. M., Passaro S., Sulli A. 2014. Pattern and rate of post-20 ka vertical tectonic motion around the Capo Vaticano Promontory (W Calabria, Italy) based on offshore geomorphological indicators. *Quaternary International*, 332, 85-98. <http://dx.doi.org/10.1016/j.quaint.2013.11.012>

Monaco C. & Tortorici L. 2000. Active Faulting in The Calabrian Arc and Eastern Sicily. *Journal Of Geodynamics*, 29, 407-424.