



Geo-structural analyses along the Corini and Erithres active faults, Viotia region, central Greece

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Our work focused on two normal faults that crop out in the area between the eastern Corinth Gulf and the Erithres Basin: the Corini and the Erithres faults. Both faults exerted a strong control on the drainage, and exhibit morphological and structural evidences of recent tectonic activity. We carried out a detailed geological and structural mapping along a transect of the two faults, and re-assessed the resulting data using the Transect Analysis method to document the variation of both their geometric and kinematic properties. For these purposes, a systematic topographic profiling across the faults was performed in order to evidence the morphological offsets (fault scarps), and to plot displacement - length diagrams.

The 10 km-long Corini normal fault (CF), located at the eastern border of the Corinth Gulf, cuts across primarily Mesozoic carbonates rocks. The retreat fault scarps associated to the two main fault segments are characterized by a 3 m high striated fault plane. In some localities, along the CF, we observed a smoothed and striated, 15-20 cm-high basal strip associated with a faulted reddish breccias and colluvium of probably Holocene age. The fault zone is comprised of a fault core that includes gouge and breccia as thick as 2 m, and of a damage zone of fragmented carbonate rocks as thick as 20 m. The 7 km-long Erithres normal fault (EF) borders the southern part of the Plio-Pleistocene Erithres Basin. This fault is characterized by retreat fault scarps up to 30 m high, and a 10 cm-wide, striated basal strip.

Inverting the structural data collected along two faults, we found significant differences in the orientation of the extension (minimum axis of the stress ellipsoid: σ_3). The CF and the EF, in fact, are associated with a sub-horizontal σ_3 oriented NW and

NNE, respectively. Considering that both CF and EF are part of a large E-W fault system that controls the configuration of the basins, in a regional context they are kinematically compatible and probably associated with zones of large crustal stretching. Constraining the direction of extension since Plio-Quaternary in this sector of the central Greece, our data show that, from the West to East, it switches from NW to NNE of almost 40° . Finally, based on the fault lengths and widths of the basal stripes, we estimate that the seismic potential associated to both faults is greater than 6.