# Revisiting the Tulungwan-Chaochou fault system: Crustal structure and possible seismic potential

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The Tulungwan-Chaochou Fault system in the southern Central Range of Taiwan is considered one of the major fault systems in Taiwan. The surface trace of the fault system is delineated by one of the most conspicuous topographic lineaments in Taiwan and the fault system separates moderately metamorphosed rocks on the east from unmetamorphosed sediments on the west, suggesting a long history of significant displacements. The slip history of the fault and the geometry of the fault at depth remain poorly defined, however. Field mapping of rock fabrics and brittle structures in the hanging wall suggests a regional-scale antiformal structure that verges west-northwest (Huang and Byrne, 2014). Leveling data and uplifted river terraces along the northern, or Tulungwan, segment of the fault system suggest that it may be active, although no historical large earthquakes have been related to the structure (Ching et al., 2011; Hsu et al., 2018). More recently, Chen et al. (2018) proposed that the Tulungwan segment projects east, down dip, to a cluster of ambient tremors that form a steep, southeast dipping ellipsoidal structure at depths of 15 to 45 km. The map trace of the Tulungwan fault and the surface projection of the tremors intersect in the area of Meishan hot springs

along the western end of the South Cross-Island Highway where Bertrand et al. (2012) documented the strongest, crustal-scale resistivity anomaly in Taiwan. Based on these observations and interpretation, we propose that the Tulungwan segment represents an active, crustal-scale fault with significant, but previously under appreciated, seismic risk.


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