

Active tectonics of the Hengchun Peninsula from UAS and PS-INSAR Interferometric datasets

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Despite numerous recent works (Zhang et al., 2014, Giletycz et al. 2015A and B, 2017; Deffontaines et al., 2016, 2017/2018; Huang et al., 2018), the Hengchun Peninsula (S.Taiwan) remains still poorly known in terms of geodynamic and geomorphological processes. Contrasting results and opposite conclusions are emitted by those previous works in terms of active uplift/subsidence locations, and dealing with the location of the Hengchun and Kenting active faults that definitely needs a much better regional comprehension in order to understand the geodynamic of the outcropping southern tip of the Taiwan Central Range.

Two new high resolution datasets (1) the UAS Digital Terrain Model (<10cm ground resolution and <40cm vertical accuracy) and (2) displacements processed from PSInSAR techniques (modified from J.Champenois, 2011, Deffontaines et al. 2017, 2018) that are validated by some GPS fixed stations, lead us to up-date the Hengchun Peninsula geological mapping. The latter had been validated in the fields and the added PSInSAR lead us to determine the active interseismic structures (active faults and folds) during the monitoring time period taking into account even small magnitude of displacements. Special attention where focussed on the location, characterization and quantification of the Hengchun, Kenting and Manchou Faults and their associated active folds that affect the whole Hengchun Peninsula.

Moreover South to the Hengchun Peninsula, offshore high resolution bathymetric data sets acquired offshore (Chang K.-J. et al., 2015) and E-W transverse seismic reflection profiles (Liu C.-S., and Hsu H.-H., work in progress) lead us to propose an up-dated and integrated onshore/offshore geodynamic model of the whole Hengchun Peninsula and clarify its recent evolution.

Definitely, this area remains a major Natural Hazards sensitive area as the still active Taiwan Nuclear Power Plant N°3 is situated so close to the Hengchun Fault.

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