



Evidence of mud diapirism at the emerged trench-slope basin and new tectonic insights of the southwestern Taiwan orogen, Hengchun Peninsula.

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An oblique arc-continent collision of the Taiwan orogen leads to a progressive emergence of the island towards the south. As a result, the southernmost tip of Taiwan is the most recently emerged part of the Manila accretionary wedge- the Hengchun Peninsula. Here we have documented a trench-slope basin, which in Holocene was brought above the sea level. The basin covered by lagoonal sediments surfaces the trench-slope basin deposits- Maanshan Formation, through mud diapirs as a consequence of the fast and overpressured sedimentation of the emerging orogen. Stable carbon $\delta^{13}\text{C}$ and oxygen $\delta^{18}\text{O}$ isotope analysis performed on samples of the carbonate blocks of cold vents collected in the outcrops of the Maanshan Formation confirm classic seep carbonates origins. Also, topographic observations on 5 meter DEM suggest several locations of the mud diapirism relicts on the surface. Supplementary, the survey over the Maanshan mudstone and the trench-slope basin brought new insights of the tectonic setting in the southwestern Hengchun Peninsula. Levelling data from 2002 to 2013, core-drilling observations provided by Central Geological Survey, MOEA, and extensive fieldwork build an improved geological map of the study area.

This survey is the first to report the mud diapirism in the southwestern Hengchun Peninsula.