

## Shallow crustal structures triggered by the $M_L$ 6.6 Meinong earthquake, southwestern Taiwan, from field investigation of surface deformation and damages

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The  $M_L$ 6.6 Meinong earthquake on 6 February 2016 caused serious damages in southwestern Taiwan. Coseismic displacement derived from GPS and InSAR shows ~10 cm dome-shaped surface uplift 15 km west of the epicenter with two clear N-S trending discontinuities in the InSAR fringes around the town of Guanmiao, which are highly related to building damages and surface cracks observed in the field. In this study, we integrate seismic reflection data, geologic data, and results from field investigation to construct shallow crustal structural geometry. The two lineaments near Guanmiao seen in the InSAR result may be induced by local shallow folding in the Liushuang - Erhchuangchi (LS-EC) Formation. Instead of being a traditional fault-bend fold, the significant uplift west of Guanmiao may be associated with pure shear deformation of clayey Gutingkeng (GTK) Formation. Our result suggests that lower crustal earthquakes can trigger active structures at shallower depths, which is capable of generating localized surface deformation and damages.

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