

The hazard map of $M_L6.6$ 0206 Meinong Eq. and its Neotectonic implication

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The $M_L6.6$ Meinong earthquake on 6 February 2016 caused serious damages in southwestern Taiwan. In our field survey, most of the destructions were produced by soil liquefaction and damages of high buildings, including 115 of the deaths caused by the collapse of the Wei Guan building (Fig. 1). These damages were mainly caused by the seismic wave, while little damage was found near Lungchuan, where the largest uplift of this event was observed. In addition, the coseismic displacement derived from GPS and InSAR shows ~10 cm dome-shaped surface uplift with ~4 cm in the horizontal component, 15 km west of the epicenter and two clear N-S trending discontinuities in the InSAR fringes are highly related to building damages and surface cracks observed in the field.

Based on the focal depth from Central Weather Bureau report, ~15 km depth of the main shock should be not caused such big surface deformation. Our result suggests that lower crustal earthquake may trigger active structures at shallower depths, which is capable of generating localized surface deformation and damages in southwestern Taiwan.

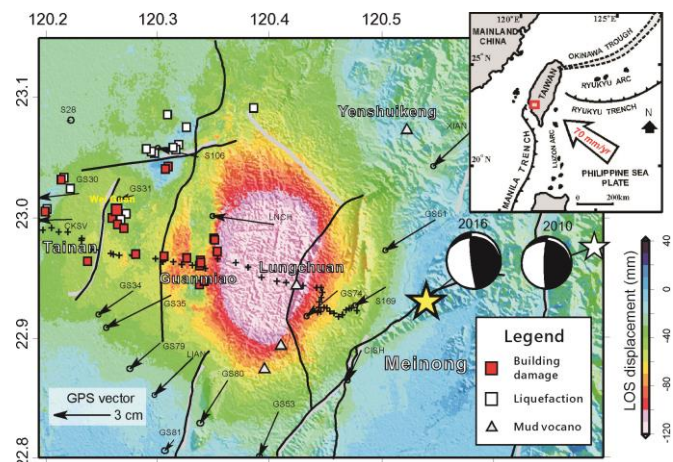


Fig. 1. Coseismic deformation and damages of the Meinong earthquake. Base map is the coseismic InSAR result from Huang et al. (2016). The stars are epicenter of the Meinong and the 2010 Jiashian event. The major active faults are the

References

- Chung, L. H., R. Y. Chuang, J. B. H. Shyu, M. H. Huang, K. M. Yang, K. E. Ching, M. Le Béon, and Y. H. Lee (2016), Field investigation of shallow structures triggered by the $M_L6.6$ Meinong earthquake, southwestern Taiwan. *Submitted to Terr. Atmos. Ocean. Sci.*
- Huang, M. H., H. Tung, E. Fielding, H. H. Huang, C. Liang, C. Huang and J. C. Hu (2016), Multiple fault slip triggered above the 2016 Mw 6.4 MeiNong earthquake in Taiwan, *Geophys. Res. Lett.*, 43, 7459-7467, doi: 10.1002/2016GL069351
- Shyu, J. B. H., Y. R. Chuang, Y. L. Chen, Y. R. Lee and C. T. Cheng (2016), A New On-Land Seismogenic Structure Source Database from the Taiwan Earthquake Model (TEM) Project for Seismic Hazard Analysis of Taiwan. *Terr. Atmos. Ocean. Sci.*, 27, 311-323, doi: 10.3319/TAO.2015.11.27.02(TEM)