

Reassessment of Seismic Hazards in SW Taiwan: Insight from Multiple Fault Slip Triggered by 2016 Mw 6.4 Meinong Earthquake



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Rapid strain accommodation across the fold-and-thrust belt in SW Taiwan are revealed by the Continuous GPS, precise leveling and SAR interferometry. The previous block model based on GPS measurement suggested a high seismic risk in SW Taiwan. However, a clear evidence of multiple fault slip along a fold-and-thrust belt at 5-10 km depth was triggered by the 2016 Mw 6.4 Meinong earthquake at 15-20 km depth. The primary coseismic fault slip was deduced with kinematic model based on seismic and geodetic measurements and triggered fault slip along the shallow fold-and-thrust belt was constrained by SAR interferometry. We hypothesize that the surface coseismic deformation is mainly controlled by a structure related to the shallow detachment at around 5-10 km depth, which a proposed duplex in a region of high pressure and high interseismic uplift rate might be sensitive to stress perturbations induced by moderate lower crustal earthquake. This anomalous deformation rate might part be related with a ramp duplex located in the footwall and the triggered slip of moderate earthquake in nearby area.

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