



## **Heterogeneous structures of 1999 Chi-Chi earthquake, thrust termination in and near Chushan excavation site, Central Taiwan**

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We describe and analyze the surface and subsurface deformations of 1999 Chi-Chi earthquake, thrust termination in and near Chushan excavation site at Tanliwun village, Central Taiwan. The surface deformation zone of high strain induced by the earthquake faulting ranges in width from 60 to 100, and characterized by a 0.5 to 2-meter-high escarpment is highly asymmetrical relative to its base. Exposures in the Chushan trench, 40 m long and 10 m deep, excavated across the south part of the 1999 Chi-Chi earthquake rupture, show on the one hand the heterogeneous structure of a steep, monoclinical-like fold, and on the other hand strikingly different surface profiles on either side of the 14 m wide trench that do not reflect in any obvious way the subsurface structure formed during several earthquake episodes and accommodated 7 m of throw during the last 3200 yrs. The results of our detailed mapping at scales of 1:10 to 1:20 help elucidate the mechanisms for the two essential types of surface profile of the escarpment, parabola-like and monoclinical-shaped, the difference of subsurface structure exposed on the walls of the trench and the connection between the surface and subsurface deformations.