

Rupture process of the 2016 Meinong, Taiwan, earthquake and its effects on strong ground motions

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Meinong Taiwan earthquake occurred in the Meinong area of southern Taiwan on 6 Feb. 2016, but caused the most severe damages in Tainan. Large amplitude accelerations and velocity pulses in both EW direction and NS direction were recorded by strong motion stations in Tainan. To investigate the characteristics of strong motion distribution in Tainan, a joint source inversion was performed. The results of source process show that the rupture propagated from hypocenter toward northwest nearly along strike direction with a constant velocity close to shear wave velocity; the main rupture area occurred in the northwest of hypocenter and was close to Tainan; the radiation pattern of S waves generated from the main rupture area, which is dominated by oblique slips with large rake angle and small dip angle of faulting, and the small azimuth between rupture propagation direction and the direction of seismic ray, contributed jointly to the directivity effect observed in Tainan. Velocity pulses, having larger components along strike parallel direction than that along strike normal direction, recorded in Tainan during Meinong event, have important implications on the seismic design of tall buildings in near fault region.

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