Geophysical Research Abstracts
Vol. 19, EGU2017-2082-1, 2017
EGU General Assembly 2017

Stochastic Finite-Fault Modeling of Ground Motions from the 2016 Meinong Taiwan earthquake

ChunTe Chen (1), ShunChiang Chang (2), and KuoLiang Wen (3)

(1) Institute of Earth Sciences, Academia Sinica, Taiwan (pokayoke69@gmail.com), (2) Department of Earth Sciences, National Central University, Chungli, Taiwan (fcuiii@gmail.com), (3) Department of Earth Sciences, National Central University, Chungli, Taiwan (wenkl@ncu.edu.tw)

We applied the stochastic method for the finite-fault modeling of strong ground motions to the 2016 Meinong, Taiwan earthquake. Newly developed attenuation models in Southern Taiwan with the frequency-dependent $Q=86.42f^{0.7307}$ and the high-frequency decay factor $\kappa 0$ were used in the synthetic model. The horizontal to vertical spectra ratios (HVSR) were calculated from weak motions and the Meinong mainshock, and were used for the site amplification correction of the synthetic waveforms produced by stochastic ground motion simulation. Simulations incorporating the attenuation models and site correction exhibited satisfactory improvement in predicting the S-wave envelope, duration, and peak ground acceleration (PGA). Based on the residual analysis, forward directivity was identified in a 105° range in the northwestward direction. The amplification of forward rupture directivity was about three times greater than backward rupture directivity. The result indicated the source rupture directivity effect play an important role may dominate the characteristic of strong ground motions and caused the anomalously strong shake during Meinong earthquake.