



Analysis of site characteristics and rupture directivity in 2016 Mw 6.5 Meinong, Taiwan, Earthquake

Yun-Yu Wang (1), Chun-Hsiang Kuo (2), Kuo-Liang Wen (1,2)

(1) National Central University, Institute of Geophysics, Taoyuan, Taiwan, (2) National Center for Research on Earthquake Engineering, NARL, Taipei, Taiwan

At 3:57 (local time) on the morning of 6th February 2016, an earthquake of magnitude Mw 6.5 struck the southern Taiwan. Due to the rupture directivity and the site effects, Meinong earthquake caused several buildings collapsed and some casualties in Tainan area, which was located in the western part of the epicenter, even though the epicenter of this event was identified at Meinong area and the fault did not rupture to the surface.

In recently year, Central Weather Bureau has been constructing the high-quality surface-downhole seismic network in Taiwan. With this seismic network, we can analyze the subsurface site characteristics more carefully. This study analyzes the strong motions at several surface-downhole seismic stations nearby the epicenter. We study nonlinear site response of the strong motions at those stations using one-dimensional equivalent linear approach. After obtaining the transfer function which were calculated from Meinong earthquake, we are able to eliminate the site effect from the seismic records and then further study the rupture directivity effect of the mainshock. This study wants to identify and quantify both the nonlinear site response and the rupture directivity effect of the Mw 6.5 Meinong, Taiwan earthquake.