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Nonlinear Site Response During the 2016 Meinong, Taiwan Earthquake

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The Meinong earthquake occurred on February 6, 2016, at 03:57 (UTC+8) with ML 6.6. The epicenter was located in the Meinong district of Kaohsiung City, Taiwan, however, the highest intensity appears in the Tainan City. The strong ground motion induced the soil liquefaction in Sinshih and Annan districts of Tainan City. To investigate the nonlinear site response during Meinong mainshock, the degree of nonlinear site response (DNL) which summation of the horizontal to vertical spectral ratios (HVSR) differences between weak-motions and Meinong mainshock records from TSMIP network is calculated. We compare the DNL values with the ground motion parameters such as PGA, PGV and also the ratio between PGV and VS30. The DNL show a positive correlation with ground motion intensity, particular with PGV, and the surface site conditions also leading the DNL strength. The areas that have high DNL values are consistent with the high potential liquefaction map that publish by the Central Geological Survey, Taiwan.