



Site correction of earthquake early warning system in Ilan, Taiwan

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When large earthquake occurs, earthquake early warning (EEW) provides alerts to urban areas of the forthcoming strong ground shaking. Depending on the specific geometry of the epicenter and the strong motion network used in EEW, the warning time can be a few seconds to tens of seconds. This warning time can be extremely important since even a few seconds can be sufficient for pre-programmed systems to have emergency response. The Central Weather Bureau (CWB) had already used network EEW system to predict intensity map. Due to leveling of intensity was roughly divided into seven grades according to peak acceleration (PGA) in Taiwan, the warning message is not cautious for company, home and school use, the accuracy of predicted PGA were discuss for our result. A practical site correction approach for EEW was constructed in this study. Period parameter (τ_c) and an amplitude parameter (Pd) from the initial 3 seconds of P waves were calculated after Wu et al.(2005) first for each site of Taiwan Strong-Motion Instrumentation Program (TSMIP) in Ilan, Taiwan for focal depths less than 35 km and magnitude $M_w \geq 5.0$. Two pairs of linear relations had showed in each station between τ_c , magnitude (M_w) and Pd, hypocenter distance (R) that could be corrected individually. Prediction results of PGA from site correction based ground motion prediction equation (Jean et al. 2006) indicated that the corrected parameters of EEW in this study had improved the accuracy of ground motion prediction. Which means reasonable site correction of each station was needed for EEW system.

Key works: earthquake early warning, P wave, site correction