

Onsite earthquake early warning techniques and its applications at schools in Taiwan Onsite earthquake early warning techniques and its applications at schools in Taiwan

HSU, Ting-yu^{1*}; WU, Shyu-yu¹; HUANG, Shieh kung¹; CHIANG, Hung-wei¹; LIN, Pei-yang¹;
LU, Kung-chun¹
HSU, Ting-yu^{1*}; WU, Shyu-yu¹; HUANG, Shieh kung¹; CHIANG, Hung-wei¹; LIN, Pei-yang¹;
LU, Kung-chun¹

¹NCREE

¹NCREE

Regional earthquake early warning (EEW) system is not suitable for Taiwan due to most of the destructive seismic hazard comes from in-land earthquakes, thus makes the lead-time before destructive earthquake wave arrives provided by the regional EEW system can be null. On the other hand, on-site EEW system can provide more lead-time at the region close to an epicenter since only the seismic information on the target site is required. Instead of leveraging the information of several stations, the on-site system extracts some P-wave features from the first few seconds of vertical ground acceleration of a single station and performs the prediction of the coming earthquake intensity at the same station according to these features. Recently, a new method of estimating seismic intensity using the support vector regression (SVR) has been developed. However, till now, most popular on-site algorithms are TauC-Pd-Attenuation (TPA) method and Pd-Threshold method (PdT). The objective of this study is to evaluate the performance of these three methods using earthquake data of the Taiwan Strong Motion Instrumentation Program and the earthquake data of EEW stations of National Center for Research on Earthquake Engineering in Taiwan. The results show that SVR method can provide more reliable and accurate EEW among these three methods.

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