

Effectiveness of Shaking Intensity Magnitude for Realtime Intensity Estimation in Early Warning System

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We studied the effectiveness of introducing the Shaking Intensity Magnitude (Mi) [Horiuchi and Yamamoto, 2005] in early warning system to estimate shaking intensity at an arbitrary site before S wave arrival during an earthquake. In this method, Mi is calculated at each moment from the filtered accelerogram of P wave which is calculated easily from coefficients of the AR filter and observed P wave. By using waveform data of 66 large events, we found that averaged error between Mi by P wave and Mi by using all the S wave data is 0.11, and Mi on the first solution has enough accuracy. This indicates Mi is a very effective and reliable index to estimate shaking intensity accurately in early warning system.