

A real-time calculation of seismic intensity and its applications

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With the increasing requirements of earthquake early warning (EEW) system, it is much more obviously that the JMA seismic intensity (Ijma) defined by Japan Meteorological Agency has a real-time delay since the Ijma needs a filtering operation in frequency domain. In order to improve a real-time calculation suitable for the EEW system, National Research Institute for Earth Science and Disaster Prevention (NIED) have proposed a real-time processing method of seismic intensity (Kunugi et. al, 2008), using approximating filters in time domain instead of the original filter in frequency domain. We have also improved upon the accuracy of the approximating filters used for real-time processing of seismic intensity (Kunugi et. al, 2013). The relation between the Ijma and the real-time intensity calculated using the improved approximating filter is examined by using a large number of strong motion records. The results show that the absolute differences between the Ijma and the real-time seismic intensities of 99% of all records are within 0.1.

In this presentation, we introduce the real-time processing method of seismic intensity proposed by NIED. Also its applications for EEW systems are discussed.

Keywords: seismic intensity, real-time processing, earthquake early warning, kyoshin monitor, strong ground motion