The application of the earthquake monitoring and rapid reporting system in the Taiwan Railway System

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Abstract

The Taiwan Railway System is one of the major transportation systems in Taiwan. Safety, accuracy, and service are the major operation objectives of the Taiwan Railway Administration in which safety is the first priority. Taiwan is located at the circum-pacific seismic belt where earthquakes are frequently occurred. The trains may be derailed or overturned then caused severe casualties by major earthquakes. Therefore, the earthquake monitoring and rapid reporting system were established in some primary stations of the Taiwan Railway System. The real-time earthquake information could be obtained and the corresponding emergency responses would be adopted to avoid the possible accidents and casualties.

The earthquake monitoring and rapid reporting system was officially operated in November 1st, 2002. The seismographs were installed at 23 train stations and 19 transformer stations around Taiwan. The rapid reporting system consists of the seismic intensity display and alarm panel, the data modem, and the Uninterrupted Power System. The measured earthquake signals will be transmitted to the central control center and the wave forms will be displayed on the terminal computers. The standard operation process in cases of intensity III, IV, and V was established for the station chief, dispatcher, and drivers. When the ground acceleration is greater than 180 gal, the power of trains will be shut down automatically to reduce the possible damages and casualties.