Development of an Earthquake Information Distribution System for Railways

Shunroku YAMAMOTO   Naoyasu IWATA

Kimitoshi SAKAI   Kyosuke OKAMOTO

An earthquake information distribution system for railways is developed in order to rapidly inform railway companies of the shaking distribution along the rail after large earthquakes. This information can be used for effective initial responses such as narrowing down the inspection area or estimating structure damage just after shakings. The system outputs information on the shaking distribution of the earthquake by using the earthquake early warning information from Japan Meteorological Agency and seismic data recorded by K-NET operated by National Research Institute for Earth Science and Disaster Prevention. The shaking distribution is scaled by filtered acceleration, spectrum intensity, and shaking intensity as is usually utilized in railway companies. Amplification factors and the effect of soil nonlinearity are considered in the system when the shaking distribution is analyzed. The evaluation of the system by using the on- and off-line data demonstrates that the estimation error in shaking intensity is 0.61 and the information is distributed 8-9 minutes after the earthquakes on average.