

**Evaluation Method for High-resolution Distribution of Earthquake Ground Motions along Railways,  
using “Adjacent Site Characteristic Ratios”**

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We propose a method to estimate the distribution of earthquake ground motions along railways with high density and high accuracy. In this method, firstly, the relative site amplification factors between the two adjacent seismic stations (“Adjacent site characteristic ratios”) are obtained using the high-density temporary earthquake observations data. Secondly, we obtain the site amplification factor at the evaluation sites (temporary seismic stations) with respect to the reference site (permanent seismic station) by sequentially multiplying the “Adjacent site characteristic ratios”. The earthquake ground motions at the evaluation points can be estimated by multiplying the site amplification characteristic ratios prepared in advance at each evaluation site by the earthquake records at the reference point.