

**Estimation of Earthquake Ground Motions along a Railway
for Early Resumption of Regular Train Operation after Earthquakes**

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For early resumption of regular train operation after occurrence of earthquakes, it is important to precisely and rapidly estimate earthquake ground motions. In this study, we tried to evaluate high-dense seismic motions along a model railway. At first, we estimated S-wave velocity structures by geophysical explorations at seismic stations. Secondly, we performed microtremors observations along this railway and calculated H/V spectral ratios. Then, we estimated the continuous linear S-wave velocity structures by applying the peak frequencies of H/V spectral ratios while referring to the subsurface profiles at the seismic stations. Finally, the high-dense seismic motions were estimated by the multiple reflection theory using the S-wave velocity structures. As a result, the estimations were in good agreement with the observations, thus the estimation validity of this method was confirmed.