Estimation of Strong Ground Motion in Wide Area Based on Coupling of Stiffness Matrices Method and FEM Analysis

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Railway structures are often constructed near the active faults in the Japanese islands. In order to improve the safety of trains running on railway structures, therefore, it is important to predict an earthquake ground motion taking into account the effect of the active fault. We first have estimated the characteristics of propagation of the earthquake motions in the wide areas having the active fault using “Stiffness Matrices Method”, and next we have developed a method to predict near-fault ground motions by coupling the results of Stiffness Matrices Method with 2-D FEM analyses.