

Large-scale parallel simulation of strong ground motions for Nankai trough earthquakes by using the Earth Simulator

Takashi Furumura[1], Toshitaka Baba[2], Yoshiyuki Kaneda[3]

[1] ERI, Univ. Tokyo, [2] IFREE, JAMSTEC, [3] JAMSTEC, Frontier, IFREE

The seismic wavefield from significant earthquakes are profoundly affected by the variation in the 3D subsurface structure along the ray path from the source to stations.

Such effects can be modeled by the FDM simulation of seismic wave propagation using adequate 3D structure model and source model for the earthquakes. With the use of the Earth Simulator, we have conducted large-scale parallel 3D simulation of seismic wave propagation for the Nankai-trough megathrust earthquakes, such as for the 1944 Nankai (M8) and 1946 Tonankai (M8) Earthquakes, in order to understand the wave propagation character during the large plate earthquakes and to seek insights into the understanding of complex seismic behavior in heterogeneous structure.

Snapshots of ground motions and the seismic intensity distributions derived by the computer simulations would be an efficient tool to understand the damage during the postulated earthquakes and to predict ground motions for future earthquake scenarios.