

Numerical simulation of seismic waves and strong motions in 3D heterogeneous media

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Recent developments in high-performance parallel computer, the Earth Simulator (5120CPU, 40TFLOPS) realize large-scale simulation of seismic wave propagation and strong ground motions during large earthquakes.

Also, a high-density strong motion network (K-NET and KiK-net) in Japan allows visualization of ground motions during large earthquakes. The close link between the computer simulation study and analysis of array data would be the key to understand the complex seismic behavior that cause strong motion damage on the surface.

We will show examples of observations and computer simulations such as for the 2000 Tottori-ken Seibu earthquake and the 1993 Kushiro-oki earthquake to demonstrate the effectiveness of the large scale 3D simulations and high-density observations and their collaboration study.