

Strong ground motion simulation of the 2004 Kiihanto-Nanto-Oki Earthquake using 3-D Finite Difference Method

Hidenori Kawabe[1]; Katsuhiro Kamae[2]

[1] RRI,Kyoto University; [2] KURRI

Associated with the 2004 KiiHanto-Nanto-Oki earthquake (2004/09/05,23:57 Mj:7.4), which occurred near the Tonanka Earthquake source region, the long-period ground motion with long duration was observed. The cause of these long-period ground motions might be the combination of the propagation path effect and the deep sedimentary plain. We performed a simulation of the wave propagation of this earthquake with 3D finite-difference method to examine this phenomenon.

In order to simulate this earthquake, we used the finite difference method using staggered grids with nonuniform spacing (Pitarka, 1999). The volume of the FD model is 300 km square by 60 km deep. We also built an underground structure model referring to the model that was compiled by the Central Disaster Management Council, and made the sedimentary basin model based on Horikawa et al. (2004) and Zhao et al.(2004). We made the source model based on Yagi (2004) and used it for FD simulation.

We can simulate the period characteristic and the wave amplitude of the S waves observed inside the Osaka basin, but it is difficult to explain the later phase of observed record. This implies that it is necessary to improve the underground structure model using simulation of observed record.