

Effects of 3D underground structure on ground motions in Fukuoka city area during the 2005 West Off Fukuoka prefecture earthquake

Tomotaka Iwata[1]; Kimiyuki Asano[1]

[1] DPRI, Kyoto Univ.

Kinematic source model of the 2005 West Off Fukuoka prefecture earthquake is obtained by the strong motion network data (e.g. Asano and Iwata, 2006). One asperity was observed at approximately 5 km southeast of the hypocenter, which ruptured approximately 3.5 s after the rupture initiation at the hypocenter. The slip-direction was almost pure left-lateral strike slip. The principal horizontal ground motion axis at FKO006 is rotated to 20 degree of clockwise direction from the theoretical one. These ground motion characteristics are observed at plural stations near the FKO006 site, whereas those at most of the stations in Fukuoka city area coincide with theoretical ones. We observed similar characteristics of ground motions during the largest aftershock. We can assume that this is caused by the effect of the 3D underground structure in this area, by the Kego active fault. Preliminary 3D velocity structure model simulation shows this kind of ground motion characteristics qualitatively. We need to perform waveform simulation to the more realistic model to explain the observed ground motions.