

Imaging crustal inhomogeneity by urgent joint seismic observation of the 2005 west off Fukuoka earthquake (M7.0)

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On March 20, 2005, a large earthquake with $M=7.0$ (JMA) occurred at west off-Fukuoka City. Many houses had damaged in Genkai-jima island located near the earthquake fault. We carried out temporal seismic observation around the aftershock area of the earthquake just after the occurrence of the main shock. Six online telemetered and 17 offline recorded seismic stations were deployed (Shimizu et al., this meeting). In this study, we analyzed seismograms obtained by the seismic stations in order to detect inhomogeneities in and around hypocentral region. Inhomogeneity in the crust is considered to relate to the existence of liquid in the seismogenic zone of the crust, which plays an important role in understanding the mechanism of earthquakes. We studied a distribution of S-wave reflectors and S-wave anisotropy in and around the hypocentral zone of the earthquake. We analyzed the seismograms observed at the seismic stations in this region. Normal moveout processing (NMO) was applied to the data of the aftershock. Several S-wave reflectors could be identified from the NMO sections for every station. In particular, relatively strong S-wave reflectors exist in the lower crust. From the analysis of particle motion for the direct S-waves of the aftershocks, we detected S-wave velocity anisotropy mainly polarized in a direction of WNW-ESE direction. The direction is similar to that of the regional tectonic stress in this region.