

2005 West Off Fukuoka Earthquake: Aftershock Observation and Ground Motion Simulation in the Genkai Island

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A large earthquake ($M_j=7.0$, $M_w=6.4$) occurred on March 20, 2005 (JST) off the western part of Fukuoka, Japan. It caused serious damage in the Genkai Island, but there was no seismic intensity meter and the record of main shock does not exist. We have conducted an aftershock observation on the Genkai Island to record aftershocks in order to verify the site amplification due to the steep topography of the island, and reproduce ground motions during the main shock using the aftershock records as the empirical Green's functions.

We installed 2 accelerometers in downtown Fukuoka, 1 on the south part of Shikanoshima, and 5 on the Genkai Island, then keep these stations till mid April. We have already succeeded in picking up the records of aftershocks with the JMA magnitudes greater than 3.0 at all the stations on March 26. The spectra of the largest event at 21:03 on March 25 do not show large variations less than 5 Hz, so that the amplification due to the topography of the island is not so large.

The results of waveform inversions show that the Genkai Island is located in the forward rupture direction of the main shock. This suggests quantitative validation of the ground motions during the main shock to be very important. We use the aftershock records as the empirical Green's functions then carry out the broadband ground motion simulation in the Genkai Island.