Strong-Motion Observation at Ojiya and Kawaguchi for Aftershocks of the 2004 Chuetsu (Mid Niigata Prefecture) Earthquake

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The Chuetsu earthquake (Mj=6.8) occurred on October 23, 2004 (JST) in Mid Niigata Prefecture, Japan. Strong ground motions on a level of intensity 7 were observed in Ojiya and Kawaguchi, and it caused serious damage to the ground, buildings, roads andShinkansen. We conducted an aftershock observation in Ojiya in order to separate resultant strong motion into source/path/site effects. We also conducted another aftershock observation to detect the difference of ground motions at the surface and in the structure.

We used 8 portable strong-motion accelerometers (SMAR-6A3P), then installed 3 of them at the Ojiya elementary school which is placed near K-NET Ojiya, 3 at the Higashi Ojiya junior high school in eastern part of the city, 1 at the Ojiya fire station in northern part of the city, and 1 at the Kawaguchi town hall where a intensity meter of the local government was installed. The 6 accelerometers in the schools are installed at the first and fourth floor of the school buildings and the ground surface close to the buildings. We observed from October 26th to December 3rd at the schools, from October 27th to November 18th at the fire station and from November 3rd to February 18th, 2005 at the town hall. We succeeded in observing 158 records of aftershocks with JMA magnitudes greater than 3.0, and 136 out of them were observed at several stations. We recognized that the amplitudes of the records at the 1st floors of the schools are smaller than those at the ground surface. We also found that the records of the aftershocks at Kawaguchi show a spectrum peak at 1-2 Hz regardless of the magnitudes of aftershocks. This result shows good agreement with the site amplification factors derived from microtremor H/V observations (Senna et al, 2005).