

## Aftershock observation in the source region of the 2004 Chuetsu earthquake: Part 4 Microtremor array observation

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To investigate relation between earthquake damage and site amplification characteristics due to soft soil layers, we observed microtremors for array around the Kawaguchi town office and Tamugiyama area, where the source region of the mainshock is near and damage was heavy. In this paper, we described about microtremor array observation in Kawaguchi town office and results of the analysis. We carried out two type of observations, array observation at mid of the town and single point observations around the town. Purpose of array observation was estimation of velocity structure at mid of the town and evaluation of site amplification. And purpose of single point observations was investigation about distribution of local site amplification in the town. Applying F-K method to array records, phase velocities of surface waves were determined in frequency range from 2Hz to 4Hz. The velocity structure was estimated by inversion of phase velocities. Theoretical S wave amplification in the estimated model was calculated. There was not effective amplification in the range of 2Hz to 4Hz. We thought that at the mid of the town there was not strong amplification of ground motions in such frequency range. H/V spectra near the town office were flat from 1Hz to 10Hz. So in such frequency range, there was not significant amplification of ground motions near the town office. But at Echigo-Kawaguchi station, north-west and south-east of the town, there was a peak in the range of 1 to 10Hz. There might be comparatively large amplification at such sites but earthquake damage was not heavy at all sites. We will advance our investigation using aftershock records observed in Kawaguchi town..