

## Comparing strong motion seismograms at Yoshida Campus, Kyoto University

Yu Moizumi[1]; # Mamoru Kato[2]; Tomotaka Iwata[3]

[1] IHS, Kyoto Univ; [2] Human and Environmental Studies, Kyoto Univ.; [3] DPRI, Kyoto Univ.

The Committee of Earthquake Observation and Research in Kansai Area (CEORKA) has two strong motion stations, KYU and IHS, in Yoshida Campus, Kyoto University. Waveform records at these stations are useful in understanding strong motion in urban Kyoto area and are also useful in mitigating earthquake disaster in crowded university campus. KYU and IHS are approximately 600 meters apart, and difference in waveform attributes would be interpreted as local site effects. To understand characteristics of two stations, we have analyzed strong motion waveforms recorded at KYU and IHS in 2001-2006.

From 180 events which are simultaneously recorded at both stations, we have selected 71 local and regional events. Given the proximity of the two stations, source and propagation path effects would be cancelled out in spectral ratio, which accordingly could be treated as relative local site effects at two stations. We estimate amplitude spectra for the first 5 or 10 seconds after P or S arrival. Pre-trigger waveforms are used to estimate noise level, and we confirm that signal-to-noise ratio is sufficiently high between 1 and 10 Hz.

Resultant spectral ratios for S phase show different characteristics at low and high frequencies, below and above 6 Hz, respectively. At the low frequency band, the spectral ratio IHS/KYU is approximately equally to 1, with slight deviation (1/2-2) at 2-4 Hz. This deviation is stronger for events in the east, and would be caused by shallow (tens of meters) structure. At high frequencies, IHS/KYU is less than 1 and becomes smaller as frequency increases. Previously Tsurugi et al. (2002) reported at KYU site amplification in high frequencies is not strong, and given that sensor of IHS is installed at the basement of 4 story building, this attenuation is caused by resonance of this building. Such characteristics are both observed for early coda as well as direct S phase. Observed peak ground velocity, PGV, being larger at KYU signifies different behavior at high frequencies.

Our comparison implies that site effect due to the basin structure in Kyoto area affects the strong motion records at two stations equally, and difference in waveform characteristics are mainly due to shallow local site effects and sensor installment.