

Site amplification effects in Osaka basin: Comparison between empirical and theoretical evaluations

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In order to examine the feasibility of theoretical evaluation of site effects, we have compared theoretical site effects with empirical site effects. The empirical site effects were evaluated by using waveforms of earthquakes recorded at Osaka basin. The theoretical site effects were evaluated by a 1D reflectivity method for SH waves using the velocity structure corresponding to each observation site. As results, it reveals that the theoretical spectra correspond to the empirical spectra comparatively well within a frequency range from 0.5Hz to 10Hz. Two scales of velocity structures are employed in the theoretical calculation. One is shallow, fine structure to the depth of about a few tens of meters, and the rest is comprehensive, wide structure to the depth of seismic bedrock. It is thought from the analyses of theoretical site effects that with these two kinds of velocity structures we can evaluate them appropriately.