

Estimation of S-wave velocity structure in Kanto plain using microtremor array measurements

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We conducted microtremor array explorations of deep sedimentary layers of the Kanto basin, Japan, in order to obtain S-wave velocity data for estimating long-period strong ground motion. Vertical microtremors were observed at temporary arrays at 29 sites in the area. We, first, estimated phase velocity of Rayleigh waves at periods from 0.5 to 5 s from the frequency wavenumber spectral analysis of the array records. Then, 1D S-wave profiles for the sediments are deduced from genetic inversions of the Rayleigh wave phase velocities. We, furthermore, collected phase velocities of Rayleigh waves obtained in previous explorations at more than 200 sites in the area. The phase velocity from the explorations by previous and this studies are inverted again to S-wave profiles using the same assumptions in the inversion. We constructed a new 3D S-wave velocity model from the inverted profiles at more than 236 sites.