



Estimation of Shear Wave Velocity structure by using Love Waves: Possible Engineering (Near Surface) Implications

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Shear wave velocity is a key parameter in earthquake engineering. Shear wave velocity is estimated by using several geophysical methods such as seismic refraction, borehole geophysics, and surface wave analysis. In the last years, surface wave analysis are preferred due to fast and economically applicable, and higher depth resolution. Generally, in the surface wave analysis, fundamental mode of Rayleigh wave is used to estimate shear wave depth profile. However, Love wave phase velocities are of particular interest because the combined use of Rayleigh and Love wave dispersion curves reduces non-uniqueness during inversion for the shear wave velocity structure. In this study, shear wave velocity structure down to the bedrock are carried out by combined use of Rayleigh and Love wave dispersion curves by array microtremor data at 25 sites in the west part of Istanbul. According to the preliminary results, shear wave velocity estimated by Love wave seems more reliable than Rayleigh wave in the frequency range greater than 1 Hz, especially bedrock is near to surface for shallow parts.