

Estimation of AVS30 using the shear wave velocities and the geotechnical properties

Chikako Eto[1]; Tomio Inazaki[2]

[1] AAC; [2] PWRI

Average shear-wave velocity for upper 30m (AVS30) is a simple but useful indicator for estimating site amplification factors. The value of AVS30 should be directly calculated from S-wave logging data, or estimated from microtremor measurement data. However, implausible approaches have been attempted to estimate it from the surface geomorphological information such as landform, altitude, surface gradient (e.g. Fujimoto and Midorikawa, 2003; Matsuoka et al., 2005), without a precise correlation with subsurface geotechnical data, or drill log data.

Recently, a large amount of geotechnical drill log information has been collected and disclosed as electronic files by MLIT. Among them, we extracted S-wave logging data for about 300 sites in the Kanto Plain, and calculated the AVS30 at each site. Relationship between AVS30 and geotechnical properties was also examined to create a more reliable equation for estimating AVS30 from the subsurface data, now easy to access and available for us. As a result, it was cleared that lithofacies, N-values, and layer thickness were the major factors explaining AVS30.