

Shear Wave Velocity Estimates through Combined Use of Passive Techniques in a Tectonically Active Area

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Abstract

We made an attempt to assess the shear wave velocity values V_S and, to a lesser extent, the V_P values from ambient noise recordings in an array configuration. Five array sites were situated in the close proximity to borehole sites. Shear wave velocity profiles were modeled at these five array sites with the aid of two computational techniques, viz. spatial autocorrelation (SPAC) and H/V ellipticity. Out of these five array sites, velocity estimates could be reliably inferred at three locations. The shear wave velocities estimated by these methods are found to be quite consistent with each other. The computed V_S values up to 30 m depth are in the range from 275 to 375 m/s in most of the sites, which implies prevalence of a low velocity zone at some pocket areas. The results were corroborated by evidence of site geology as well as geotechnical information.

Key words: array recordings, SPAC, ellipticity.