



# ESTIMATION OF S-WAVE VELOCITY PROFILE BY INVERSION OF CODA H/V SPECTRUM

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**ABSTRACT:** A new method using inversion of coda H/V spectrum is examined to estimate the S-wave velocity profile down to seismic bedrock. The inverse analysis is based on the theoretical H/V spectrum of surface wave proposed for microtremor H/V spectra analyses. In order to confirm the applicability of this estimating method, the coda H/V spectra analysis are conducted at KiK-net Narita and Miyakoji observatory sites using three-component seismometers. The estimated S-wave velocity profiles are consistent with the available profiles derived from the PS loggings, vertical seismic array analyses and other explorations. It becomes clear that the inversion of coda H/V spectrum can almost estimate the S-wave velocity profile down to seismic bedrock. To conduct the inverse analyses sufficiently well, it is necessary to consider the effects of the higher modes of Rayleigh and Love waves, especially Rayleigh-to-Love-wave amplitude ratio for horizontal motions.

**Key Words:** H/V Spectrum, S-wave Velocity Profile, Microtremor, Coda Wave, Rayleigh Wave, Love Wave, Fundamental/Higher Mode, Loading Source