Modeling of Phase using Variance Spectrum of Group Delay Time-Part 12: Variance Spectra by Ray-based Anisotropic Scattering Model

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Hoshiba (1991, 1993, 1995) has analyzed muilti-scattering effects on the path using energy particle simulations. A new method for analyzing multiple anisotropic scattering based on the ray theory is proposed in this paper.

The proposed method considers the probability of ray reaching to the receiver. The energy distribution obtained by proposed method coincides well with that by energy particle simulation.

Mean and variance spectra of group delay time, which is defined as the gradient of phase angles along the frequency axis, are employed in this study to represent spectral phase characteristics of seismic ground motion. The results of proposed method are compared with the identified spectra of group delay time of the observed seismic motions.