

Toward modeling the anisotropic velocity structure beneath the Japanese subduction zone (1)

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Study of seismic anisotropy is one of the key problems in seismology because seismic anisotropy has close relationship with mantle dynamics and process of the earth evolution. However, it remains to be fully elucidated. Especially, the spatial distribution is poorly understood. Therefore, we launched modeling of seismic anisotropy structure.

Assuming that the modeling space is composed of weakly anisotropic medium, where hexagonal symmetry axis is in vertical, we estimate three-dimensional (3-D) *P*-wave isotropic velocity and radial anisotropy structures beneath the Japan subduction zone by *P*-wave travel-time inversion. In this presentation, we show the 3-D distributions of *P*-wave isotropic velocity and radial anisotropy beneath the Tohoku district. On the other hand, there are a lot of observations explained by the existence of horizontal azimuthal anisotropy. Therefore the immediate problem is the validity of the anisotropy assumed in the calculation.

Our ultimate purpose is to propose a comprehensive seismic velocity model including anisotropy beneath the Japan subduction zone and to explain various phenomena generated by anisotropy. Furthermore, based on the anisotropy model, we try to improve the understanding about the dynamics of the subduction zone.

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