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Estimation of Polarization Anisotropy in Multilayer Structure by using Ps-converted Wave

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The shear-wave polarization anisotropy data of Ps-converted wave tell us about anisotropic properties in zone between seismic station at which the Ps wave is observed and velocity discontinuity at which the Ps conversion takes place. But it is very difficult to know anisotropic structure as a function of depth from the polarization anisotropy data, because the data are obtained as a quantity integrated on ray path from the station to the velocity discontinuity. To estimate seismic anisotropy in a layer of layer structure by splitting analysis of Ps-converted wave which is generated at upper boundary of the layer, we must strip off the effect of seismic anisotropy existing above the layer. In this study, we contrived a way, stripping method, to correct for polarization anisotropy of Ps-converted wave which takes place at a velocity discontinuity. As a result, we verified that combination of the stripping method and shear-wave splitting analysis is useful to obtain correct estimation of seismic anisotropy in each of layers which a layer structure comprises. In addition, we examine how the stripping method is influenced by stacking method and SVD filter (Singular Value Decomposition filter) to remove background noise on the receiver functions.

Keywords: stripping method, polarization anisotropy, Ps-converted wave, multilayer structure