

Shear wave upper mantle structure beneath the Ontong Java Plateau

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We analyzed three-dimensional shear wave speed structure beneath the Ontong Java Plateau (OJP) by surface wave tomography. We measured phase speed dispersions of Love and Rayleigh waves up to 4th higher mode using broadband seismic data on seafloor as well as those on land in and around the Pacific Ocean.

Obtained radially anisotropic structure up to a depth of 300km shows the fast shear wave speed anomalies at depths between 75-150km, no slow anomalies, weak radial anisotropies at depths shallower than 100km, and strong positive radial anisotropies at depths around 150km beneath the OJP. Negative peaks of the vertical gradient of shear wave are deeper beneath the OJP than those beneath the vicinity. Using fundamental mode phase speed dispersions of Rayleigh wave, we obtained azimuthal anisotropy in the OJP and its vicinity. strong azimuthal anisotropy whose fast axis is N-S direction is observed beneath the OJP at periods between 30 and 150 sec.

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