

Multifrequency P-wave tomography of Ontong Java Plateau

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We obtained a three dimensional P-wave velocity structure with a focus on the mantle beneath the Ontong Java Plateau (OJP) using data from the seismological experiment on the OJP and its vicinity from late 2014 to early 2017. More than 120 events during the 2-years long OBS deployment yielded precious measurements. We measured more than ~170,000 relative travel times of P-wave between any two stations using the cross-correlation method, in passbands between 30 s and 2.7 s dominant period. We also measured more than 120 PP -P differential travel times of which PP rays bounce at the surface around the OJP. We inverted these data in addition to more than 15 million first arrival data of International Seismological Centre and our own data set used in our previous tomography for the whole mantle using the multifrequency tomography technique. The result shows high velocity anomalies at the middle of the OJP in the depth ranges of 100 -350 km and low velocity anomalies in the northwest part of the OJP at 100 -350 km depth. Slow anomalies along Caroline islands ridge are also observed down to about 500 km depth. Mantle structures obtained from this new, high resolution tomographic model of the OJP area will be compared to existing tomograms in the presentation.

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