

Seismic tomography of the crust and mantle beneath Indonesia

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We have used the JISNET and ISC data to determine 3-D P-wave velocity structure of the crust and mantle (0-2900 km depth) beneath the Indonesian region. The Earth structure is represented by velocities at grid nodes, instead of blocks as in conventional studies. Ray paths and travel times are computed with a 3-D ray tracing method. Depth changes of the 410 and 670 km discontinuities were taken into account. Our results are as follows. (1) The subducting Indian-Australian slab is well imaged down to 500 km depth. The slab is stagnant in the transition zone. (2) Under the back-arc region, prominent slow velocity anomalies are visible down to 300-400 km depth. (3) High velocity anomalies are visible at depths of 1000-1500 km and above the core-mantle boundary.