

Thermal structure estimation from P-wave attenuation data in the western Shikoku and Bungo channel area of Japan

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We analyzed waveforms of small earthquakes from Hi-net stations (128 stations) to determine P-wave t^* values. These data were inverted for 3-D frequency-independent Q_p regional models. We examined 810 events and obtained ~16500 P-wave t^* values. In our preliminary Q_p structure results, we observe a high Q_p feature that represents the subducting slab, with regions above the slab having lower Q_p values. We applied these seismic attenuation data (Q_p) to estimate the thermal structure following the high-temperature background methods [e.g., Karato, 2003]. Obtained temperatures in the slab and above the slab are 430 up to 450 degrees C and 470 up to 490 degrees C respectively. The low-frequency events are occurring in a region of low Q_p region and high temperatures (475 up to 485 degrees C). The temperatures structure in the present study are very consistent with the temperature models that have been produced from past numerical studies.