Signature of Remnant Slabs in the North Pacific from P-wave tomography.

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A nonlinear P-wave travel-time tomography was applied for the global tomographic inversion in order to obtain tomographic images of the North Pacific. The data reported by Russian networks were used jointly with the catalogs of ISC and USGS NEIC.

Subhorizontal high velocity anomaly was revealed below the Bering Sea up to the 70N in the mantle transition zone. It was interpreted as a remnant of the subducted Kula plate. Another positive velocity perturbation feature was revealed beneath the

Chukotka peninsula and Okhotsk sea, extending from ~300 to ~600 km of depth and then either further extending down to ~800 km (Chukotka) or deflecting along the 660 km discontinuity (Okhotsk sea). This high velocity anomaly was interpreted as the remnant

slab of the subducted Okhotsk plate.

A nonlinear iterative P-wave travel-time tomography was applied for the global tomographic inversion in order to obtain tomographic images of the North Pacific. The data reported by Geophysical Survey of Russia (1955-1997) were used jointly with the

catalogs of International Seismological Center and U. S. Geological Surveys National Earthquake Information Center (1964-1998). Subhorizontal high velocity anomaly was revealed below the Bering Sea up to the 70N in the mantle transition zone. It was

interpreted as a remnant of the subducted Kula plate. Another positive velocity perturbation feature was revealed beneath the Chukotka peninsula and Okhotsk sea, extending from ~300 to ~600 km of depth and then either further extending down to ~800 km

(Chukotka) or deflecting along the 660 km discontinuity (Okhotsk sea). This high velocity anomaly was interpreted as the remnant slab of the Okhotsk plate accretioned to the Siberia ~55 Ma.