

Uppermost mantle velocity distribution just beneath the Moho discontinuity of Japanese islands

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Katsumata (2010) estimated Moho depth distribution beneath Japanese islands. Velocity distributions in layers were also estimated in the study. Velocity distribution just beneath the Moho discontinuity estimated by Katsumata (2010) is viewed here.

One of major features of the uppermost mantle velocity pointed out in previous studies is low velocity beneath the volcanic front. Estimated uppermost mantle also indicates low velocity beneath the volcanic front. However the low velocity beneath the volcanic front shows spotted distribution rather than continuous one. Low velocity is distributed in the eastern, central and western areas in Hokkaido. If the low velocity is distributed along the volcanic front, distribution along ENE-SWS is expected. Low velocity in the central Hokkaido is distributed in the N-S direction.

In Tohoku district, low velocity regions beneath Shimokita Peninsula, Lake Towada, Mt. Iwate and Mt. Kurikoma are not continuous and are separated by relatively high velocity regions. Low velocity region is recognized also beneath the eastern Kitakami mountains.

Low velocity regions are seen beneath the area from Fukushima Prefecture to northern Nagano Prefecture, and they are not continuously distributed. Major feature beneath Kanto area are low velocity beneath south Kanto and high velocity beneath central Kanto. Low velocity beneath Kanto district is considered to be related to the Philippine Sea plate (Matsubara et al., 2005).

Major features beneath western Japan is low velocity beneath Chugoku district. It is considered that this would be related to reflective layer beneath the Moho discontinuity (Ito et al., 2009). P-wave and S-wave velocities seems to be relatively high and low beneath the region along the volcanic front in Chugoku district, respectively. In Kyushu district, velocity beneath NW and eastern parts seems to be low.

Similar features are seen in results in the previous studies (ex., Matsubara et al., 2008; Nakamura et al., 2008). These features would be related to tectonic history.

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