

Deep Structure and Magmatism of the Japan Islands

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Active volcanoes exist in eastern Japan and Kyushu, and Quaternary volcanoes exist in northern Chugoku. Beneath these volcanoes, significant slow velocity anomalies are visible in the crust and mantle wedge, which may show the source of arc magmas. Most of the large crustal earthquakes in Japan occurred in or around the low-velocity zones which may be caused by high temperature in the volcanic areas and by fluids from the slab dehydration in the forearc regions such as Shikoku and Kii. A slow velocity anomaly is visible in the mantle beneath the subducting Pacific slab under central Japan, which may represent a small-scale mantle plume. There are many active volcanoes and highest average surface topography in central Japan, which may be related to the plume.