

Causes of active deep-focus seismicity in the Izu-Bonin slab

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Seismic activity at depths from 300 km to 500 km in the Izu-Bonin slab is very active comparing with other parts of the Pacific plate around the

Japanese islands. It is considered that this is partly due to the plate geometry. The Izu-Bonin slab seems not to have reached the

bottom of the upper mantle, and seismicity at the tip of the slab is very active. At the same time, the Izu-Bonin slab is the oldest part

of the Pacific plate around the Japanese islands. The low temperature in the old slab should promote the occurrence of deep-focus events

according to both of the phase-transformation and the plastic instability faulting models.