

## Geographic distribution of ultra-low velocity zones in the lowermost mantle and plume generation

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We have determined the geographic distribution of ultra-low velocity zones (ULVZs) in the lowermost mantle beneath northern - western Pacific by using short-period core-reflected phases. The CMB region beneath western-northern Pacific and Asian continent has been investigated in detail by using a large amount of waveform data recorded by the short-period seismic stations of Hi-net in Japan and of world-wide International Monitoring System (IMS). Clear evidence for ULVZ was detected beneath (1) East of Australia, (2) northern Kalimantan, and (3) East of Philippine Islands. On the other hand, ULVZ-related additional arrivals to ScP and PcP was detected in North Pacific and the Asian continent.

These ULVZs tend to exist away from expected Mesozoic slabs at the bottom of the mantle (Lithgow-Bertelloni and Richards, 1998), and are also distant from the sharp boundary of Pacific LLSVP (Large-Low Shear Velocity Province) (He et al., 2006). These results imply that the partial melts can be produced without being provided the compositional heterogeneity from chemically distinct fossil slabs or LLSVPs.