

# Petrology and geochemistry of mantle xenoliths from petit-spot volcano, NW Pacific Plate

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Young alkali-basalt volcanoes (< 1 Ma) including several mantle xenoliths and lower oceanic crust xenoliths are discovered on the Early Cretaceous (~135 Ma) NW Pacific Plate (Hirano et al., 2001; 2005). They are very small knolls on the abyssal plane (~ 6000 m water depth) and erupted strong to moderate alkaline and highly vesicular basalt. This volcanic field is far from any trenches and also spreading centers, therefore these are classified as a kind of intra-oceanic plate volcanism. In this area, however, there are neither any hotspots nor large igneous province previously reported. Therefore, this volcanic activity is not adequate for any existing volcanic models on the earth. Then, we named this special volcanism "petit-spot".

To understand this "petit spot" volcanism, we've been taking interdisciplinary surveys. The main results of these surveys using JAMSTEC four cruises (KR03-07, KR04-08, YK05-06 and KR05-10) and shore-based research suggest that there are a lot of small knolls assumed young volcanoes. The arrangement and the size of the knolls imply that this volcanic field is a monogenic volcanic cluster, which are often observed in the intra-continental plate. The trace-element patterns of the clinopyroxene in the ultramafic xenoliths are similar to those of the clinopyroxene in the garnet peridotite from subcontinental lithospheric mantle.

## References

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