

## Differentiation processes of Shatsky Rise magmas, NE Pacific plate: constraints from clinopyroxene chemistry

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Shatsky Rise is the large igneous provinces on the northwestern Pacific Plate. Previous geophysical and geochemical studies suggest two hypotheses about Shatsky Rise formation. One is mantle plume head model, the other is decompression melting model. Shatsky Rise formed at the Pacific-Izanagi-Farallon triple junction during the latest Jurassic to Early Cretaceous. Although some geological studies of lavas have attempted to explain the origin of Shatsky Rise (e.g. Mahoney et. al., 2005), we do not still have the answer about this question because the lavas are obtained from limited sampling sites, and are covered with thick pelagic sediments.

IODP Expedition 324 cruise was carried out by the research vessel, JOIDES Resolution in 2009, at Tamu, Ori and Shirshov massifs of Shatsky Rise. In this study, clinopyroxene phenocrysts of obtained massive, pillow and subaerial lavas are analyzed by electron microprobe analysis. It would be possible to discuss about the origin of Shatsky Rise based on the trend of magma differentiation in clinopyroxene phenocrysts.

Phenocryst compositions of clinopyroxene from Tamu Massif show the data along the MORB trend. The compositions from Ori Massif, on the other hands, plot the data along the trend of OIB-tholeiite. The magma source of Shatsky Rise, therefore, changed from MORB-like to OIB-like materials during the passage of a mantle plume and the Pacific Plate beneath Shatsky Rise. Thus, it is difficult to explain that Shatsky Rise occurs from single origin in the mantle.

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