

Mantle diapir model for Rishiri volcano. Part2. Temporal variations in the basaltic magmas and structure of a mantle diapir

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Chemical compositions of olivine and spinel in the basaltic rocks of the Rishiri volcano suggest that the source mantles of the basaltic magmas had changed from fertile peridotites in the initial stage to deplete ones in the climactic stage, and changed to fertile ones in the final stages. Whole-rock chemical compositions of the basaltic rocks are also different among the three stages. Considering the structure of uprising mantle diapir (plume) (Griffiths and Campbell, 1990), progress melting from the head of the diapir could produce those observed temporal variations in the basaltic rocks.