

Crustal assimilation during differentiation of a crustal magma chamber beneath Rishiri Volcano

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Kutsugata and Tanetomi lava flows, effused from Rishiri Volcano, have basaltic and andesitic compositions, respectively. They are considered to have been a series of an evolving magma in the same magma reservoir. The variations of whole-rock major element compositions are explained principally by crystal fractionation. Assimilation of crustal materials is also suggested to have occurred simultaneously with fractional crystallization, which resulted in variations of Sr, Nd, and Pb isotopic compositions.