

The role of thermal convection on cooling of a basaltic magma chamber beneath Rishiri Volcano

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The role of thermal convection on cooling of a crustal magma chamber is investigated for the Kutsugata lava flows erupted from Rishiri Volcano, by comparing the observed compositional and thermal evolution of the magma with model calculations. The one-dimensional model suggests that the thermal and chemical evolution of the Kutsugata magma are best explained by conductive cooling without significant convective heat loss. The temperature of the main magma decreased through mixing of the low-temperature interstitial melt from the floor mush zone, from which the compositional variation of the main magma was produced.