

Compositional variation of volcanic rocks and magmatic differentiation in the Taradake volcano,northwest Kyushu

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Taradake volcanic rocks show triangular form in any MgO vs. oxide variation diagram. These show a evolution trend different from the those of melts experimentally produced , suggesting that the variation of volcanic rocks is due to a certain type of crystallization differentiation. The most probable mechanism so far we know is the batch fractionation . The volcanic rocks show a decline in CaO at MgO less than 7 wt. %. They show the maximum enrichment of Al₂O₃ at 4 wt.% of MgO. These facts suggest the crystallization sequence of olivine, olivine + clinopyroxene and olivine + clinopyroxene + plagioclase in basalts. The Al₂O₃ declining trend of andesites shifts the higher MgO side, probably suggesting the gradual movement of the chamber toe shallower levels in the crust with time.