

Petrological study of Kyogatake volcano: information from Hoonjiyama volcanic rocks distributing Okuetsu area, Fukui prefecture

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Kyogatake volcano is a Quaternary arc volcano, consisting of five peaks (Akausagiyama, Ootyozan, Toritateyama, Kyogatake of narrow sense and Hoonjiyama). Volcanic rocks from Hoonjiyama have SiO₂ contents ranging from 52.4% to 67.9%. Most of Hoonjiyama volcanic rocks are plotted in the tholeiitic field in the Miyashiro diagram (SiO₂-FeO*/MgO). Mass-balance calculations and Rayleigh fractional crystallization models have been used to examine the role of fractional crystallization from the basalt (52.4% SiO₂) to produce the wide range of compositions observed in this area. It is concluded that only tholeiitic andesites of Hoonjiyama volcanic rocks can be explained by fractional crystallization from the basalt.