

Discharge processes of magmatic fluids at Kuju-Iwoyama Volcano inferred from D, O-18 and T of fumarolic steam and hot spring water

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Deuterium, oxygen-18 and tritium contents in fumarolic steam and hot spring water at Kuju-Iwoyama Volcano were determined before the phreatic explosion of 1995. Isotopic enrichment processes of meteoric water in two-phase regions were examined based on continuous and single-step steam separations. The results show that mixing between magmatic steam and meteoric water might occur mainly at super-critical zones. Tritium data suggest that the residence time of water in the steam discharge system including the super-critical zone is very short within about 5 y, and that in the liquid water discharge system is very long from 100 to 200 y. Such the distinct difference of circulation rates could be due to the difference of density between two-phase fluid and liquid water.