

## Temporal variation of the magma compositions of the Miyakejima volcano during the last 2700 years

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Evolution of the magma system of the Miyakejima Volcano between the last two caldera-forming eruptions, 2.6-2.7ka Hatchodaira eruption and the 2000 AD eruption, was reconstructed based on the new dataset of radiocarbon ages. The activity of Miyakejima during this period can be divided into three magmatic stages as follows; I) from the 6th century BC to the 2nd century AD, after the formation of the Hatchodaira caldera. This stage is characterized by the decreasing of the range and absolute value of whole-rock SiO<sub>2</sub> concentration. II) from 7th century to 14th century after the Suoana-Kazahaya eruption in the northern slope. This stage is characterized by the gradual increasing of whole-rock SiO<sub>2</sub> concentration from less-evolved basaltic andesite (52-53 wt% SiO<sub>2</sub>) to andesite with evolved composition. III) from the 16th century to the end of the 20th century, with gradual increasing of whole-rock SiO<sub>2</sub> concentration from less-evolved basaltic andesite (52-53 wt% SiO<sub>2</sub>) to andesite with evolved composition. Presence of relatively large fissure eruptions with less-evolved basaltic andesite suggests the injection of less-evolved magma into the shallow magma system at the beginning of these compositional stage.

The Suoana-Kazahaya eruption in the 7th century is an eccentric activity during this period. This eruption is characterized by the eruption of andesite with highly-evolved composition (SiO<sub>2</sub>= 59-63 wt%). The aphyric andesite magma erupted at the beginning of the eruption. As the progress of the eruption, anorthosite and olivine megacryst were entrained into the andesitic magma and form porphyritic lavas. The whole-rock SiO<sub>2</sub> of these megacryst-bearing lava ranges from 49 t- 60 wt% reflecting the abundance of the crystals. The eruption of strongly-evolved magma from the lateral fissure can be fed from the isolated small magma batch, as proposed for the plumbing system of the B and C fissures of the 1986 Izu-Oshima eruption.

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