

SVC051-P01

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## Compositions of slab-derived fluids and magma generation process beneath volcanic front of Kyushu arc

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This study presents data for major and volatile (H<sub>2</sub>O, CO<sub>2</sub>, S, Cl) elements in olivine-hosted melt inclusions from four Quaternary volcanoes (Aso, Kuju, Kirishima, Kaimon) along volcanic front of Kyushu arc. The primitive magma compositions calculated from melt inclusion data are used to estimate the degree of partial melting and the compositions of slab-derived fluids beneath Kyushu volcanic front. The results show that magmatism of four volcanoes in Kyushu arc is divided into two groups; A) high K<sub>2</sub>O contents in primitive magmas and in fluids at Aso and Kuju volcanoes, northern Kyushu arc, B) low K<sub>2</sub>O contents in primitive magmas and in fluids at Kirishima and Kaimon volcanoes, southern Kyushu arc. High K<sub>2</sub>O content in fluids is attributed to dehydration of phengite-bearing slab at deep depth (about 140 km) in group A compared with shallow depth (about 100 km) in group B. K<sub>2</sub>O contents in primitive magma and fluids are attributed to the depth of slab beneath volcanic front of Kyushu arc. The amount of both slab-derived fluids and degree of partial melting for Kaimon volcano are lower than others. This may be affected by subduction of old and cold slab in southern Kyushu arc. Slab-derived fluids are important to evaluate magmatism beneath volcanic front of Kyushu arc because these decrease the solidus temperature of source mantle and also facilitate mantle melting, and then generate diversity of primitive magma composition.

Keywords: melt inclusion, slab-derived fluids, island arc