

## Stratigraphy and petrological relations of pre-Aso volcanic rocks in Tateno district, Minami-Aso village

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Petrological study of pre-caldera volcanic products is important in order to understand precursory phenomena of catastrophic caldera-forming eruptions. Volcanic activity of Aso pre-caldera stage is characterized by dominant lava flows. We report the petrography and chemical compositions of Aso pre-caldera stage lavas.

At least twelve lava flows are seen in Tateno district and they have maximum layer thickness of 20 m. They are characterized by platy joints and the top of the lava. Each lava flow interposed tuff breccia and red soil. Tuff breccia is composed of red soil, lithic fragments and weathered pumice. We made columnar section of each route and confirmed the stratigraphic relation in each.

Almost samples are olivine-two pyroxene andesite (17 samples) or olivine-hornblende-two pyroxene andesite (7 samples). And we confirmed minor types, olivine-clinopyroxene andesite (1 sample) and two pyroxene potassium-rich latite (1 sample). We realized two group lava flows. Group 1 includes three samples and group 2 does two samples. Other samples do not have the correspondence because they are different from content of major elements. The result of K-Ar age is also suggested that group 2 samples are same flow unit.

Although K-Ar age of pre-Aso lavas distributed at an altitude of 665-690m are  $0.66 \pm 0.34$  (Ma) and  $0.78 \pm 0.19$  (Ma), the result of group 2 lava located at a height of 500m are  $0.45 \pm 0.04$  (Ma) and  $0.48 \pm 0.03$  (Ma). It is suggested that the sources of each lava were different and that the younger source was located lower in altitude than the older source. In the present Tateno Valley, Akase lava (3 ka) has a relationship sticking to the lower position of the Tateno lava (5.5 ka). It has possibility that the same relation existed in the pre-caldera stage, and that the valley may have formed due to exercise of fault or the like.

Keywords: pre-caldera stage, lava flow, tuff breccia