[JJ] Evening Poster | S (Solid Earth Sciences) | S-VC Volcanology

[S-VC41]Active Volcanism

convener:Yuta Maeda(Nagoya University), Takahiro Miwa(National research institute for earth science and disaster prevention), Yosuke Aoki(東京大学地震研究所, 共同), Takeshi Nishimura(Department of Geophysics, Graduate School of Science, Tohoku University)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
This session discusses various aspects of active volcanisms including, but not limited to, recent and historical eruptions, various phenomena associated with the volcanic activities, underground structures of the volcanoes, and developments of new instruments based on geophysical, geochemical, geological, and multidiscipline approaches. We also welcome studies on understanding and predicting the transitions of the eruptive activities from observational, theoretical, and experimental approaches.

[SVC41-P16]Eruption processes of the 3rd stage of Niigata-Yakeyama Volcano, Japan, inferred from groundmass textural analysis

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Keywords:Niigata-Yakeyama, Maeyama lava flows , Hayakawa pyroclastic flows, plagioclase microlite, FeTi oxide microlite

Niigata-Yakeyama volcano, which belongs to the Myoko volcano group, is one of the most active and youngest volcanoes in Japan. Its eruptive style is characterized to effusive volcanism, compared to the other volcanoes in the group which frequently made explosive eruptions (Hayatsu, 1993; 1994; 2008). In the 3rd stage of Yakeyama activity, Maeyama lava flows and Hayakawa pyroclastic flows were generated to the northern slope of the volcano. This activity is the largest eruption during its history, hence magma genesis was investigated (Kobayashi and Ishizaki, 2014). In this study, groundmass textural analysis of the eruptive products at the 3rd stage of Yakeyama volcano was carried out in order to reconstruct eruption process and to clarify the dominance of effusive volcanism at Yakeyama volcano.
Maeyama lava flows and Hayakawa pyroclastic flow deposits consist of andesite and dacite lava blocks. Microlite number density (MND) and crystallinity of plagioclase and FeTi oxide in andesite and dacite lava samples were obtained from groundmass textural analysis. Our results indicated that andesite and dacite lavas contain microlites with different features. As for plagioclase microlite, andesite lavas showed lower MND and higher crystallinity, while dacite lavas showed higher MND and lower crystallinity. FeTi oxide microlites in andesite and dacite lavas showed higher and lower MND, respectively.
MND and crystallinity of microlite are useful indicator of undercooling of erupted magma (e.g. Hammer et al., 2000). Generally speaking, FeTi oxides can be crystallized under lower temperature than plagioclase, suggesting different crystallization depths at the conduit. Our results suggested that degree of undercooling differ with the depth at the conduit. Maeyama samples did not show different results with Hayakawa pyroclastic flows, suggesting Hayakawa pyroclastic flow may be derived from non-explosive lava dome eruption.