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

[S-VC39]Pre-eruptive magmatic processes: petrologic analyses, experimental simulations and dynamics modeling

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Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe) Processes leading to volcanic eruptions are central and yet still enigmatic issues in volcanology. Recent advances in understanding thermo-mechanical and open-system behavior of magma reservoirs and mineral zoning stratigraphy allow us to take a step forward to reveal the complex incubation processes during volcanic dormancy and following magma chamber tapping. This session aims at putting together recent knowledge on magmatic processes including 1) magma chamber evolution through magma reintrusion, crystallization-induced volatile exolution, magma mixing and gas fluxing, 2) externally-driven eruption trigger mechanisms, and 3) conduit processes and controls on eruption styles such as outgassing, dehydration-induced crystallization, fragmentation and rheological transition of ascending magmas. We welcome contributions based on petrological, mineralogical and geochemical analyses of pyroclasts and volcanic gasses, experimental simulations of magma reservoir conditions and conduit flow dynamics, and numerical modeling to integrate the elementary processes.

[SVC39-P05]Petrological characteristics of Janoo products, a Holocene scoria cone, precursory to the 4-3.3 ka basaltic

events in the NW part of Aso central cones, Kyushu.

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Janoo scoria cone (4.9-4.1 ka; Miyabuchi, 2017) characterizes the precursory eruption of the mainly basaltic Holocene volcanism (4-3.3 ka; ditto) of Kijima-dake, Ojo-dake, Komezuka and Kami-Komezua in the northwestern part of Aso central cone. The scoria cone is associated with Akamizu lava flows and widespread ACP-1 tephra with vesiculated dacite pumice, whose composition varies from basaltic andesite to dacite, and shows an interesting contrast to the following basaltic activities.

We analyzed three samples from Akamizu lava and one sample from ACP-1 pumice for minerals and melt inclusions. Akamizu lava samples were taken from northwestern end of lava flow unit, and correspond to basaltic andesite composition in Miyabuchi (2017).

The petrological observation of the Akamizu lava shows numerous melt inclusions in plagioclase and pyroxene. Biotite and hornblende was not found in the thin sections we analyzed. The compilation of the analysis of melt inclusions show us a high-K and alkaline trend in K_2O-SiO_2 and TAS diagram. The analysis of some ACP-1 pumice agrees with this result. They show a strikingly wide compositional variations from basaltic to rhyolitic, with majority values from 55% SiO₂ to 70% SiO₂. Groundmass glass from ACP-1 also

shows the same compositional range as those of melt inclusions.

Groundmass olivine (50-100 μm) was found in Akamizu lava (Mg#= 50-55) and in the ACP1 pumice (Mg# = 60-70). These all give us problematic but interesting results to be interpreted by a rigorous model.