

## Vesiculation and degassing processes inferred from the ejecta in the Shinmoedake 2011 eruption

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The Shinmoedake 2011 eruption which started on 26th January 2011 showed a characteristic transition of eruption styles. Two sub-plinian eruptions from 3 p.m. on 26th Jan and from midnight of 27th Jan produced a pumice deposit of 6 cm in thickness at 8 km from the vent. After the sub-plinian phase, the eruption style shifts to the phase of vulcanian eruptions which majorly produced volcanic ash since an eruption at 3 p.m. on 27th Jan. We obtained samples from the pumice deposits of the sub-plinian eruptions (26-27th Jan) and the bombs of the vulcanian eruptions (1st Feb and 14th Feb). The observation of these ejectas is expected to provide a clue to understanding the transient behavior of eruption styles.

Pumice deposits mainly consist of white, gray, brown and black-colored pumices. It is highly likely that both gray pumices and bombs originate from the mixed magma formed by mixing between dacitic and basaltic magmas (Suzuki et al., 2011, Hoshide et al., 2011, JpGU Meeting). The vesicularity of gray pumices (SiO<sub>2</sub>= 58.6 wt%) varies about from 40% to 80% and the vesicle distributions in gray pumices are relatively homogeneous. The connectivity of pores and the average size of vesicle in pumices drastically increases at about 60-65% vesicularity.

Breadcrust bombs (several meters in size) on 1st Feb are composed of a surface quenched rind and an internal slowly-cooled part. The internal part (vesicularity: 50%~) has small (10-20 microns in size) and large (>100 micron) vesicles but the quenched rind (vesicularity: 30%~) rarely contains small vesicles. Large vesicles tend to attach to phenocrysts. Small bombs (3-4 cm in size) on 14th Feb have the vesicularities of about 0-20%. The vesicle distributions in them are heterogeneous and small vesicles (tens of microns in size) have a network arrangement.

In this presentation, we consider degassing processes of magma on the basis of quantitative texture analyses of these ejectas using SEM and X-ray computed tomography.

Keywords: bomb, pumice, degassing, vesicle texture, microlite