

## Lava dome eruption: Sinabung (Indonesia) vs. Unzen (Japan)

\*Setsuya Nakada<sup>1</sup>

1. Earthquake Research Institute, University of Tokyo

Processes of lava dome eruption between Sinabung and Unzen volcanoes are similar to each other; they started with phreatic eruptions which advanced through phreatomagmatic eruption to magmatic eruptions. Lava collapsed-type pyroclastic flows had repeated during the growth of the lava dome and/or flow at both volcanoes. Before the appearance of the lava in the summit crater, inflation of the volcanic bodies was observed, and, during the growth of lava dome/flow, deflation of the volcanic bodies continued with the extent decreased with time. Lava effusion rates which peaked with about 6 m<sup>3</sup>/s decreased with time at the both volcanoes. Lava of Sinabung is hornblende andesite (>900 °C), while that of Unzen is hornblende-biotite dacite (<850°C). The melts are high-silica rhyolite, and their compositions were controlled by effusion rate. At Sinabung, the precursory phreatomagmatic eruptions were vulcanian and the latest stage is characterized by repetition of small vulcanian events. Lava dome extended into a lava flow as long as 3 km long. In conclusion, the lava effusion rate change controlled the pattern of lava dome growth, and the difference of melt temperature may have controlled the explosivity and the length of lava dome/flow.

Keywords: Lava dome eruption, Unzen volcano, Sinabung volcano