

## An attempt of estimating a possible lava flow distribution from Sakurajima Showa crater with a simple numerical model

ISHIMINE, Yasuhiro<sup>1\*</sup>

<sup>1</sup>RIKEN Computational Science Research Program

I will present a preliminary result of lava flow simulations conducted with a newly developed simple kinematic model discretized in a finite difference scheme. I estimated the distribution of a lava flow originated from Showa crater of Sakurajima Volcano because the volcanic activities at the crater have been significantly increased in these years.

The spreading speeds of lava flows are assumed to be directly proportional to the gradient of the topography including the effect of the depth of lava flows. The calculation domain is dynamically varied depending on the lava flow distribution to save computational time. The topography is described with a 50 m grid digital map of Sakurajima area published by Geospatial Information Authority of Japan.

The numerical results indicate that the distribution of lava flow that may be generated in near future is similar to the distribution of lava flow during the eruption in 1946 except that the simulation does not generate the lava flow that reaches Kurokami area through a valley between Mt. Nabeyama and Mt. Gongenyama as shown in Figure.

Such a simple numerical model may be helpful for the civil defense officials during volcanic crises although it should be carefully validated by comparing its results with observational data obtained during actual eruptions and simulation results obtained from more sophisticated numerical models.

Keywords: lava flow, simulation, Sakurajima, Showa crater

