

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

©2011. Japan Geoscience Union. All Rights Reserved.



SVC050-08

Room:302

Time:May 23 10:15-10:30

Numerical simulation of the volcanic ash transpotation during the eruption of Mt. Shinmoe-dake of Kirishima Mountains

Akihiro Hashimoto^{1*}, Toshiki Shimbori¹, Keiichi Fukui¹

¹Meteorological Research Institute

The volcanic ash transpotation during the eruption of Shinmoedake for 26 to 27 January, 2011 is simulated with the volcanic eruption cloud/ash fall model (See V159-P026, JPGU2009) which is developed on the basis of Japan Meteorological Agency Non-Hydrostatic Model (JMA-NHM). The simulation is conducted with the domain covering the region of 2500km x 2500km centering south coast of Japan so as to reproduce the atmospheric condition on the eruption date. In the simulation, volcanic ash is emitted from the prescribed eruption column. The top height of the eruption column varies according to the temporal variation of echo top height observed with the meteorological radars at Fukuoka and Tanegashima. The distribution of volcanic ash simulated with the model well reproduced the observation from the meteorological satellite (MTSAT). Another simulation is performed in the 60km x 60km wide domain with the horizontal rezolution of 200 m to irustrate the behavior of ash cloud in detail. At first, the ash cloud distributed with its axis directing vertically over the crater. The top of ash cloud flows to the east while the bottom flows to the southeast, tilting its axis. This feature indicates that the vertically sheared wind, as well as the top height of eruption column, considerably influence the volcanic ash transpotation.

Keywords: Mt. Shinmoe-dake, volcanic ash, advection and diffusion, numerical simulation