

## Effect of water vapor condensation on the smoke column height at Miyakejima volcano: a numerical study

# Kensuke Nakajima[1], Fumihiko Mizutani[2]

[1] Dept. of Earth & Planetary Sci., Faculty of Sci., Kyushu Univ., [2] Earth and Planetary Sci., Kyushu Univ

Numerical experiments are performed to examine the effects of water vapor condensation on the maximum height of the smoke column at the Miyakejima volcano. The result clearly shows the importance of the latent heat of condensation. For example, in the simulation the eruption on 10 August, the smoke rises up to 8000m with the water condensation, whereas it rises only to 4300m without the water vapor. The evaporation of rain water drives a downdraft, which brings some of smoke material down to the ground surface. This may have an implication to the observed weak surges. The experiments with the atmospheric structure of various seasons show that the smoke height considerably varies with seasons (higher in summer and lower in winter), even without the activity of volcano.