

Preliminary Report on the ground-hugging Flow generated from the ash-clouds of Kusatsu-Shirane 2018 Eruption

*Yasuhiro Ishimine¹, Teruki Oikawa², Mitsuhiro Yoshimoto³

1. Research and Education Center for Natural Hazards, Kagoshima University, 2. GSJ, The National Institute of Advanced Industrial Science and Technology, 3. Mount Fuji Research Institute, Yamanashi Prefectural Government

We will present a preliminary result of the movie analyses and in-situ survey of the ash-cloud hit ropeway to discuss the motion of the ground-hugging flow generated from the ash clouds observed during the Kusatsu-Shirane 2018 eruption. Moto-Shirane, which is the southern peak of Kusatsu-Shirane volcano, erupted on 23 January 2018 and generated small-scale ash clouds. Some video cameras recorded the bottom part of the ash clouds spread along the foot of the volcano. The motion of the ground-hugging ash clouds may be generated by the surrounding wind. Also, the motion may be driven by the pressure gradient caused by the density difference between the inside of the ash clouds and ambient air. As Kusatsu-Shirane volcano is covered with thick snow at the time of the eruption, a number of snow particles deposited on the ground surface may be re-suspended due to the landing of the volcanic blocks and the approaching of the ash clouds in the eruption. That may enhance the motion as a gravity current. In order to discuss such possibilities, we carried out the analyses of the movies of the ground-hugging flow. We also conducted in-situ survey of the gondola lifts of the ropeway in Kusatsu International Ski-Spa Resort, which is immediately close to the Moto-Shirane vent and hit by the ash-clouds during 2018 eruption.

Keywords: Kusatsu-Shirane Volcano, Ground-hugging Flow, Suspension Flow