

Sub-plinian fall deposits and their grain size distribution of January 2011 eruption from Shinmoedake Volcano, Kirishima Volcanic Group, South Kyushu, Japan

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A series of sub-plinian eruptions occurred on 26-27th of January, 2011, from Shinmoedake Volcano, Kirishima Volcanic Group. Eruption plume reached ca. 7 km in maximum from the vent (Shinbori and Fukui, 2012) and produced extensive andesitic pumice fall deposit extending southeast. Prior to the onset of pumice eruption on 26 - 27th of January, the volcano repeated small phreatic - phreatomagmatic eruptions since 2008 and the pumiceous particles have been already found in these eruptive deposits. Continuous ash emission and intermittent violent explosions followed the pumice eruption and a lava is filling the previous summit crater of the Shinmoedake since 30th of January.

The most of field survey to measure and collect the fall deposits was performed within 4 days after the sub-plinian eruption and revealed that the pyroclastic fall deposit covered an area more than 1000 square km on land and the distribution axis toward N120E. Pumiceous lapilli and blocks are found in the area within 10 km from the volcano. In the area more than 10 km away from the volcano, the fall deposit consists mainly of coarse and fine ash. The distributions for the fall deposits are obtained from field survey measurement at terrestrial region and remote sensing investigations by high altitude-LiDAR for the proximal area around the vent. We estimated total eruptive mass for the fall deposits as ca. 29 MT. Grain size distributions of the fall deposits are consistent with typical sub-plinian deposits on discriminating plot and are prospective to give a total grain size distribution of the sub-plinian eruption from the Shinmoedake.

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