

Eruption products of the August 22, 2008 eruption of Shinmoedake, Kirishima volcano

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Shinmoedake volcano, one of the members of Kirishima Volcanic Group in Southern Kyusyu, erupted on August 22, 2008. An eruption fissure trending E-W direction and about 0.8 km long opened from the inside of the summit crater of Shinmoedake to the western upper Shinmoedake volcano, one of the members of Kirishima Volcanic Group in Southern Kyusyu, erupted on August 22, 2008. An eruption fissure trending E-W direction and about 0.8 km long opened from the inside of the summit crater of Shinmoedake to the western upper slope. Volcanic ash erupted from the fissure drifted to NE and covered an area extending more than 30 km from the volcano (JMA).

The field survey was operated in August and September 2008. The distribution of the volcanic ash was recognized in an area with about 3 km width extended to NE. Thickness of the ash layer is about 2-3 mm at the point ca 2km from the eruption vents and less than 1 mm at ca 6 km. This thickness is possibly underestimated value because of the wash-out of finer grains by the rain during the eruption. Thick volcanic ash bed is recognized inside the summit crater of Shinmoedake, within the area ca 500 m from the largest vent opened at the western part of the summit crater, indicating that this vent was the main source of the tephra of 2008 eruption. Many ballistic blocks are also found a area within several 100 meter from the vents.

The tephra collected in the area ca 6 km from the eruption site consists mainly of the grains less than 1 mm. Most of the grains consist of the lithic and crystal fragment with various degree of hydrothermal alteration, suggesting that they are derived from the previous volcanic edifice. The tephra contain clay minerals and pyrite derived from the hydrothermally-altered zone.

The total volume of the tephra was evaluated with the distribution of the volcanic ash, using the calculation method of Takarada et al (2001). Total volume of the tephra is estimated about 2×10^5 ton and possibly this is the minimum value because this evaluation neglected the effect of the wash-out of the fine grains by rain and the tephra distributed in the area farther than 30 km.