

Japan Geoscience Union Meeting 2011

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

©2011. Japan Geoscience Union. All Rights Reserved.



SVC050-01

Room:302

Time:May 23 08:30-08:45

Outline and Eruption Scenario of the 2011 Eruption of Kirishima Volcano

Setsuya Nakada^{1*}, Joint Observation Team of Kirishima Volcano¹

¹Earth. Res. Inst., University of Tokyo

Subplinina and vulcanian explosions were repeated with a lava dome growth in the eruption of Kirishima Volcano which began since January 2011. Observation researches on this eruption was carried out by Joint Observation Team (led by Yoichi Morita). Phreatic explosions had been repeated at Shinmoedake since August 2008 and inflation had been observed by the GPS network for one year before the eruption. Products of the phreatomagmatic explosion on 19 January 2011 contained ~10 % of juvenile pumice. An explosive phase began on 26 January; subplinian explosions were repeated during the first three days, depositing ~10 million m³ (DRE) of tephra. On 28 January, a small lava dome appeared on the crater floor nearby the vent of 200 m across for the subplinian explosions. It continued its growth up to ~600 m across (~10 million m³) only for 3 days. The growing lava covered the explosion vent completely. The growth was confirmed the next day. Multiple vulcanian explosions occurred on 1 and 2 February, destroying a part of the dome.

The volume of inflation of volcano before the eruption was estimated ~20 million m³. It is roughly equal to that of magma erupted during 26-31 January. Deflation was recorded by sub-plinian explosions and growth of lava dome during 26-31 January.

At the night of 31 January, >1,000 people who live along the possible course of pyroclastic flows were ordered evacuation due to a possibility of a plinian explosion. Pumice of this eruption ranges from 57 to 62 % in SiO₂ showing mingling of two magmas with different colors. The progress and the magma chemistry of this eruption is similar to those in the early stage of the 1716-17 eruption at this volcano, which lasted for one year and half including 3-months explosive stage characterized by three pyroclastic flow-generating plinian explosions.

One of the outputs of the national research project for Earthquake and Volcanic Eruption Prediction is preparing the eruption scenario and its testing for on-going eruption. This time eruption is giving us a good chance to test the scenario.

Keywords: Kirishima Volcano, Shinmoedake, magmatic eruption, lava dome, subplinina eruption, volcano eruption