

## The eruptive activity of Sakurajima Showa crater, Kyushu, Japan

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The Sakurajima is an andesitic volcano located on the southern rim of the Aira caldera in Kyushu, Japan and is known to be one of the most active volcanoes in Japan. Large eruptions accompanied by substantial lava effusion occurred in 1471-1475, 1779, and 1914 (Taisho eruption). Among them, during Taisho eruption lava flow effused from one of the fissures on the eastern flank of the volcano connected Sakurajima with Osumi-peninsula. Showa crater located at the eastern flank of the volcano began to erupt in 1939, and then the eruptive activity gradually increased and in 1946 lava effusion occurred. The total volume of lava amounts to about 0.2 km<sup>3</sup>. However, the eruptive activity has declined after that. In 1955, explosive activity at the Minamidake crater has begun, and the annual number of explosions exceeded 100 from 1972 to 1988. The explosions were accompanied by strong air shocks, and volcanic bombs reached the residential area at a distance of approximately 3 km. However, the explosive activity has declined from 2000.

On the other hand, Showa crater resumed eruptive activity in June 2006, after 58 years of interval. Although the eruptive activity started with small phreato-magmatic eruption, on 3 February 2008 an explosive eruption occurred for the first time since the restarting of the activity. After that, eruptive activity gradually increased, such as repeated explosive eruptions, volcanic bombs reaching at a distance of about 2 km, and very small-scale pyroclastic flows. The amount of magma moved to magma chamber located beneath Minamidake gradually increased, too. The total number of explosions at Showa crater since 2008 exceeded 3000 by 2012. Although eruptions requiring evacuation have not occurred yet, it is expected that eruptive activity of Sakurajima will become violent near future.

Japan Meteorological Agency (JMA) began issuing Volcanic Warnings and Volcanic Forecasts on 1 December 2007 to mitigate the effects of volcanic disasters. In addition, the warnings and forecasts are accompanied by one of five Volcanic Alert Levels based on the disaster mitigation measures required in the target area. Each level corresponds to the action to be taken. Volcanic Alert Levels are applied to major volcanoes through coordination of evacuation planning at local Volcanic Disaster Management Councils.

The Volcanic Alert Level of Sakurajima had been Level 2 since the system was put in place on 1 December 2007. On 3 February 2008, JMA issued a Volcanic Warning at Sakurajima, raising the Volcanic Alert Level from Level 2 to 3 because the volcanic activity was expected to become more active. Since then, in response to the activity JMA has issued Volcanic Warnings with Volcanic Alert Level, Sakurajima is classified as Level 3 as of January 2013.