

Development of Unmanned Ash-fall Detection System, Part2

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We developed revised unmanned facility to detect pyroclastic fall deposit since the 2011 eruption of Kirishima Shinmoedake and Sakurajima volcanoes. Our goal is to develop a method to obtain the semi-real time information of pyroclastic fall phenomena to contribute eruption forecasting and to advance high precision reconstruction of the sequence of the past eruptions from their deposits. Our revised system is named "Futteru-kai (kai means ash in Japanese)" consists of ultrasonic distance probe, load cell, and network camera supplied by 12 volts battery with solar panel. Electric equipment are packed within waterproof vessel to protect sulfuric gas invasion. Testing was performed at Sakurajima Arimura from January 2015 to March 2016. Load cell shows large variance depending on temperature with negative correlation. Ultrasonic distance probe showed stable value slightly diminishing which suggests deposition of pyroclastic fall deposits on measuring surface. Minor outlying results several times larger than actual value or over-range were also observed. Two centimeters of diminishing distance between the probe and the surface is well coincided with actual measured distance. We are now preparing to dispatch next volcano where major ash fall eruption is expected.

Keywords: monitoring, eruption, ash fall, ultrasonic, Sakurajima