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SVC45-23 Room:304 Time:May 28 16:15-16:30

Reexamination of concentration of hot spring gas from Kurokami well at eastern flank of Sakurajima

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Concentrations of CO_2 and H_2 gas from the well at Kurokami, 4.0 km east of the Showa crater, where vulcanian eruptions have frequently repeated, have been monitored by sampling for 5 minutes every day. Concentrations of the gases are measured by devices and are calibrated every 3 months.

Concentrations of CO_2 and H_2 suddenly increased in March or April, 2009 and reached peaks in July, and then were followed by increase in eruptivity from October 2009. Increase in the concentrations were precursory phenomena to increase in vulcanian eruptivity.

The concentrations decreased from July 2009, but they showed different manners of decaying. Concentration of CO_2 normally decreased in summer and increased in winter, however it did not decrease in the summer in 2013. In summer, especially in June, the peak of rainy season, precipitation increased. Temperature of the hot spring decreased while a large amount of precipitation. This implies rain water diluted hot spring including a large amount of CO_2, as the result, observed gas concentration decreased in summer. In the summer in 2013, only a small amount of precipitation was recorded. Concentration of CO_2 has been influenced by precipitation. Concentration in winter while lower influence by rain, gradually decreased from 2010 to 2015.

Concentration of H_2 gradually decreased from July 2009 and the decay shows exponential pattern. Residual of measured concentration from the exponentially decaying curve is well correlated with atmospheric pressure; increase in residual in summer and decrease in winter. Concentration of H_2 decreased exponentially affected by atmospheric pressure.