

## Automated sulfur dioxide flux monitoring at Asama volcano, Japan

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Asama volcano located in central part of Japan is one of the active volcanoes continuously emitting volcanic plume. Sulfur dioxide flux of the volcano has been measured using COSPEC (Correlation Spectrometer) since 1970s, and recently using COMPUSS (Compact UV spectrometer system). The volcano emit a few hundred ton/day of SO<sub>2</sub> during the quiescent period and several thousand ton/day during active period (e.g., JMA web page<sup>\*</sup>). Because, the past SO<sub>2</sub> flux measurements were carried out intermittently on an irregular base, it is not well constrained when and how the flux increased at the beginning of the active periods. We need to have more frequent measurements to relate the SO<sub>2</sub> flux with other geophysical observation data and to understand the degassing activities during the changes of the activity of the volcano.

We installed automated scanning system with a USB2000+ spectrometer (Ocean Optics Inc.) for SO<sub>2</sub> flux measurement in the end of July 2011 at Asama volcano observatory (Earthquake Research Institute, the Univ. of Tokyo) located about 4 km east of the summit crater. The scanning system used at the volcano is 45 degrees forward looking system which intended to cover relatively wide wind direction range with one instrument. For the plume speed, we use wind speed data at plume height from GPV (Grid Point Value) data based on MSM (MesoScale Model) provided by Japan Meteorological Agency.

The volcano has been in quiescent period for the last three years. The observed SO<sub>2</sub> flux usually showed 2-3 kg/s which corresponds to typical SO<sub>2</sub> flux of the quiescent period and agrees well with the results of traverse data measured by JMA (JMA web page<sup>\*</sup>). Kazahaya *et al.* (2011) reported that the volcano emits a large amount SO<sub>2</sub> after very long period seismicity occurred beneath the crater bottom. Our flux data sometimes exceeded 10 kg/s for a short period during the day, which may be related to the seismicity. We will discuss about present status of the automated monitoring at Asama volcano and about these short period flux increases in relation with seismic activities of the summit area.

<sup>\*</sup>JMA web page: [http://www.seisvol.kishou.go.jp/tokyo/306\\_Asamayama/306\\_So2emission.htm](http://www.seisvol.kishou.go.jp/tokyo/306_Asamayama/306_So2emission.htm)