

Acid rain along the coastal loop road in Miyakejima Island, Japan - in relation to the 2000 eruption -

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The 2000 volcanic activity in Miyakejima Island, Japan, started on June 2000. Volcanic gas with a large amount of SO₂ has been emitted from the summit crater since September 2000. In order to investigate acid rain due to the volcanic gas, we collected rain water at the eight points along the coastal loop road of the island on January, May and December 2002. Continuous collection of the rain water is also done near Lake Tairo located in the southern part of the island.

The values of pH of the rain water collected on January 2002 are from 3.3 to 7.1. The major anion and cation constituents of the rain water are chloride ion and sodium ion, respectively. Most of the ions, however, are originated in spray of the seawater. On the assumption that the all sodium ion came from the seawater, the major anion constituent is corrected to be sulfate ion, and the maximum concentration is 43 mg/L. A good relationship between the wind direction and the concentration of the sulfate ion in the rain water strongly indicates that the origin of the sulfate ion is SO₂ in the volcanic gas.

We also investigate groundwater in the island. As the results, significant increases of the concentration of sulfate ion in the spring water are observed. At a spring on the mountainside, the concentration increased more than 200 fold as much as that before the eruption. We are investigating the contribution of the acid rain to the increase of sulfate ion in the spring water.

References

URL of the groundwater monitoring: http://gxwell.aist.go.jp/GSJ_E/

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