Arsenic Pollution of River by Volcanic Eruption of Mt. Io

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Abstract

On 19th April, 2018, Mt. Io in Miyazaki Prefecture has erupted for the first time in about 250 years. Because the volcano has discharged large amount of acidic water, the downstream river has been seriously polluted. In particular, the polluted water contains high concentration of arsenic. The river contamination of arsenic caused great economic loss in rice farming. At least 1,000 ha of rice field was influenced by the contamination. Miyazaki Prefecture and Ministry of Agriculture, Forestry and Fishery have installed pH and EC sensors for real-time monitoring of the river quality. However, the relationship between the real-time measurements and the arsenic concentration in the river is not clear. The main objectives of our study are 1) to clarify the current situation of the arsenic pollution of the river and 2) to clarify the relationship between the volcanic activity and the arsenic concentration. We have installed automatic water samplers at two points in the polluted river. One investigation point (Point 1) is located in about 1-km downstream from the spout of the polluted water. The other point (Point 2) is the downstream of the former point. At the Point 1, the concentrations of arsenic always exceed the environmental quality standard (0.01 mg/L). The arsenic concentrations and pH at the Point 1 have strong correlation. On the other hand, the arsenic concentration is lower at Point 2 due to dilution by spring water.