

PIXE analysis of the stream suspended fraction in Mt.Hakone

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Abstract

On 30 June 2015, Japanese Meteorological Agency raised the volcanic alert to a Level 3 for Mt.Hakone, after a small eruption. Hakone is a very popular tourist spot, located in southwest of Tokyo. But after the eruption, the tourist agency suffered big economic loss for the sharp decrease of the tourist. For the purpose of grasping the volcanic activity degree in the Owakudani fumarolic area, we are monitoring elements of stream water, by using PIXE method. It is thought that composition in stream water are reflecting the volcanic activity, because stream water is flowed directly from the Owakudani fumarolic area. Water samples were collected approximately once a month from July 2015 to April 2017. The suspended fractions in stream water were filtered on a membrane filter of $0.8\mu\text{m}$ pore. We analyzed 17 filters by PIXE method. The mass concentration of stream suspended fraction decreased in a linear manner for one year after the eruption and then kept the low level. Main three elements, Si, Al, and Fe, originated in rock. S element derived from magma and rock. Almost elements of suspended fraction in stream water decreased after the eruption. These results suggest that main elements in stream water are useful as the index of the magnitude of volcanic activities in Mt. Hakone. PIXE method is suitable for grasp of the volcanic activity degree, because PIXE is high sensitive and multi-element analysis at the same time.