

Low-temperature fumaroles and diffuse H₂S degassing associated with recent volcanic activity at Iwo-Yama, Kirishima Volcanoes, Japan

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Iwo-Yama is one of active volcano belonging to the Kirishima volcano group (the Kirishima Volcanoes), Kyushu Island, Japan and located in the Ebino Highland, a famous tourist destination. At the volcano, seismic activity increased in December 2013, and volcanic tremors were observed several times in 2015. Also, fumaroles were found at the crater in December 2015 after twelve year' s absence, and an expansion of thermal and fumarolic activities have been observed around the summit area since then. Meanwhile, the diffuse degassing area with a high H₂S concentration was found at the western outer wall of the mountain. The area lies in the altered zone formed by the past hydrothermal activities. A small acidic spring with high dissolved H₂S content is also found in the altered zone.

The Miyazaki prefectural government started the fix-point observations of the atmospheric H₂S and SO₂ concentrations in and around the fumarolic and degassing areas in March 2016 because the areas are located near a road for tourism and mountain trails, and someone may suffer accidents with gas poisoning. Initially, the atmospheric H₂S concentration at 30 cm height from the ground surface at the center of the diffuse degassing area had not exceeded 200 ppm. However, the concentration has drastically increased in October 2016 and showed 1400 ppm maximum. In response to this, the prefectural government settled policies for setting out restricted areas according to the H₂S and SO₂ concentrations and started the automatic measurement of the atmospheric H₂S concentration at the two fixed point located in and beside the diffuse degassing area in January 2017.

The author has been monitoring the state of changes in the low-temperature fumarolic activity and the diffuse degassing area since March 2016 together with the prefectural government from the viewpoint of safety of tourists. In this presentation, the author would like to discuss the state of diffuse degassing activity with a high H₂S content and report on the approach to volcanic gas disaster prevention by Miyazaki prefecture and the regional community of Ebino Highland.

Keywords: Iwo-Yama, hydrogen sulfide, volcanic gas disaster, low-temperature fumarole, Ebino Highland, gas poisoning