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'Understanding volcanoes and society: the key for risk mitigation'

Lessons learned from the eruptions of Mt. Ontake, Japan in 2014 and JMA's efforts in enhancement of monitoring system, volcanic activity evaluation and appropriate information provision

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Kuchinoerabujima is a volcano island located in the southwestern part of Japan. Volcanic activity had been relatively high in the long-term since 1999 but it erupted on 3 August 2014 with no remarkable increases in volcanic earthquakes or ground deformation. The Japan Meteorological Agency (JMA) issued the Near-crater Warning immediately after the eruption and raised the Volcanic Alert Level from 1 to 3 on the scale of 5. Around two months later, Mt. Ontake in central Japan erupted on 27 September 2014. It was a small phreatic eruption; however, it erupted almost at noon on a sunny Saturday in autumn, which is the best season for hiking with beautiful leaves in red and yellow. Many hikers were around the crater at that time and more than fifty people were killed. Before the eruption, volcanic seismicity had been high on 10 and 11 September but had subsequently declined, though it still remained relatively higher than normal. No remarkable changes were seen in other data. Therefore, JMA issued information of Details of Volcanic Activity instead of upgrading the Volcanic Alert Level; JMA raised the Volcanic Alert Level from 1 to 3 after the eruption. These two eruptions reveal difficulties in volcano eruption forecast. Techniques and knowledge have not yet been matured for forecasting short-unrest eruptions as well as for detecting and evaluating precursory signs without fail. However, JMA is definitely responsible for providing appropriate information to save people's lives. Therefore, JMA has been installing more instruments around volcanoes to strengthen its monitoring/observation system aiming at detecting even smaller signs. In addition, based on the lessons learned from the eruption of Mt. Ontake, JMA has been investigating the criteria for upgrading/downgrading Volcanic Alert Levels for volcanoes where the levels are in effect, using observed data including those at the eruption in 2014.