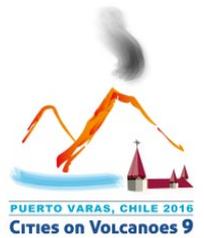




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'Understanding volcanoes and society: the key for risk mitigation'



Crisis management of Sinabung Volcano: Risk evaluation and mitigation of a reawakening Volcano

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Comparison of both historical records and current activity has been important in evaluating the ongoing crisis at Sinabung Volcano, West Sumatra. Long repose time, limited historical data and dense population around the volcano have posed challenges in managing the crisis. This volcano was quiet for more than 800 years before reawakening in 2010 and its continuous eruption from 2013 to the present. Difficulties regarding when Sinabung first became active included not only the scarcity of historical data, but also a lack of monitoring equipment and knowledge of volcanic risks by nearby communities. Dense population close to the volcano and inexperienced local emergency management officials were also problems. Since 2010, the knowledge database and capacity of communities near Sinabung have improved. Currently, six seismic stations, four GPS stations, four tiltmeters, two CCTV webcams, three EDM stations, as well as mini-DOAS monitoring of SO₂, and a thermal camera are used to monitor the volcano. A new geological map and hazard map (revised 3 times due to changes in distribution of eruptive products and hazards) have been created and distributed. Hazard assessment, monitoring, field observations and mapping provide insights about the volcanic activity and inform mitigation decisions. For example, understanding of the style of eruption, changes in direction and distribution of deposits and impacts of the eruption have enabled creation of a sectoral exclusion zone and relocation plan. However, strategies and procedures are required to anticipate changes and revise plans. These include frequent re-evaluation of monitoring data and field assessments, as well as the mode of communication and information dissemination. In addition, socialization is required to facilitate relocation of villages. Beside its continuous activity, the hardest part of the crisis management in Sinabung is communication with local communities. Level of knowledge, hazard perception, culture, source of income and psychological aspects remain as problems.