

Information dissemination based on uncertainty of prediction of volcanic eruption

Hitoshi Yamasato^{1*}

¹Japan Meteorological Agency

As volcanic eruptions follow various precursor phenomena in many cases, many volcanic eruptions have been predicted in the world. The 2000 eruption took place after evacuation of about 15,000 people because the eruption had been predicted. However, it is impossible to predict volcanic eruption precisely (time, place, magnitude, style). The magmatic eruption of Shinmoedake in 2011 could not be predicted and the JMA successively issued volcanic warnings according to the eruptive activity in which JMA widened the area in danger and in response to the warnings, local municipalities imposed restrictions on entering mountain trails and passing peripheral roads. On the other hand, eruptions don't follow volcanic unrests in many cases such as the activity of Iwate volcano in 1998.

The JMA announces Volcanic Alert Level from disaster mitigation point of view. Before a volcanic anomaly occurs, relevant organizations get together and share projections based on the volcano's past history of volcanic unrest (eruption scenario) and hazardous areas (volcanic hazard maps). They come to agreement on what criteria to use in deciding when to start various disaster responses. These procedures have to be done in the core group of the Volcanic Disaster Mitigation Council at each volcano in the stage when the volcanic activity is calm. The core group consists of local governments, meteorological observatories, erosion control (sabo) departments, and volcanologists. Disaster measures will evolve by the efforts of these members, such as elucidation of the eruption history or an eruption mechanism of each volcano by volcanology, and emergency drills and exercises.

On the other hand, the Coordinating Committee for the Prediction of Volcanic Eruptions (CCPVE), where the Meteorological Agency enacts a secretariat, makes judgment in the volcanic activities. The meetings of the CCPVE are held periodically and temporarily in volcanic unrests. In the case of the volcanic activity which has serious influence socially, the sectional meeting specialized in the volcano may be held. The examination results are announced through volcanic information from the JMA, and it is clarified that the government takes the responsibility for volcanic activity evaluation.

For volcanic disaster mitigation, not only precise evaluation of the activity but also consciousness on the activity including the uncertainty of the prediction of the volcanic activity among the members of the Volcanic Disaster Mitigation Council at each volcano are important at volcanic unrests.

Keywords: Prediction of volcanic eruption, Warning, Volcanic alert level