

Volcanic disaster prevention plan corresponding to eruption scenario

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Volcanic disaster prevention measures of our country have stagnated for a long time, however the hazard map has been made in the volcano of 30 or more. Although, hazard map is a starting point of disaster prevention measures, there is a fact that following measures are not advancing easily. The one reason is the disaster prevention plan is implemented by the local government.

The disaster reaches several local governments surrounding on the volcano when the volcano erupts. The local governments can set up the disaster prevention conference (d.p.c.), and the regional disaster prevention planning of local governments also should be prepared by them, for it is difficult or not effective for a single local government to cope with. However, the volcanic disaster prevention plans of conference were only made by nine d.p.c. in Japan.

We created new type disaster prevention plans corresponding to the scenarios of the eruption of Hokkaido-Komagatake, Tokachidake, Tarumaesan, Usuzan and Meakandake volcanoes in Hokkaido. There are several characteristics of the plans on four volcanoes as follows.

1) Characteristics of eruption scenario

'Unusual phenomena -- large-scale eruption' is assumed on Usuzan, though 'unusual phenomena -- small-scale eruption -- medium-scale eruption -- large-scale eruption' is assumed on three other volcanoes. Time scale is put on Komagatake because the eruption scale may rapidly become extremely large. The sequence of small eruption is divided into 2 phases on Tokachidake. It is likely to expand directly from the small eruption to large in Tarumaesan. It is assumed that the large eruption at the summit of the volcano will occur from the beginning of the eruption in Usuzan.

2) Synchronization of volcano information and measures

In the stage of emergency on each volcano, countermeasures correspond to the kind and the content of the Volcano Information of JMA (Japan Meteorological Agency). It is assumed on Komagatake that Volcanic Alert expects a rapid eruption expansion, and it is carefully set 4 phases of Volcanic Advisory and 3 phases of Volcanic Alerts, and evacuation measures of five stages corresponding to them are carried out including Wide-ranging evacuation even at the stage of the small eruption. Phased evacuation measure is carried out in the residential area when the eruption is expected at the season with the high possibility of snow melting type mudflow on Tokachidake. Wide-ranging far evacuation is assumed on Tarumaesan, because large amount of pumice fall is expected. In hazardous area of summit eruption, all residents evacuate before the eruption is expected on Usuzan.

Besides, these plans have the following characteristics based on the experiences and the lessons of the eruption of Usuzan in 2000.

1. The evacuation preparation or the independent evacuation stage had been installed before the evacuation order.
2. The measures map for the administration based on the hazard map was made by the each phase of the scenario.
3. The management of refuge by the evacuee's autonomy organization was described.
4. Phased cancellations of evacuation orders such as temporary entry or coming home were described.

The person in charge of disaster prevention should firmly understand the eruption and disasters do not advance like the scenario, and piling up a lot of training with the resident based on the scenario for practice is important. Moreover, the role on the disaster prevention of JMA is growing further so that the local government may execute adequate measures, and volcanic information connected directly with the measures execution is expected to be given without the delay. We hope such practical volcanic disaster prevention plans will be made for emergency in a lot of local governments and d.p.c. that are prone to volcanic hazard in Japan.