

## Development of information tools for evacuation and rescue in the event of volcanic disaster

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Integrated Program for Next Generation Volcano Research (IPNGVR) conducted by Ministry of Education, Culture, Sports, Science and Technology, Japan started in 2016. This project takes notice to not only observation and prediction researches but also research for countermeasure technology of volcano disasters. National Research Institute for Earth Science and Disaster Resilience (NIED) has been in charge of one of the main theme which is named “Development of countermeasure technology for volcano disasters”. In this theme, we develop an information tool for volcano disasters, in which we consider disaster management personnel in local governments as users, and we try to provide appropriate information for them in both the event of disaster and normal times.

In the tragic disaster of Ontake Volcano in 2014, it was difficult for local governments to grasp whereabouts of climbers and to conduct rescue and search for victims. Even recently, climbers can approach to an active vent in many volcanoes in Japan, for example Mt. Fuji, it is quite important to grasp whereabouts of climbers in the event of disaster for proper decision of rescue and search. Experiments to acquire data of climbers in Mt. Fuji have conducted since 2015, named “Mt. Fuji Challenge”. Mt. Fuji is active volcano and gets more than 200,000 of visitors including climbers from all over the world each year. In experiments, we distribute beacons to climbers and receivers which are set in mountain trails detect signals from the beacons, then we can grasp the number and location of climbers who have the beacons. Numbers of beacon which we distributed were 2,300 in 2017 and 14,000 in 2018.

The tool developed in our research use the data from the above experiments as input data, and visualize on GIS software. As a result, it is possible to grasp whereabouts of climbers on map information, including trails, shelters and hazard information from hazard map. Even in normal times, information from the tool can be used for evacuation plans, including establishment of shelters or evacuation routes, instituted by local governments. And, by combining with hazard simulations, we can infer casualties in the event of disaster.

In this presentation, we introduce a summary of the experiments in Mt. Fuji in 2018, and report a progress of the development of the tool.

Keywords: Next Generation Volcano Research, countermeasure technology for volcanic disaster, Mt. Fuji Challenge