

Prediction of Eruption and Earthquakes as a Supporting Science for Community Needs

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Recent three earthquake hazards (Nobi, Kanto and Kobe) marked significant steps toward development for observations and researches on volcanoes and earthquakes in Japan. Starting base line was reset always recognizing the importance of basic sciences and scientific supporting for communities toward hazard mitigation.

Brief looking back for eruption hazards, it is obvious that in the long history when observation and precaution were seldom taken, people were passed away easily each time. While in 20th century, when volcanology had emerged and developed, resulting observation and prompt action brought many worldwide successes for mitigation, especially in last one fourth of the century. More than thousands lives were saved from volcanic hazards.

The largest two volcanic hazards in 20th in the world, Pelee in 1902 and Ruiz in 1985, were not caused, in narrow sense, by the failure of eruption prediction, but those ty. After Ruiz lesson, world scientists became more aware of their roll that they must work more closely for communication and various supports for community where people live in potentially dangerous area. Scientists, officials and mass media can form base triangle with close collaboration and supporting people (and also tourists in most cases) from the base for community need on safety and livelihood. This scheme, (mitigation tetrahedron relation) were tested and verified for its success.

More than expected gain was attained for the 2000 eruption of Mt. Usu, even from the viewpoint of volcanologists. The area was known as a major tourist city, which had been refused longtime hazard maps, as well as even discussing on safe land use plans. This time, everybody in the city had promptly evacuated before the onset of the 2000 eruption. Otherwise, evacuees trapped in traffic jam might be hit by the rock falls on middle way for evacuation.

Worldwide mitigation efforts became eminent gradually especially by the international conferences, such as Kagoshima in 1988 and Showa-Shinzan of Usu in 1995. Mt. Unzen disaster and tsunami hazard in Okushiri Is. finally triggered the area of Mt. Usu for future hazard consideration. Hazard maps became action guideline from a taboo, and volcanologists were also trained and educated in the community. And face-to-face relation worked well in the sudden emergency in March 2000.

Although society need for earthquake prediction is very strong, the limit of present scientific knowledge are, however, getting more known in recent years in society. The most important need of the community is to recognizing a scientific group working clearly in this field and receiving a continuous message of the state-of-art, major difficulties and keys for overcoming weak points. Kobe disaster was not claimed by the people as a failure of earthquake prediction, rather people need more supporting information in time and in the recovery from scientists.

When Chile quake registered in 1960, tsunami hazard hit Japan in the next day. It was not expected. JMA director Dr. Wadati at that time declared it as the worst memory in his term. Excellent parts alone or prefixed procedures alone often fail natural disaster mitigation, but scientific whole picture became more important in many cases. Hence, we, scientists must always confirm their position in community need, and must develop their ability for useful advice and support.