

A Preliminary Study on Methodology of Scenario Development of Volcanic Events

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Prediction of a volcanic eruption is technology by which it waits eagerly for immediate realization when securing the safety and relief of the life of the people. Movement of underground magma is caught promptly and the advancement of observation technology and the fullness of a network of observation consisting mainly of a seismograph, GPS, etc. have enabled it to detect the possibility of a volcanic eruption in advance. However, it is thought that prediction exact also about transition from a viewpoint to disaster prevention to an eruption and until it results in an after-eruption end is required. Conventionally, in Japan, the realization of prediction of a volcanic eruption based on an understanding of physics and a scientific mechanism is mainly aimed at, and this continues to be considered to be fundamental approach. If the 'logic tree type volcanic activity transition scenario' which can be enumerated is prepared on the other hand, reflecting the result based on an understanding of physics and a scientific mechanism for the phenomenon which has generating possibility at which [of the transition process of an eruption] time after that Being greatly useful for prediction of eruption transition for actual eruption activities is expected.

The greatest feature of this research is applying the technique using FEP: Features, Events and Processes examined in the high level radioactive wastes geological disposal to volcanic activity transition scenario construction as the concrete technique of volcanic eruption scenario construction.

As what shows the state of the volcano accompanying volcanic activity progress, observed fact, such as observation results by a seismograph, such as an increase in a volcanic tremor, expansion of the volcano object by diastrophism observation, a rise in heat near a crater, steam near a crater, an increase in the amount of jet of volcanic gas, and generating of smoke, is acquired. In Underground of volcano, movement of the magma as a heat source, a groundwater flow by magma and groundwater contact and change of the quality of groundwater, and the change of a stress place and the change of geographical feature form resulting from movement of magma influence mutually. It is the cause of the phenomenon in which they are observed on the surface. Then, we as an element which constitutes the scenario which pursues phenomena chain of volcanic activity progress we thought that transition of a volcanic eruption could be described by associating the factor which has generated underground 'Features' shown by observation and an audit observation as 'Events and Processes'. This approach has the same viewpoint as arrangement by FEP in high level radioactive wastes geological disposal, and has the possibility of the extension to a volcanic eruption scenario. We tried the application of the scenario construction technique using FEP, after classifying and arranging the information about the volcanic eruption obtained from the literature of the past about a volcanic eruption as a preliminary examination. As a result, we acquired the prospect which these techniques can apply to construction of a volcanic eruption scenario.