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A study on a methodology of volcanic scenario analysis applying FEP analysis: Development of deductive inferring method

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A volcanic eruption scenario is a hypothetical volcanic activity prepared for planning or drill of evacuation, rescue, and restoration from the disaster. Given this goal, scenario should have the following entities; location, time, duration, scale of eruption, eruption style and extrusion rates, etc. Current scenario building techniques for volcanic eruptions are depending on empirical methods based on past events of targeted volcano or the world's volcanic activity of similar nature. The scenario will be more efficient if we can include contribution from deductive thinking method assuming that whole volcanic processes are composed of many elementary physical and chemical phenomena. Because a volcanic process are composed of a series of elementary processes of chemical and physical nature, it may be possible to infer the sequential pathway of volcanic eruption process to some extent. The next stage of the process may be guessed starting from the state just before it by deductive reasoning. We will discuss the result of our feasibility study to demonstrate such a deductive inferring method is possible in volcanic scenario building.

Keywords: Volcanic Scenario, Volcanic Eruption Prediction, Disaster Mitigation, FEP: Feature, Event, Process, FEP Analysis