

Self-potential measurements on Kishimadake of Aso volcano, Japan

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Kishimadake is one of the central cones of Aso volcano, which was formed from 2,000 to 3,000 years ago. The volcano has a summit crater whose diameter is about 200 m and the difference from the summit rim to the bottom is 50 m.

We conducted Self-potential (SP) measurements on the Kishimadake. The SP profile at the inside summit crater shows about +300mV comparison to the outside slope of the volcano with the same elevation. Since geothermal indications such as fumaroles or hot springs are not found around the Kishimadake, hydrothermal upwelling is probably not formed in this area. The SP profiles on the Kishimadake show topographic effect (-5mV/m) and the correlation profiles can be divided into two groups.

We considered that the characteristic SP profile was probably formed by the local different structure. Consequently, we conducted electrical explorations over the summit crater of Kishimadake to clarify the resistivity structure around the summit crater, and we calculated the equivalent current sources and sinks of streaming potential using the results of the resistivity surveys in order to estimate the subsurface fluid flow of the volcano. We will discuss the cause of SP profile from the calculations.