

The study of magnetization distribution of Aogashima volcano, analyzed by three component-three dimensional geomagnetic field.

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Aogashima Volcanic Island (AVI) is an active volcano at the southern edge of the Izu Island Chain. It is located 360km south of Tokyo. The most recent volcanic disaster occurred from 1780 to 178 in Edo (Tenmei) period. It caused villagers to be evacuated from AVI to neighboring Hachijo Island for 50 years because of the lack of space. We find fumarolic steam due to magma activity beneath. Therefore, AVI is classified as the second class to have the eruption possibility after Oshima and Miyake in Izu islands by Tokyo disaster prevention conference 1990.

According to Nishi et al. 1990, the high temperature and high spontaneous electrical potential of AVI is caused by the heat source in AVI. Therefore, to understand the heat source position assumed to be in AVI, the research was executed. As for an underground magnetic substance,

The magnetization is expected lower magnetization intensity when the temperature rising. To detect the low magnetization area, three dimension-three component magnetic survey was executed on AVI. As the result, a less than 1 A/m magnetization area was found at the southwest part of AVI at the depth of 1-2 km. Taking the location of fumarolic activities into consideration, the lower magnetization area was expected to be the heat source of the fumarolic activities of AVI.

Considering high magnetization area, it connects with the south and north in the west of AVI and it corresponds to the historical activity region in AVI. We guess the continuous high magnetic belt of AVI is structural weak zone. Therefore, after magma came up along this weak zone and it was cooled down, it became high magnetization zone.