

Resistivity structure of the Aso Caldera using wideband magnetotelluric method

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Aso Volcano, located in central Kyushu, western Japan, is one of the most active volcanoes in Japan. Activity of the Aso volcanic center started about 300,000 years ago in the central Kyushu. Central cones, more than seventeen in numbers, are clustered near the center of the caldera.

On this volcano, recently, eruption is only seen on the active crater of Nakadake, which located on eastern part of Aso central cones. On the other hand, on the western part, only geothermal zone is distributed and remarkable eruptive activities are not seen. On this volcano, the activity is different on western and eastern part. This difference is expected to originate in the difference of the subsurface structure.

In the present study, 3 survey was conducted in this area. 2 survey was made along NE-SW survey lines which passes the thermal region located on western part of Aso volcano (such as Yunotani, Tarutama hot spring) in 2001, and 1 survey was conducted along N-S traverse survey line which passes the east of Nakadake volcano in 2005. The previous modeling reveals the following results: the high-resistivity basement beneath the caldera floor slants gradually to the south; the low-resistivity layers, of 1-10 ohm-m, are found commonly around the sea level beneath the caldera. The high resistivity layer has upheaved in the center part in the caldera. To clarify the feature of a comprehensive underground structure of the Aso caldera and Aso volcano, and to discuss the relation to a present volcanic activity, we made a new observation using the wide-band magnetotelluric survey at 14 sites along the survey line which traverse the Aso caldera passes the Nakadake crater.