

The temporal changes of the shallower resistivity structure associated with a small eruptions at Aso Volcano, 2011.

Mitsuru Utsugi^{1*}, Naoaki Tokumoto¹, Tsuneomi Kagiya¹, Shogo Komori², Tsuyoshi Asano¹, Takao Koyama³

¹Graduate School of Science, Kyoto University, ²Institute of Earth Sciences, Academia Sinica, Taiwan, ³Earthquake Research Institute, University of Tokyo

On Aso volcano, central Kyushu, Japan, a small eruption was occurred on May 2011. Before and after this eruption, we carried out the electromagnetic survey around Nakadake crater of Aso volcano. From these observations, we obtained the data which suggest a decrease of the subsurface resistivity in the deeper part beneath Nakadake crater just after the eruption. In our presentation, we will show the observation data and the resistivity structure obtained by the 1-D analysis of our data.

On Aso volcano, many observations and research have been made to detect the subsurface structure and detailed information about the distribution of the subsurface hydrothermal system have been obtained from previous studies. From the high-density AMT survey, Kanda et al. (2008) found a low resistivity area is localized just beneath the Nakadake first crater. This area is considered as a chamber of the hydrothermal fluid which is formed by a part of the hydrothermal fluid which is supplied from the deeper magma. In recently, the activities of the Nakadake crater were often temporarily increased. Associated with these activities, it is expected that the distribution of the subsurface hydrothermal fluid is changed and subsurface resistivity structure is temporally changed. In order to detect such a temporal change of shallow resistivity structure according to these activities, we carried out the repeated control sourced electromagnetic survey around the Nakadake crater using ACTIVE observation system (Utada et al., 2007). In these observations, we installed electric current transmitter on 1 km NNE from the crater, and magnetic receiver was also installed on the 4 points around crater. We have performed a totally five repeated electromagnetic observation from April 2011 to April 2012 across the small eruption of May 2011.

Keywords: resistivity structure, hydrothermal system, temporal changes