

Shallow Resistivity Structure of Iwate Volcano and its Implication for the Subsurface Magma Movement

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In Asama volcano, the magnetotelluric (MT) measurements were conducted in 2005 and 2006 mainly along the four survey lines across the volcano [Aizawa et al., submitted to JVGR]. As a result, we found the resistive body at a depth range of a few hundred meters to a few kilometers surrounded by a highly conductive region under the 24ka collapse caldera. The resistive body was interpreted as a zone of old and solidified intrusive magma with low porosity. The highly conductive region was interpreted as the hydrothermal system driven by the remaining heat from the old magma. Taking into account the locations of the present magma intrusive zone and the resistive body, we proposed that the solidified remnant magma in the top few kilometers is impeding the present magma ascent.

In Iwate volcano, MT measurements were conducted in 1997, 1999, 2003, 2006, and 2007. The preliminary analysis along the 18km length E-W survey line suggested that the resistivity structure and its relation to the possible location of the present magma intrusion are very similar to those of Asama volcano. In this study, we will argue more precisely the resistivity structure to a depth of 5km by considering the other geophysical and geological studies.

