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雌阿寒岳ポンマチネシリ火口浅部の比抵抗構造（序報）
Preliminary result of resistivity modeling around Ponmachineshiri crater at Meakandake Volcano, Japan

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Meakandake Volcano, situated in Eastern Hokkaido, Japan, is an active volcano where a phreatic eruption occurs in every several years. Volcano-tectonic (VT) earthquakes mainly occurred below Ponmachineshiri crater which is one of active craters of the volcano (Japan Meteorological Agency, 2013). A source region of the tremors occurred before the 2008 eruption was estimated beneath the southern slope of the crater (Ogiso and Yomogida, 2012). Significant changes in the geomagnetic field were observed in 2008 and 2009 around the crater. Hashimoto et al. (2009) pointed out that the temporal variations of the geomagnetic field in 2008-2009 were due to the thermal demagnetization of the material beneath the southern slope of the crater.

These VT earthquake, tremor and rock demagnetization events probably associated with the movement of volcanic fluids such as hydrothermal water, gas and melt. Therefore, understanding of a hydrothermal system of the volcano is a key to reveal the mechanism of the tectonic events occurred there.

Resistivity of rock strongly depends on the fluid inclusion. Therefore, an electro-magnetic measurement is an effective method to image the fluid distribution. We conducted audio-frequency magnetotelluric (AMT) surveys in August 2013 on the western slope of the volcano. The objective of the survey is to reveal the resistivity structure around Ponmachineshiri crater and to infer the relationships among the fluid distribution, the seismic focal area, and the demagnetized area around the crater.

Since we have not finished the AMT survey on the eastern slope of the volcano yet, the resistivity structure around the Ponmachineshiri summit crater is not well-constraint. Therefore, we present the two-dimensional resistivity structure beneath the western slope of the volcano as a preliminary result. The characteristics of the resistivity distribution are described as follow.

1) A resistive (more than several hundred Ω m) layer locates at the top of the western slope of the volcano. Its thickness varies from 100 to 300 m on the profile. This layer can be regarded as a permeable lava or pyroclastic fall deposits.
2) Below the resistive surface layer, two conductive (less than 10 Ω m) bodies are found. One is located to the west of Ponmachineshiri crater at depths of 300-1000 m from the surface. This conductor corresponds to a hydrothermal reservoir which relates to the fumarolic activity in the crater. The second conductor is found beneath the western part of the profile at a depth of about 1000 m from the surface. The discharge of hot spring water at the west of our survey region suggests that this conductor can be explained by the presence of the hydrothermal fluid and/or the altered rocks.
3) A resistive area (more than several hundred Ω m) exists below the two conductors. Causes of this high resistivity are unknown yet.

Keywords: resistivity structure, Meakandake Volcano, volcanic fluid