

## Predicting 3-D resistivity structure from magnetotelluric data in the southern geothermal area of Hokkaido, Japan

\*Midori Hayakawa<sup>1</sup>, Toru Mogi<sup>2</sup>

1. Hokkaido University, Graduate school of science, 2. Hokkaido University, Faculty of Engineering

Geothermal gradient is high in Oshima Peninsula located in the southern part of Hokkaido. Especially in "Yakumo-Nigorikawa geothermal zone" located in the central part of the Peninsula, where recent volcanic activity is not seen, the geothermal gradient is the highest. Many geothermal features and hot springs are found in this zone, and many geothermal studies have been performed in various ways. We carried out new Magnetotelluric survey in Yakumo area at 20 stations, and reported 2-D resistivity structure used 2D inversion code (Ogawa and Uchida, 1996) last year. We tried to construct 3D resistivity structure using ModEM (Egbert and Kelbert, 2012) based on same site data. However, resistivity structures are different from 2D resistivity structure. To investigate validity of 3D resistivity structure, we checked reproducibility of a rectangular structure. The result showed that; when we distributed observation points equal short spacing regularly, we got good reproducibility, but inverted structure did not fit the original shape. We concluded, based on the test inversion, that we need to use short spacing equality distribution of data points to get good inversion result. The site distribution is not equal array and space distribution in Yakumo area survey, and we could not get correct 3D structure.

Keywords: Magnetotelluric method, 3-D inversion, ModEM