再解析network-MTデータによる阿蘇カルデラの3次元比抵抗分布モデル：ダイポール配置の検討

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3-D electrical resistivity models beneath Aso caldera by reanalysis network-MT data: The evaluation of dipole arrangements

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Aso caldera was formed by a series of huge eruptions, with a volcanic explosivity index of 7, during 270-90 ka and post-caldera cones were formed in the caldera. A post-caldera cone of Naka-dake is a quite active volcano, which experienced magmatic and phreatomagmatic eruptions, and an explosive eruption with spewing volcanic ash 11,000 m into the air during 2014-2016. Thus, it is important to understand the subsurface structure in the caldera. In and around Aso caldera, network-MT surveys for the electric field (the electric potential difference) were carried out in 1995 by using long metallic wires/dipoles of the commercial telephone company's networks [e.g., Tanaka et al., 1998; Hashimoto et al., 1999; Uyeshima et al., 2002; Hata et al., 2015]. We determined two components of network-MT response functions between the potential differences for every dipole and the two horizontal components of the magnetic field at the Kanoya Geomagnetic Observatory.

We performed three-dimensional (3-D) inversion analyses by using the above-mentioned network-MT data in a period range from 640 to 10,240 s, and obtained two electrical resistivity models to evaluate the difference of model resolutions due to the difference of dipole arrangements. One of the models was obtained by inverting a data-set whose dipoles were arranged independently in the caldera [Hata et al., 2018]. The other model was obtained by inverting another data-set whose dipoles shared the endpoints with the adjacent dipoles. In the caldera, the dipoles are arranged in a meshed pattern. Through the 3-D inversion analyses, we used a data space Occam's inversion code modified for the network-MT data of long dipoles [e.g., Siripunvaraporn et al., 2004]. In this presentation, we show the details of the 3-D resistivity models and comparison between the two models.