

Spatial variation of the geomagnetic field in the area of the Network-MT campaign around the Niigata- Kobe Tectonic Zone, Japan

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We are making a Network-MT (NMT) campaign over the Chubu district, Japan including the Niigata-Kobe Tectonic Zone in order to reveal deep and large-scale electrical conductivity structure in the earth now

The NMT method is characterized by employing the commercial telephone lines of the NTT (Nippon Telegraph and Telephone Corporation) to measure voltage differences with long dipole lengths of several kilometers. The method enables us to record stable voltage difference over several months because the lines are well maintained by NTT, therefore we can get MT response functions of the period of several thousands and several tens of seconds.

It is important to know spatial variation of the geomagnetic field in the observation region to estimate precise MT impedances for the Network-MT observation. Three components geomagnetic field are observed at four sites: Wajima (WJM), Ishikawa prefecture, Oshika (OSK), Nagano prefecture, Kamitakara (KTJ), Gifu prefecture, and Sirakawa (SRK), Gifu prefecture. The stations WJM and OSK are located the northernmost and southernmost places and stations KTJ and SRK are located western and eastern parts in the observation region. The later two sites are located on the almost same latitude.

We estimated the inter-station transfer functions between these sites and the Kakioka geomagnetic observatory of Japan Meteorological Agency (JMA) of period ranges between 6.4 s and 10923 s. We also estimated the geomagnetic transfer functions between the vertical components and the horizontal components of the same period ranges at four sites. We show these results and additional some sites including the Yatsugatake Geomagnetic Observatory near the observation region.