

## 東北日本北部の電気伝導度異常の3次元再解析

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## Conductivity Anomaly at Northern Tohoku Revisited by Three-dimensional Modeling

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Historical pioneering studies on conductivity anomalies started in the northern Tohoku district by Kato, Rikitake, Yokoyama and others by use of geomagnetic transfer functions. The numerical models were restricted by two-dimensional structures, although three-dimensional effect such as coastlines and straight are known (Honkura, 1974; Ogawa et al., 1986; Utada, 1987).

In this paper, we demonstrate the three-dimensional inversion modeling of geomagnetic transfer functions obtained at 37 stations with 20km grids by Ogawa(1987).

Although the period band of the dataset is restricted only at three periods (16s, 64s, 256s), these periods are sensitive to crustal anomalies and the coverage is good enough. In fact, similar modelings were applied before with thin sheet modeling (Avdeev et al., 1994), but they were only successful in fitting to short period response.

We inverted the data with the three dimensional inversion code of Siripunvaraporn and Egbert(2009) with starting model of 100ohmm with surrounding oceans. The final model had rms=1.04 with error floor of 5%. As was expected from the distribution of the induction vectors, (i.e., the northward induction vectors are small at the volcanic front), the mid-crustal to upper-mantle conductors appear along the volcanic front. However the conductor is not continuous along the arc and blobs of conductor exists under Sengan volcanic zone and Hakkouda volcanic zones.