磁場変換関数データの３次元比抵抗インバージョンによってイメージされる九州地方の比抵抗異常分布

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Anomaly Distribution for 3D-Inverted Resistivity Structure beneath the Kyushu District Revealed by Geomagnetic Transfer Functions

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We have performed three-dimensional (3-D) inversion analyses by using a data set of geomagnetic transfer functions whose period range is from 20 to 960 s to obtain a subsurface electrical resistivity model beneath the Kyushu district in the Southwest Japan Arc. Observations of original raw data sets for the geomagnetic transfer functions were carried out at the entire Kyushu island and several islands off the western coast of Kyushu from 1980's to 1990's [e.g., *Handa et al.*, 1992; *Shimoizumi et al.*, 1997; *Munekane et al.*, 1997]. The geomagnetic transfer functions were determined at 167 sites in the Kyushu district. The induction vectors, which are produced from the geomagnetic transfer functions and point to current concentration in conductive anomalies [*Parkinson*, 1962], on the Pacific seaboard of the Japanese arcs are known to point to the Pacific ocean of the deep sea in a large sense [e.g., *Yukutake et al.*, 1983]. On the other hand, the vectors on the northern and central Kyushu island do not point to the Pacific ocean off the eastern coast of the Kyushu island but point to the East China Sea of the shallow sea off the western coast of the Kyushu island [*Handa et al.*, 1992]. Additionally, the induction vectors on the southern Kyushu island point to the Pacific ocean in the eastern part and point to the East China Sea in the western part at short period, whereas the vectors are arranged along a direction parallel to a direction of the coast line at long period (>300 s) [*Shimoizumi et al.*, 1997; *Munekane*, 2000].

The complex behavior of the observed induction vectors remained unable to be expressed well by model calculations of the thin sheet analysis and the two-dimensional inversion analysis [e.g. *Handa et al.*, 1992; *Shimoizumi et al.*, 1997], although the behavior of the observed vectors suggested existence of highly conductive anomalies beneath the East China Sea. In this presentation, we will show a 3-D electrical resistivity model whose synthetic induction vectors are consistent with the observed ones. The 3-D resistivity model is obtained by using a DASOCC inversion code [*Siripunvaraporn and Egbert*, 2009]. We will also show results, which we try to verify structural cause of this anomalous behavior of the geomagnetic transfer functions in Kyushu and to verify previous discussions in 1990s.