

Resistivity structure of central Kyushu region, revisited

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We conducted a re-estimation of resistivity structure in the central Kyushu region. An inversion code of electromagnetic induction problem was developed to estimate three-dimensional conductivity structure, and magnetotelluric (MT) data in the ULF band obtained by Munekane [2001] were adapted. MT impedance tensors and magnetic transfer functions at 67 sites were used at 14 periods from 10 to 1000 sec. Number of inverted model grids are 20 by 20 by 5. An initial model of the inversion is a 100 ohm-m uniform structure except ocean area whose conductivity is 3.0 S/m and several time iterations of the quasi-Newton methods were conducted.

Primitive results are roughly consistent with ones by Munekane [2001] as a whole.

Shallow conductors are embedded in the Kirishima volcanic area and seem to extend to the non-volcanic Hitoyoshi area. On deep regions, large-scale horizontal structures appear, which extends to NE-SW direction across both volcanic and non-volcanic regions. It seems to be closely parallel to depth-contours of the subducted Philippine sea plate.

Regional difference of volcanoes distribution may be caused by surface stress fields inferred from geodetic studies (Aoki and Kagiya, 2006).

We show a detail on the estimated resistivity structures and discuss it.