

紀伊半島のMT法による3次元構造解析(2)

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Three-dimensional magnetotelluric imaging of Kii peninsula (2)

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Although Kii peninsula is located in the forearm side of southwest Japan, it has high temperature hot springs and fluids from mantle are inferred from the isotopic ratio of helium. Non-volcanic tremors underneath the Kii Peninsula suggest rising fluids from slab.

Previously, in the southern part of the Kii Peninsula, wide band magnetotelluric measurements were carried out (Fuji-ta et al.,1997; Umeda et al.,2004). These studies could image the existence of the conductivity anomaly in the shallow crust and in the deep crust. Long period observation using network MT data showed low resistivity on wedge mantle (Yamaguchi et al.,2009). These studies, however, used two dimensional inversions and three-dimensionality is not fully taken into consideration.

As part of the "Crustal Dynamics" project, we have measured 20 more stations so that the whole wide-band MT stations constitute grids to make three-dimensional modeling of the area.

In total we have wide-band magnetotelluric sites. Preliminary 3d inverse modeling showed the following features.

(1) The high resistivity in the eastern Kii peninsula at depths of 5-40km. This may imply consolidated magma body of Kumano Acidic rocks underlain by resistive Philippine Sea Plate which subducts with a low dip angle.

(2) The northwestern part of Kii Peninsula has the shallow low resistivity in the upper crust.

(3) The northwestern part of the survey area has a deeper conductor in the lower crust to upper mantle. This reflects the Philippine Sea subduction with higher dip angle.