

Shallow Resistivity Structure around the MTL Fault Zone (Izumi segment) deduced from the dense AMT observations

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The Japan Median Tectonic Line (MTL) Fault Zone along geological boundary of the MTL shows right-lateral strike-slip activities and extends for about 360km. Izumi segment of the MTL Fault zone consists of the Gojodani and Shobudani faults, etc. Wideband Magnetotelluric (MT) soundings were carried out across these faults (Disaster Prevention Research Institute, Kyoto University, 2015) previously. The obtained resistivity model was characterized by a contrast around the MTL. However, the shallow resistivity structure was not so clear.

In order to delineate fine subsurface structure around these faults, we carried out audio-frequency magnetotellurics (AMT) measurements at 38 sites along a 5km profile perpendicular to the Gojodani and Shobudani faults in November, 2014. Relatively good quality MT responses were estimated at 37 sites. Resulting conventional two-dimensional inversion analyses, we obtained a high resolution two-dimensional resistivity model. To pick out robust properties of resistivity model, we developed a new procedure and applied to our data.

Obtained robust model is characterized by a conductive and two resistive zones. The conductive zone is interpreted to be the Shobudani sedimentary layer and a clear contrast is recognized inside the Shobudani layer just beneath the surface trace of the Gojodani fault.

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