Fluids in the crust as viewed from wideband magnetotellurics

Yasuo Ogawa[1]

[1] TITECH, VFRC

http://131.112.25.6/ogawa/index.html

Intraplate earthquake zones in the back arc of NE Japan were imaged by wide-band magnetotelluric (MT) soundings. The 90km long MT profile of 34 stations extends over the two topographic features, the Dewa Hills and the Ou Backbone Range, which were uplifted by thrust faults. MT data show two-dimensionality and strong TE/TM anisotropic responses at the periods around 100s. After tensor decompositions with regional strike of N12degE, two-dimensional inversion was carried out where static shift was also a model parameter. The final model is characterized by conductive blocks in the mid-crust to account for the anisotropic responses. Correlation of the conductors to the seismic scatterers and to the low velocity anomalies suggests that the conductors represent fluids. High seismicity clustering near the rims of conductors suggests that the intraplate seismicity results either from the migration of the fluids to less permeable crust.