

Crustal fluids beneath Kyushu forearc region

*Koichi Asamori¹, Yuki Hama¹, Koji Umeda¹

1. Japan Atomic Energy Agency

In this study we have determined two dimensional (2-D) resistivity and three dimensional (3-D) seismic velocity structure beneath Kyushu subduction zone. 40 magnetotelluric (MT) stations were deployed in the study area. The MT data were collected using five component wide-band MT instruments (Phoenix MTU-5 system). A simultaneous remote reference measurement was carried out at the Sawauchi site (900 km northeast of the study area). The observed apparent resistivity and phase data were inverted simultaneously using the 2-D inversion code of Ogawa and Uchida [1996]. We have applied a tomographic method [Zhao et al., 1994] to P and S arrival times from regional earthquakes and teleseismic events to determine a detailed 3-D P and S wave velocity structure beneath Kyushu. The obtained resistivity and seismic velocity model through the inversions show as follows: (1) In central Kyushu, a prominent conductive anomaly exists in the crust beneath the forearc region. (2) A low-velocity zone corresponding to the conductive anomaly was revealed in the crust. (3) These results indicate that the conductive and low-velocity zone may reflect crustal fluids in the forearc region.