

Resistivity structure in Horonobe-Teshio area, northern Hokkaido

Toru Mogi[1], Yusuke Yamaya[2], Mizue Saba[2], Yasunori Nishida[3], Masamitsu Takada[4]

[1] ISV, Hokkaido Univ., [2] Earth and Planetary Sci., Hokkaido Univ., [3] Earth and Planetary Sci., Hokkaido Univ., [4] Inst. Seismology and Volvanology, Hokkaido Univ.

Magnetotelluric soundings were carried out at 20 stations that occupied over 25km by 30km area, in the Horonobe-Teshio area to investigate crust structure relating to tectonics and seismicity. This area is situated at a border between old plate boundary running through the central Hokkaido and present plate boundary at the eastern margin of Japan Sea. Complex crustal deformation and high seismicity are seen in this area. A sedimentary basin with large subsidence was formed in the western part of survey area.

The 2D resistivity model was constructed by 2D inversion based on a least square methods with smoothness constrain using TM mode apparent resistivity and phase along EW sections. A conductor associated with sedimentary basin was detected in the shallower part of western area. A resistive layer is distributing in the deeper part and earthquakes are occurred in this layer. The resistivity structure in eastern part is relatively homogeneous than the western part and earthquakes rarely occurred. The homogeneity of the structure may influence seismic activity in the crust.