Resistivity structure around the focal area of the Iwate-Miyagi Inland Earthquake 2008

Shin'ya Sakanaka[1]; Hiroshi Ichihara[2]; Masaaki Mishina[3]; Tadashi Nishitani[4]; Makoto Uyeshima[2]; Toru Mogi[5]; Yasuo Ogawa[6]; Yusuke Yamaya[7]; Kazuhiro Amita[8]

[1] Engineering and Resource Sci., Akita Univ; [2] ERI, Univ. Tokyo; [3] RCPEV, Graduate School of Sci., Tohoku Univ.; [4] Inst. of Applied Earth Sci., Faculty of Engrg & Res Science, Akita Univ; [5] Inst. Seismol. Volcanol., Hokkaido Univ.; [6] TITECH, VFRC; [7] Earth and Planetary Sci., Hokkaido Univ.; [8] none

http://dips11.akita-u.ac.jp/OYOchikyu/geophys/

A damaging earthquake named Iwate-Miyagi Inland Earthquake occurred at the border of Iwate, Miyagi and Akita prefecture on June 14, 2008. We carried out MT (Magneto-tellurics) survey across the focal area a few days after the earthquake.

Before breaking out the earthquake, MT surveys were done by Mishina (2006) around this area aiming to investigate the deep structure associated with low-frequency earthquake beneath volcanoes. Firstly we installed three MT sites at the same places among Mishina (2006)'sites just after the earthquake in order to detect resistivity change in the focal area. We had monitored resistivity for about one and half months at this three sites. Probably because of determination of artificial noise in the frequency range from 0.1 to 1 Hz as well, however, we cannot detect the resistivity change so far.

In addition, one and half months after the earthquake, we carried out another campaign of the MT observation setting out WNW-ESE survey line including 14 sites. The survey line, named 2008-line here, runs across just on the epicenter. We put out two-dimensional resistivity models including focal area. The models were calculated with TM, TE and TM+TE mode. The features of respective models, however, look different each other. The reasons of differences are under consideration but one reason is due to influence of three-dimensionality in the part of 2008-line. In fact, anomalous phase can be seen at four sites in the east area of the focal area. It remains the problems to discuss, but we can see the conductive zone in the lower crust beneath the focal area. This conductive zone possibly plays the roll of stress accumulation of the focal area.