Electrical resistivity structure around the focal region of the 2007 Noto Hanto Earthquake, Central Japan

Ryokei Yoshimura[1]; Naoto Oshiman[1]; Makoto Uyeshima[2]; Yasuo Ogawa[3]; Masaaki Mishina[4]; Hiroaki TOH[5]; Shin'ya Sakanaka[6]; Hiroshi Ichihara[7]; Ichiro Shiozaki[8]; Tsutomu Ogawa[9]; Tsutomu Miura[1]; Shigeru Koyama[10]; Yasuyoshi Fujita[11]; Kazuhiro Nishimura[1]; Ryo Honda[12]; Sei Yabe[13]; Shintaro Nagaoka[14]; Toru Mogi[15]

[1] DPRI, Kyoto Univ.; [2] ERI, Univ. of Tokyo; [3] TITECH, VFRC; [4] RCPEV, Graduate School of Sci., Tohoku Univ.; [5] Dept Earth Sciences, Univ. Toyama; [6] Engineering and Resource Sci., Akita Univ; [7] Earth and Planetary Sci., Hokkaido Univ.; [8] Dept. of Civil Eng., Tottori Univ; [9] ERI, Univ. Tokyo; [10] ERI, Tokyo Univ.; [11] DPRI,Kyoto Univ.; [12] ISV, Hokkaido Univ.; [13] TOTTORI OBSERVATORY,RCEP,DPRI; [14] Earth and Planetary Sci., TITECH; [15] Inst. Seismol. Volcanol., Hokkaido Univ.

On 25, March, 2007, a disastrous earthquake (M6.9) occurred at western coast of Noto Peninsula, Central Japan. Around the inland area of the source region of this earthquake, widebande magnetotelluric (MT) survey was carried out immediately after the mainshock in order to image heterogeneity of crustal resistivity structure. Widebande MT observation network finally became 26 sites. As a previous step for imaging three dimensional feature of resistivity around the focal region, we constructed two-dimensional resistivity models along five profiles using only TM mode responses to reduce three-dimensional effects. Four parallel profiles are perpendicular to the fault strike, and the other is parallel to the strike through the mainshock's epicenter. Remarkable characteristics of the resistivity models are as follows. (1) Beneath the depth of the mainshock, a conductive body is estimated, and it seems bowl-shaped spread toward to the eastern edge of active aftershock region. (2) Resistive block is located at the gap of aftershock distribution between the mainshock and the eastern largest aftershock. (3) The largest aftershock occured at the boundary of the resistive block described above. These results suggest that the deep conductors represent fluid-filled zones and the lateral heterogeneity could have controlled slip distribution on the fault plane.

In this presentation, we will report outline of the MT survey and discuss results derived by two-dimensional inversions.