

Crustal heterogeneity in electrical resistivity around the focal region of the 2007 Noto Hanto Earthquake, Central Japan

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On 25 March 2007, a damaging earthquake (Mj 6.9) occurred near the west coast of the Noto Peninsula, Central Japan. A wideband magnetotelluric (MT) survey was carried out in the onshore area of the source region immediately after the mainshock, with the aim of imaging the heterogeneity of the crustal resistivity structure. The final observation network had consisted of 26 sites. As a preparatory step for imaging three-dimensional features of the resistivity around the focal region, we constructed two-dimensional resistivity models along five profiles using only the TM mode responses [Yoshimura et al., 2008]. Four profiles are perpendicular to the fault strike, and a fifth profile is parallel to the strike through the mainshock epicenter. Significant characteristics of the resistivity models are: (1) beneath the mainshock hypocenter, there is a conductive body which spreads to the eastern edge of the active aftershock region; (2) a resistive zone is located in the gap of the aftershock distribution between the mainshock hypocenter and the largest eastern aftershock; (3) one of the largest aftershock occurred at the boundary of the resistive zone described above. These results suggest that the deep conductors represent fluid-filled zones and that the lateral heterogeneity could have controlled the slip distribution on the fault plane.

In this presentation, we will discuss results derived by two-dimensional inversions and plan to report a preliminary result of three-dimensional inversion.