Resistivity structure of shallower part of creep region in the Atotsugawa fault inferred from dense TDEM survey

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Dense TDEM (Time-Domain Electromagnetic) survey was carried out in order to investigate the shallower structure of the Atotsugawa fault in a region interpreted as the creep region. Result of the survey suggests the existence of structure whose strike is different from the inferred strike of the Atotsugawa fault. In this area, NIED drilled a borehole up to 350 m depth in 2003, and NIED with Toyama Univ. conducted a VLF-MT survey in order to investigate the resistivity structure in 2004. From the result of VLF-MT survey and observation of fault outcrop at the riverbank, the existence of echelon structure was suggested. Main target of this TDEM survey is to investigate the detailed structure of echelon, location of the main fault, and their relationship. The TDEM survey was conducted with the range of 500 m in N-S direction and 1 km in E-W direction. Source electrical current was passed between two electrodes installed at the ground surface. A magnetometer, which measures the response of induced current in underground, was carried by men for the detailed survey for echelon structure, and by a radio-controlled helicopter for the wider survey for main fault structure. Estimated apparent resistivity of the shallower part of the Atotsugawa fault ranges from 10 to 1000 ohm m, which is consistent with the results of measurement in the borehole. The dense TDEM survey also showed the possible echelon structure as the contrast of resistivity, which is consistent with the VLF-MT survey. We will show the wider structure of the Atotsugawa fault and discuss the origin of the echelon structure.