Low resistivity zone at the middle and the lower crust of forearc region of volcanic front

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Wideband magnetotelluric surveys were performed in the central part of the Tohoku district. Three observation lines were located crossing volcanic front along the Ouu mountains. Characteristic distributions of resistivity are as follows.

(1) To the west of the volcanic front, remarkably low resistivity areas were located in the lower crust and the middle crust. These low resistivities were considered to be concerned with volcanic activities of active or quaternary volcanoes in the Ouu mountains. Low frequency earthquakes in the deeper crust were located by the low resistive region.

(2) To the east of the volcanic front, there exist two types of low resistive zone. One is located near the volcanic front, and another is far from the front. The former is in the upper crust and is connected to the low resistive area to the west of the front through low resistive belt. So, we can conclude the low resistivity is caused by fluids supplied from volcanic front. The latter may be caused by fluid passing through different path.

(3) Almost all the low resistive area corresponds to low velocity area of seismic waves, especially S-wave (e.g. Nakajima et al., 2001).

(3) Eastern low resistive areas are located near the steep zone of Bouguer anomalies. We can thought about the eastern low resistive area as the trapped water by cap rocks of the Kitakami mountains.