

# Resistivity structure of the crust near volcanic front of Northeastern Japan part 1 - near Naruko volcano -

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A wide-band MT (Magnetotelluric) survey was performed near Naruko volcano which is near the volcanic front in Northeastern Japan arc. The survey line passes through epicentral area of low frequency earthquakes occurring in deep crust. At 13 points we got MT data by using MTU-5 system. All data were processed by referring continuous MT data at Esashi station of GSI. Three stations observed by Nagao (1998) were added to perform 2-dimensional resistivity inversion. As the impedance skew for almost all of the data were less than 0.3, we considered that 2-dimensional analyses were valid. Most of Groom-Bailey strikes were distributed from 0 to 50 degrees clockwise from the north, and were the most frequent at 15 degrees. We adapted 15 degrees as the strike direction of the ground structure, and impedances were decoupled into TM and TE modes respectively.

Two-dimensional inversion revealed that surface low resistivity layer at Shinjo basin, Mukaimachi basin (caldera), Hanayama caldera and Northern Sendai plain. And it also revealed resistive layers under east of Shinjo basin, under Mukaimachi caldera and under Hanayama caldera in 3 to 15 km deep. Under the resistive layer at Mukaimachi caldera, high conducting zone was estimated in 20 to 30 km deep. From this conducting zone two conducting belts reached to Shinjo basin and Naruko Volcano respectively. These resistivity distributions coincide with the results of seismic tomography by Nakajima et al. (2001).