Investigation of the western part of the North Anatolian Fault Zone by Magnetotelluric Method

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We have performed magnetotelluric surveys along ten profiles crossing the western part of the Nort Anatolian Fazult Zone (NAFZ), Turkey. The main purpose is to investigate heterogeneity in the resistivity structure around the fault zone, especially along the fault.

At the beginning of the process, we checked the overall 3D resitivity distribution by the phase tensor analysis (Caldwell et al., 2004). And we applied 2D inversion analyses to each profile to get the initial images for the 3D model. The effects of galvanic distortions were retrieved from the data by Groom and Bailey (1989) decomposition. Two-dimensional modelings were performed by using the code developed by Ogawa and Uchida (1996) with which TE (transverse electric), TM (transverse magnetic) and transfer functions.

We will discuss the overall images of heterogeneity obtained by the phase tensor distribution and the inversion results along the all magnetotelluric profiles in the NAFZ and try to investigate the correlation between the aftershock distribution and heterogeneity in the resistivity structure along the fault