



## **Investigating the Electrical Resistivity Structure at the Creeping Segment of the North Anatolian Fault near Ismetpasa by Wide-band Magnetotellurics**

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More than hundred wide-band (360 Hz – 2000 sec.) magnetotelluric (MT) observations were performed and were utilized to decipher the electrical resistivity structure in two- and three- dimensions along a 320 km, northwest – southeast aligned profile that cuts through the Gereede - Ismetpasa segment of the North Anatolian Fault. Even though Gereede - Ismetpasa region has accommodated 1944, Gereede ( $M_w=7.2$ ) and 1951, Kursunlu ( $M_w=6.9$ ) events, seismically, this segment is considered as a relatively quiet portion of the North Anatolian Fault and is well known with its creeping behavior (approx. 7.6 mm/yr). In this study the aim is to compare electrical resistivity structure with the creep information. Several modeling attempts targeting different depths and portions of the profile were made for imaging different problems. Preliminary three-dimensional models that were developed by WSINV3DMT suggest that; (i) There is significant and deep extending fault zone conductor that might be related with the creeping segment and (ii) In the deeper levels high and low conductivity interfaces are present in and around the fault region, which might be related to the North Anatolian Fault and seldom earthquake activity.