



Electrical Resistivity Investigations of the Kurşunlu (Manisa/Turkey) Geothermal Area

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It is of considerable importance to explore the geological structure around active faults, especially near-surface unconsolidated layers, to estimate the faults' activity. There are numerous case studies to investigate geothermal reservoirs and surrounding active faults using geophysical exploration methods; however, only a few cases have been verified in detail by comparison with other geological information. Electrical resistivity data provide a substantial contribution to the geophysical mapping and monitoring of geothermal reservoirs. We applied electrical methods, which can be effective for exploring to several hundred meters depth, to reveal geological structures covered by thick Quaternary alluvium formations. Geothermal activity around city of Manisa in Gediz Graben (Western Turkey) has been investigated by many researchers and many geothermal boreholes were drilled in order to produce electricity and for heating purposes. The Kurşunlu geothermal area is with the southern side of the Gediz Graben in 2 km west of Salihli, Manisa, Turkey. According to rising demand on thermal water around Salihli, geophysical studies were performed using the Vertical Electrical Sounding (VES) measurements at 16 stations around the area of Kurşunlu hot springs, and they were interpreted using both one and two-dimensional modelling. Vertical and horizontal resistivity sections were mapped, and it was determined that two low-resistivity layers exist both in the North (stations 1,2 and 4) and the South (stations 6 and 10) part of the survey area. As a result of the studies, the boundaries of the low-resistivity layer were mapped and test drilling locations were recommended.