Geothermal study by MT method in Meshkinshahr, North-Western Iran

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Abstract

Geothermal reservoirs are usually located at a depth range of 1 to 5 km, so to efficiently utilize such resources an advanced prospecting method is needed to detect these deep geologic structures. Since temperature and permeability are some of the parameters controlling electrical resistivity, electromagnetic and electrical methods can provide a model of the subsurface relating changes in the resistivity to changes in lithology and temperature. This study aimed to two-dimensionally characterize geothermal reservoirs by a Magnetotelluric (MT) survey. The Moil valley of Mt. Sabalan, NW Iran, was chosen as the case study area. AMT survey was carried out at 26 sites with elevation from 2400 to 3830 m. Static shifts were corrected prior to the inversion based upon the geology and TDEM results. 2D modeling of the MT data along the selected profiles shows remarkable confirmation of the subsurface...