

*Investigations of the Geothermal Problem by
Geoprobe EMR-14 and Dipole-Dipole Resistivity
Measurements*

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Geothermal zones are electrically very conductive due to the high temperature and salinity of the fluids and the high porosity of the enclosing rocks. Resistivity values are 0.1 to 5 ohm-m. The undisturbed medium has a resistivity between 5 to 1000 ohm-m. Geoprobe EMR-14, a multi-frequency EM induction system, and a dipole-dipole resistivity system were used for electrical resistivity measurements to detect geothermal energy sources in the southwestern U.S. The undisturbed medium was conductive clay containing brine solution. This restricted the depth of penetration, particularly in the dipole-dipole system. The depth and resistivity information obtained from the dipole-dipole survey was approximate because the ground had been averaged over a large electrode separation. The Geoprobe system was found to be very practical for investigating a large area for geothermal sources.

*Toward Estimating a Regional Geothermal
Resource Base for Iceland: A Status Report*