

Prediction of changes in resistivity and electric and magnetic fields induced by geothermal fluid production

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The addition of repeat geophysical survey data to those against which numerical reservoir models can be tested is likely to improve the reliability of the forecasts based upon the models. The application of improved geophysical techniques, such as repeat gravity, self-potential, resistivity, and seismic velocity surveys, to reservoir management is one of the objectives of a geothermal R&D project entitled "Development of Technology for Reservoir Mass and Heat Flow Characterization", carried out by NEDO and GSJ. In order to evaluate the use of geomagnetic field monitoring, numerical simulations were performed; which showed that changes in geomagnetic field due to temperature changes brought about by production/reinjection operations are expected to be observable.