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Presents

Advances in integrated EM for geothermal exploration

By

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ABSTRACT:

Electromagnetic methods are used routinely for geothermal exploration worldwide. During the past 10 years, 3D electromagnetic acquisition and interpretation methods have helped with deriving more realistic geological models. Magnetotellurics (MT) is the most commonly used EM methods. We show 3 case histories where 3D and 2D acquisition and interpretation are carried out. Two are from islands where coastal effects need to be considered. In Iceland, MT was used to define the scope of a deeper geothermal reservoir needed to supply heat for the new geothermal power plant. The second case history is from Hungary where the prospective zones are potential geothermal reservoirs. Seismic and gravity data was integrated with the magnetotellurics (MT) and geothermal targets resulted which were subsequently drilled successfully. The third example is from another island and yet to be drilled. Coastal effects made it difficult to derive initially a reliable 3D model. The integrated 3D approach with different geosciences data has proven an effective method for locating the most promising targets for geothermal exploration. In order to address the 3D nature of this problem, we developed new acquisition hardware that can acquire largest 3D arrays and is significantly more cost effective than the previous industry standard. In addition it can acquire EM and seismic with the same unit.

BIO:

Dr. K.M. Strack is president of KMS Technologies- KJT Enterprises Inc. specializing in electromagnetic technology for land & marine exploration, appraisal drilling and production monitoring. Kurt also serves as Adjunct Professor in the Electrical Engineering Department at the University of Houston, Mahidol University Bangkok, and at Yangtze University, Jiangzhou China where he teaches borehole geophysics and electrical methods for petroleum applications, respectively. Before starting KJT Enterprises, Kurt served as Chief Scientist for Baker Atlas in Houston after various management positions. Kurt received a Ph.D. from the University of Cologne, Germany and a M.Sc. from Colorado School of Mines. He worked over the past 25 years as a geophysical consultant and as university researcher and teacher and as R & D manager in the geothermal and oil industry. Kurt published over 100 publications, 1 textbook and authors/co-authors more than 25 patents. He received a Fulbright scholarship and numerous international grants/awards throughout his career.



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