



EUROPE REGIONAL  
ADVISORY COMMITTEE

# GEOPHYSICS FOR TODAY & TOMORROW



**Presenter:** Kurt Strack

**Company:** KMS Technologies – KJT Enterprises Inc.

**Title of webinar:** Advanced electromagnetics for geothermal/hydrocarbon applications – Part I Overview

**Webinar Date and Time:** 15 July 2020 at 08:00 AM Central U.S. time

[REGISTER HERE](#)

**Presenter Biography:** Dr. **K.M. Strack** is president of KMS Technologies- KJT Enterprises Inc. specializing in integrated seismic/electromagnetic technology for land & marine exploration, appraisal drilling and production monitoring for the geothermal/petroleum industry. Present emphasis is to drive the technology enabling smooth energy transition to zero carbon footprint. In that KMS Technologies pioneers borehole, borehole-to-surface, and marine electromagnetics to link with the 3D seismic Earth model. Kurt also serves as Adjunct Professor in the Earth and Atmospheric Geoscience Department and Electrical Engineering Department at the University of Houston, Mahidol University Bangkok, and at Yangtze University, Wuhan China (borehole geophysics and electrical methods for petroleum applications) (and other universities in China, Malaysia, Indonesia, Saudi and Germany). Previously, he was Chief Scientist for Baker Atlas after various management positions. There he built their Research Department and supported



the development of numerous new logging tools. Prior to that Kurt pioneered LOTEM (Transient electromagnetics for hydrocarbon exploration) development and advanced borehole geophysics technologies in Germany, Australia and the USA. Kurt received a Ph.D. from the University of Cologne and a M.Sc. from Colorado School of Mines. He worked over the past 25 years as consultant, university researcher, and R & D manager in the geothermal and oil industry.

Kurt has over 200 publications, 1 textbook & authors/co-authors more than 30 patents. He received two Fulbright scholarships and numerous international grants/awards. His interest is integrating geophysics with other disciplines, technology transfer and project development. He is a member of SPWLA, AAPG, ASEG, BDG, DGG, EAGE, EEGS, GRC, SPE, SEG and TSEG. He was Co-Chair of the Technical program for the IPTC in Bangkok 2012 and active in many committees. He was the Industry representative on the IAGA EM division and still provide frequent workshops at their bi-annual meetings.

The SPWLA granted Kurt a Distinguished Technical Achievement Award in 2003 for new logging technologies. SEG granted him the Reginald Fessenden Award for the development of through casing resistivity and 3D induction logging. The Russian Academy of Science elected him a Foreign Member and gave him the Kapitsa Gold Medal of Honor for his innovations to borehole geophysics and pioneering work to surface geophysics (Lotem). Kurt was Distinguished Lecturer

for the SPE (1998-1999) and SPWLA (2004-2005). In 2007-2008 he received the SEG's Presidents Special Services Award. 2012 Kurt is co-recipient for KMS Technologies' Cecil H. Green Enterprise Award from the SEG.

**Presentation Abstract:** This webinar will focus on the successful application of electromagnetics methods for exploration and production problems. In particular, the commercial success and resulting peer review process has removed the last doubt of the value of electromagnetics to exploration geophysics.

This has not always been the case. Since electromagnetics can cover the wide spectrum of deep crustal applications to radio communications, it can quickly become confusing.

For geothermal/hydrocarbon applications, the depth window is between 1000 m and 6 000 m. For this, magnetotellurics (MT) and Controlled Source Electromagnetics (CSEM) are the most commonly used methods. The application of the methods depend on the size and resistivity of the target as well as surrounding rock. In addition, proper scaling of the surface measurements to log scale and calibration to log data is important to find the most realistic model explanation for the data.

In this webinar, Part 1 of a lecture series, we describe the technical place and limitation of MT and CSEM, methodology, processing, and interpretation principles as well as basic well log integration.