

Illuminating Reservoirs with Electromagnetics

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Marine controlled-source electromagnetics (CSEM) has recently become a significant business tool for upstream applications due to the convergence of many technologies. CSEM provides valuable information on subsurface lithology and fluids independently from seismic data; however, its spatial resolution is much lower. Uptake has been dramatic, with more than 200 industry marine CSEM surveys acquired worldwide since late 2000.

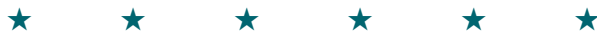
This presentation discusses some results that demonstrate both the promise and the challenges that lie ahead. CSEM can detect and map offshore reservoir hydrocarbon resistivity at

depths exceeding 2000 meters. But resistivity determination is hardly a fool-proof method for hydrocarbon identification, since many geologic facies are electrically resistive relative to their surroundings. As marine CSEM matures, it may prove to be the most important geophysical technology for probing below the seafloor since the emergence of 3D reflection seismology 30 years ago. The key determinant of commercial success will be whether the value of CSEM information is worth the money spent, relative to what other data can provide. **R**



Leonard Srnka received a B.Sc. in Engineering Science from Purdue University in 1968, graduating summa cum laude. In 1974, he received his PhD in Physics from the University of Newcastle upon Tyne, United Kingdom and from Corpus Christi College, Oxford University, United Kingdom (1970-1973), where he was a Marshall Scholar. Leonard spent his early career working for the NASA Lunar Science Institute as a Postdoctoral Fellow (1974-1976) and as a Staff Scientist (1976-1979) where he researched on the origins and evolution of lunar and planetary electromagnetism. The latter part of his career has been spent working at the ExxonMobil Corporation. From 1979-1993 he was project leader and supervisor with assignments in electromagnetic methods, seismic modeling and inversion, and borehole geophysics. He was a supervisor for gravity, magnetics, and remote sensing research and applications (1993-1998). From

1998 to present, Len has been the project leader for land and marine electromagnetic technology, and serves as a member of the senior technical staff. He championed the Remote Reservoir Resistivity Mapping ("R3M") breakthrough research project for upstream applications. He has been the Chief Scientist on numerous marine CSEM surveys offshore Europe and West Africa in 2001-2003. Leonard has special interests in marine MT and CSEM acquisition technology, 3D modeling, data interpretation, and imaging/inversion. He has twenty-six refereed publications and numerous patents issued and pending.



MARCH LUNCHEON

DATE: March 26, 2007
 TIME: 11:30 A.M. Lunch
 LOCATION: Telus Convention Centre, Calgary
 TICKETS: Contact CSEG office
 TELEPHONE: 262-0015 or Fax: 262-7383

APRIL LUNCHEON

April 23, 2007
 "Simultaneous AVO Inversion for Leading Edge
 – Integrated Seismic Reservoir Characterization"
 Dr. Matt Brzostowski
 Manager of Reservoir Services for North America, Schlumberger