

THE DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING SPEAKER SERIES

PRESENTS

Theory and Application of Controlled-Source Electromagnetic Geophysics



Mark Everett, PhD

Howard Karren Endowed Professor

Geology & Geophysics

Texas A&M University

everett@geo.tamu.edu

Monday, Feb. 3rd, 9:55am

CBB Room 106

LECTURE ABSTRACT

This talk will describe recent theoretical considerations and practical applications of terrestrial controlled-source electromagnetic geophysics. While marine controlled-source electromagnetics is now well-established for offshore petroleum exploration, three main focus areas of the terrestrial method will be discussed. These include a discussion of the energy flow due to horizontal electric dipole excitation of buried resistive and conductive layers; anomalous diffusion of electromagnetic signals into geological media that are characterized by length-scale dependent heterogeneity; and finally, recent field studies from Malta and New Zealand using time-domain electromagnetic soundings to characterize the onshore-offshore connectivity of aquifers in aid of offshore freshened groundwater exploration.

SPEAKER BIOSKETCH

Mark Everett is the Howard Karren Endowed Professor of geophysics at Texas A&M University. He specializes in near-surface applied geophysics. Dr. Everett obtained his PhD from University of Toronto in 1991 with a dissertation on numerical analysis of controlled-source electromagnetic exploration of the mid-ocean ridge. After that, he worked at Scripps Institution of Oceanography and University of Cambridge before joining the faculty at Texas A&M in 1995 where he is now full professor and associate department head for graduate affairs. Dr. Everett is author of the 2013 textbook "Near-surface Applied Geophysics" published by Cambridge University Press and he is co-Editor-in-Chief for the Journal of Applied Geophysics. Dr. Everett is State of Texas Professional Geoscientist #5141. He has been a visiting professor at ETH in Zurich and Khon Kaen University in Thailand. His current research interests include the use of electromagnetic geophysics to study onshore-offshore aquifer connectivity, with recent applications to coastal groundwater exploration.

Please contact Dr. Jiefu Chen (jchen84@uh.edu) to request further information.

UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING
Department of Electrical & Computer Engineering