

Joshua Sales

From: Blane Wood [Blane.Wood@pacelabs.com]
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To: Blane.Wood@pacelabs.com
Subject: 2009 Birdsall-Dreiss Lechure - Friday 3/13
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Announcing the 2009

Birdsall-Dreiss Lecture



Understanding Solute Transport in Extremely Heterogeneous Porous Media: Lessons Learned from 25 Years of Research at the MADE Site

Dr. Chunmiao Zheng

Professor of hydrogeology in the Department of Geological Sciences at the University of Alabama

Place: Room 412 Lindley Hall, KU Lawrence Campus

(contact jfdevlin@ku.edu for additional directions)

Time: 4:00 pm Friday, March 13, 2009. Admission: free

Field studies at well-instrumented sites have played a pre-eminent role in our efforts to better understand and predict contaminant transport in geologic media. In particular, field tracer tests at several well-known sites, such as those in Borden (Canada), Cape Cod (Massachusetts), and Columbus (Mississippi), have provided new insights and extensive data sets essential to development and testing of transport theories and mathematical models. This presentation focuses on the field site at the Columbus Air Force Base in Mississippi, more commonly known as the Macrodispersion Experiment (MADE) site. Since the 1980s, field data from this site have been used extensively by researchers around the world to explore complex contaminant transport phenomena in highly heterogeneous aquifers. Much recent and on-going research on contaminant transport in heterogeneous media has been motivated by findings at the MADE site. In particular, results from field investigations have suggested the existence of small-scale preferential flow paths and relative flow barriers, which together exert a dominating control on contaminant transport and remediation. This presentation will provide an overview of the field campaigns at the MADE site over the past 25 years and discuss how the findings from these field studies have inspired various theories and models to accommodate the non-ideal transport observed in the field. The MADE site has proven to be a valuable natural observatory where continuing research efforts will lead to a stronger theoretical framework and practical tools for modeling solute transport and evaluating remedial measures in extremely heterogeneous aquifers.