



GROUNDWATER RESOURCES ASSOCIATION
OF CALIFORNIA

2nd Symposium in its *Tools and Technologies Series*

“High Resolution Site Characterization & Monitoring”

November 14-15, 2006

Westin Long Beach Hotel – Long Beach, CA

PROGRAM AGENDA

(as of 11/7/06)

Day 1 – Tuesday, November 14, 2006

7:00 am – 5:00 pm **Registration**

8:30 – 8:50 am **GRA Welcome & Opening Remarks**
Thomas Mohr, Groundwater Resources Association President
Murray Einarson, Geomatrix Consultants, Symposium Co-Chair
Tim Parker, Schlumberger Water Services, Symposium Co-Chair

General Session 1 – High Resolution Characterization & Monitoring: Insights from Field Research

Moderator: Murray Einarson, Geomatrix Consultants

8:50 – 9:10 am *A Borden Field Experiment: Source Zone Characteristics and Evolution Cause Strong Plume Spatial and Temporal Variability*
Beth Parker, University of Waterloo

9:10 – 9:40 am *Hydrogeological Methods for Estimation of Spatial Variations in Hydraulic Conductivity*
Jim Butler, Kansas Geological Survey

9:40 – 10:00 am *Characterisation of Fractured Bedrock Sites: Challenging Established Conceptual Models*
Gary Wealthall, British Geological Survey; Co-author: Steve Thornton, University of Sheffield

10:00 – 10:30 am **Break – Exhibitor Hall**

- 10:30 – 10:50 am *Characterizing Hydrogeological Properties and Monitoring Biogeochemical Processes Using Geophysical Data*
Susan Hubbard, Lawrence Berkeley Laboratory; Co-authors: Kenneth Williams, Jinsong Chen and John Peterson, Lawrence Berkeley Laboratory
- 10:50 – 11:10 am *Hydrocarbon Vapour Migration and Attenuation from Petroleum Hydrocarbon Emplaced Source Experiment in Denmark*
Mette Broholm, Danish Technical University; Co-authors: Mette Christophersen and Peter Kjeldsen, Technical University of Denmark
- 11:10 – 11:25 am Summation and Discussion of Key Points

Session 2 – High Resolution Characterization & Monitoring: Approaches, Technologies, & Case Studies (Part 1)

Moderator: Nicole Sweetland, Daniel B. Stephens & Associates, Inc.

- 11:25 – 11:45 am *Hydraulic/Partitioning Tracer Tomography for Characterization of DNAPL Source Zones*
Jim Yeh, University of Arizona
- 11:45 – 12:05 pm *Detailed Hydraulic Assessment Using a High-Resolution Piezocone and 3-D Conceptual Models*
Mark Kram, NFESC; Co-authors: Gary Robbins, Ross Bagtzoglou, Jessica Furrer Chau, and Meredith Metcalf, University of Connecticut; Norm Jones, Brigham Young University; Kenda Neil, NFESC
- 12:05 – 1:15 pm **LUNCH and KEYNOTE PRESENTATION – Douglas Mackay, University of California, Davis – *Importance of High Resolution Spatial and Temporal Data in Field Research***

Session 2 – High Resolution Characterization & Monitoring: Approaches, Technologies, & Case Studies (Part 1) – (CONT.)

Moderator: Nicole Sweetland, Daniel B. Stephens & Associates, Inc.

- 1:15 – 1:35 pm *Comparison of Multiple Logging Techniques Used to Characterize a Contaminated Aquifer*
Thomas Christy, Geoprobe Systems
- 1:35 – 1:55 pm *High Resolution Transects of Surface ER and Geoprobe EC Profiles for Assessing Geologic Controls on Groundwater Flow*
Peter Bennett, Geomatrix Consultants; Co-authors: Peter Bennett, Murray Einarson, Matt Goerz, Lester Feldman, Ravi Arulanantham, Yemia Hashimoto, Geomatrix Consultants, Inc.
- 1:55 – 2:15 pm *Comparison of Four Multilevel Groundwater Monitoring Technologies*
Michael Taraszki, MACTEC Engineering and Consulting; Co-author: Peter Thompson, MACTEC Engineering and Consulting, Inc.

2:15 – 2:30 pm Summation and Discussion of Key Points

Session 3 – High Resolution Characterization & Monitoring: Approaches, Technologies, & Case Studies (Part 2)

Moderator: Mark Kram, NFESC

2:30 – 2:50 pm *New Generation of In-Situ Sensors for Contaminant Detection and Characterization*
Randy St. Germain, Dakota Technologies

2:50 – 3:10 pm *Collaborative Data Sets and the Role of the Waterloo Profiler in High Resolution Site Characterization*
Seth Pitkin, Stone Environmental

3:10 – 3:30 pm *Characterizing Spatial Variability in Flow, Contaminant Fluxes, and Biodegradation in a Streambed*
Brewster Conant Jr., University of Waterloo

3:30 – 4:00 pm Break – Exhibitor Hall

Session 3 – High Resolution Characterization & Monitoring: Approaches, Technologies, & Case Studies (Part 2) – (CONT.)

Moderator: Mark Kram, NFESC

4:00 – 4:20 pm *Vertical Profiling of VOCs in Groundwater and Soil Vapors to Evaluate the Risk of Vapor Intrusion*
Cynthia Paul, U.S. Environmental Protection Agency; Co-author:
Dominic DiGiulio, U.S. Environmental Protection Agency

4:20 – 4:40 pm *Collection and Interpretation of High Resolution Vapor Concentration Data to Assess Risks Due to Vapor Intrusion*
Blayne Hartman, H&P Mobile Geochemistry

4:40 – 5:00 pm *Characterization of Hydrogeology Near Las Vegas Wash*
Stephen Cullen, Daniel B. Stephens & Associates, Inc.; Co-authors:
Ranjit Sahu, Basic Remediation Company, Mark Jones, MWH Americas, Inc., and Doug Reaber, Daniel B. Stephens & Associates, Inc.

5:00 – 5:15 pm Summation and Discussion of Key Points

5:15 – 6:45 pm Reception - Exhibits and Poster Session

Day 2 – Wednesday, November 15, 2006

7:00 am – 10:00 am Registration

Session 4 – Optimizing Data Collected from Existing Monitoring Networks

Moderator: Gary Robbins, University of Connecticut

- 8:30 – 8:50 am *Overview and Significance of Biases Inherent in Traditional Groundwater Monitoring Technologies and Sampling Methods*
Gary Robbins, University of Connecticut
- 8:50 – 9:10 am *Physical Well-Bore Processes and Influences on Concentration Heterogeneity*
James Martin-Hayden, University of Toledo
- 9:10 – 9:30 am *Numerical Simulations of the Vertical Flux Distribution into Monitoring Well Screens During Low-Flow Purging and Sampling*
Mark Varljen, SCS Engineers; Co-author: David Kaminski, QED Environmental Systems, Inc.
- 9:30 – 9:50 am *Overview of Passive Ground Water Sampling*
Louise Parker, U.S. Army Corp of Engineers
- 9:50 – 10:05 am Summation and Discussion of Key Points

10:05 – 10:35 am Break – Exhibitor Hall

Session 5 – Managing, Modeling, & Visualizing High Resolution Subsurface Data: Strategies and Tools

Moderator: Michael Taraszki, MACTEC Consultants

- 10:35 – 10:55 am *Data Analysis, Management, and Visualization Techniques for TRIAD Projects*
Richard Hammond, U.S. Environmental Protection Agency
- 10:55 – 11:15 am *3D Geologic Model Development from High Resolution Transects of CPT Profiles for Assessing Geologic Controls on Groundwater Flow*
Tim Mote, Geomatrix Consultants; Co-authors: Peter Bennett, Matt Goerz and Lester Feldman, Geomatrix Consultants
- 11:15 – 11:35 am *Application of a Rule-Based Computer Algorithm to Integrate Environmental Data to Support Remediation Decision Making*
Zafer Demir, Lawrence Livermore National Laboratories; Co-authors: Charles Noyes, Fred Hoffman and Kayyum Mansoor, Lawrence Livermore National Laboratories; Michael Maley, Kennedy/Jenks Consultants

11:35 – 11:55 am *Application of Multifaceted High Resolution Data to Conceptual and Numerical Model Development in an Alluvial Groundwater Basin*
Ken Stelman, Geomatrix Consultants

11:55 – 12:10 pm Summation and Discussion of Key Points

12:10 – 1:20 pm LUNCH and KEYNOTE PRESENTATION - Fred Molz, *Biases Associated with Ambient Vertical Flow in Monitoring Wells*

Session 6 – High Resolution Characterization & Monitoring: Applications in Groundwater Resources Investigations

Moderator: Tim Parker, Schlumberger Water Services

1:20 – 1:40 pm *Practical Approach for Dealing with Heterogeneity and Why It Is Essential for Modeling Transport*
Graham Fogg, University of California, Davis

1:40 – 2:00 pm *Insights Gained from High-Resolution, Depth-Discrete Flow Measurements and Sampling in Water Supply Wells*
John Izbicki, U.S. Geological Survey

2:00 – 2:20 pm *Geochemical Imaging of Flow Near an Artificial Recharge Facility, Orange County, California*
Roy Herndon, Orange County Water District; Co-authors: Jordan Clark, University of California-Santa Barbara, Bryant Hudson and M. Lee Davisson, Lawrence Livermore National Laboratory; Greg Woodside, Orange County Water District

2:20 – 2:40 pm *High Resolution Characterization, Simulation, and Monitoring of Water Resources Projects*
Bob Will, Schlumberger Water Services; Co-author: Tim Parker, Schlumberger Water Service

2:40 – 3:10 pm Break – Exhibitor Hall

Session 6 – High Resolution Characterization & Monitoring: Applications in Groundwater Resources Investigations – (CONT.)

Moderator: Tim Parker, Schlumberger Water Services

3:10 – 3:30 pm *High-Resolution Subsurface Characterization Methods to Define Source Terms Used in Simulations of Impacts to a Regional Aquifer Resulting from Multi-Year Applications of Road Salt*
David Rudolph, University of Waterloo; Co-author: Emil Frind, University of Waterloo

3:30 – 3:50 pm *High Resolution Subsurface Characterization and Monitoring in Support of the Roseville, California ASR Project*
Chris Petersen, Montgomery Watson Harza

3:50 – 4:05 pm Summation and Discussion of Key Points

Session 7 – Panel: Overcoming Impediments to Better Site Subsurface Characterization and Monitoring

Moderators: Brian Lewis, Department of Toxic Substances Control and
Murray Einarson, Geomatrix Consultants

4:05 – 5:00 pm Panelists:
Kevin Graves, State Water Resources Control Board
Richard Hammond, U.S. Environmental Protection Agency, Region 4
Bill Pence, Akerman Senterfitt
Gary Robbins, University of Connecticut
Matt Small, U.S. Environmental Protection Agency
Curt Stanley, Shell Global Solutions (US) Inc.

5:00 – 5:20 pm Summation and Description of Field Demonstration (November 16, 2006)
Murray Einarson, Symposium Co-Chair

POSTER PRESENTATIONS

(Available for viewing during the entire Conference)

Multilevel Sampling in Traditional Monitoring Wells
Sandy Britt, ProHydro, Inc.

Focused, High Resolution Geophysical Logging for Detailed Subsurface Characterization
Ned Clayton, Schlumberger Water Services

Evaluation of the Membrane Interface Probe (MIP) as a Screening Tool for Chloropropanes in Soil and Groundwater
John H. Fortuna, GeoSyntec Consultants; Vaideswaran Sivaswamy, GeoSyntec Consultants

Site Characterization Using an Integrated Data Management and Groundwater Modeling Solution
Monica Gaertner, Schlumberger Water Services Division; Sharon Wadley, D.J. Miln Harvey, Schlumberger Water Services Division

Geoprobe EC Profiles for Identifying Water Bearing Zones
Matt Goerz, Geomatrix Consultants, Inc.; Peter Bennett, Lester Feldman, and Peggy Peischl, Geomatrix Consultants, Inc.

Subsurface Imaging of an In-Situ Reactive Zone

Amado Guzman, ARCADIS G&M; Steve Flaherty, Katy Brantingham, Junfeng Zhu, ARCADIS G&M; Stuart Rhodes, Rio Tinto; and Jay Jones, Environmental Navigation Services, Inc.

Production Well Hydraulic Testing and Contaminant Profiling Performed Without Pump Removal: A Significant Cost Saving Measure for Obtaining Production Well Data

Noah Heller, BESST, Inc.

Comparison of Four Mass Flux Measurement Methods at Vandenberg Air Force Base, California

Phil Kaiser, UC Davis (now at Daniel B. Stephens & Associates, Inc.); Murray Einarson, Geomatrix Consultants, Doug Mackay, Mamie Nozawa-Inoue, Sham Goyal, Madalena Vesasco, and Christopher Justice, UC Davis; Mike Annabel and Kirk Hatfield, University of Florida, Suresh Rao, Purdue University, Mark Goltz and Junqi Huang, Air Force Institute of Technology; and Michael Brooks, U.S. Environmental Protection Agency

Groundwater Resources Association of California Rapid Assessment Field Demonstration Site Fuel Controls, Inc.

Steve Maddox, Maddox & Associates and Dennis Parfitt, State Water Board

HydroImage – A User Friendly Hydrogeophysics Characterization Software Package

Chin Man Mok, Geomatrix Consultants

A 3-Dimensional Model of Water-Bearing Sequences in the Dominguez Gap Region, Long Beach, California

Daniel J. Ponti, U.S. Geological Survey, Brian Edwards, John Tinsley, Thomas Hildebrand, John Hillhouse, Randy Hanson, Kirsten McDougall, Charles Powell III, Elmira Wan, Michael Land, Shannon Mahan, and Andrei Sarna-Wojcicki, U.S. Geological Survey, and Kenneth Ehman, Skyline Ridge

Applicability of Multi-Level Monitoring Well Completion Technologies for Karst Dolomite

Peter Zeeb, GeoSyntec Consultants; Todd Kafka, Duane Graves, GeoSyntec Consultants; Duane Wanty, Intensol, LLC; and Steve Sacco, Invensys Inc.