



**GROUNDWATER RESOURCES ASSOCIATION
OF CALIFORNIA**

The Groundwater Resources Association of California Proudly Presents:

The 3rd Symposium in the *Tools and Technology Series*

“Applications of Isotope Tools to Groundwater Studies”

March 29, 2007

Hilton Hotel - Concord, California

SYMPOSIUM AGENDA

(as of 3/19/07)

7:00 am REGISTRATION/Continental Breakfast

Opening Session

8:00 – 8:10	Welcome Thomas Mohr, GRA President
8:10 – 9:00	<i>Use of Chemical and Isotopic Data to Improve Conceptualization of Groundwater Flow: Lessons from the Middle Rio Grande Basin, New Mexico</i> Niel Plummer, U.S. Geological Survey

Session 1: Example of Isotope Uses – Part I

Moderator: William Motzer, Todd Engineers

9:00 – 9:20	<i>Isotope Applications for Environmental Forensic Investigations – Three Success Stories</i> Julie Sueker, ARCADIS BBL, Inc.
9:20 – 9:40	<i>Use of Stable Isotopes as a Forensic Tool to Determine Sources of Perchlorate in Groundwater in the Chino Basin, California</i> Neil Sturchio, University of Illinois at Chicago
9:40 – 10:00	<i>Use of Multiple Isotopic Tracers to Constrain Understanding of Processes Affecting Ground-Water Quality at a Sub-Regional Scale, Central-Eastside San Joaquin Valley</i> Matthew Landon, U.S. Geological Survey

10:00 – 10:25 Morning Break

Session 2: Examples of Isotope Uses – Part II

Moderator: Michael Taraszki, MACTEC Engineering and Consulting, Inc.

10:25 – 10:55	<i>Isotopic Tracers of Human Wastewater in Groundwater Systems</i> Michael Singleton, Lawrence Livermore National Laboratory
10:55 – 11:15	<i>The Oxygen Isotopic Composition of Phosphate: A Tool for Tracing Nutrient Sources in Aquatic Ecosystems</i> Megan Young, U.S. Geological Survey
11:15 – 11:35	<i>Stable Isotope Fractionation in Nitrate and Perchlorate During In Situ Biodegradation in Groundwater</i> Paul Hatzinger, Shaw Environmental, Inc.
11:35 – 11:55	<i>A New Modeling Framework for Simulation of Apparent ^3H-^3He Groundwater Age and Mixing</i> Steve Carle, Lawrence Livermore National Laboratory

12:00 – 12:45 Lunch Break

12:45 – 1:00 Announcements

Concurrent Session 3A: Forensics

Moderator: Michael Singleton, Lawrence Livermore National Laboratory

1:10 – 1:35	<i>Source Identification and Allocation of Chlorinated Solvent Contamination Among Multiple Sources: Use and Limitations of Compound-Specific Isotope Analysis</i> Dimitri Vlassapolous, SS Papadopoulos & Associates
1:35 – 1:55	<i>Use of Carbon Isotope Ratios to Distinguish Perchloroethylene Plumes in Soil and Groundwater</i> Alan Jeffrey, ZymaX Forensics
1:55 – 2:15	<i>Geochemical and Isotopic Tracers to Define Salinity Sources in the Lower Rio Grande Valley, New Mexico</i> Stephanie Moore, Daniel B. Stephens & Associates, Inc.
2:15 – 2:35	<i>The Role of Surface Water-Groundwater Interaction in Releasing Arsenic from Shallow Aquifer of Southern West Bengal: An Isotope Geochemical Approach</i> Saikat Sengupta, Indian Institute of Technology

2:35 – 3:20 Afternoon Break – Poster Review

Concurrent Session 3B: Recharge and Tracers

Moderator: Julie Sueker, ARCADIS BBL, Inc.

1:10 – 1:35	<i>Geochemical Quantification of Semiarid Mountain Recharge</i> Arun Wahi, University of Arizona
1:35 – 1:55	<i>Applications of Stable Isotopes as Tracers in Groundwater Studies – Some Examples from the San Joaquin Valley</i> C. John Suen, California State University, Fresno
1:55 – 2:15	<i>Use of Stable Oxygen Isotopes to Delineate Recharge from CVP-Source Percolation Ponds in Llagas Subbasin, Santa Clara County, California</i> Michael Taraszki, MACTEC Engineering and Consulting, Inc.
2:15 – 2:35	<i>Stable Isotopes as Indicators of Groundwater Recharge System in Katmandu Valley, Nepal: A Preliminary Study</i> Sangam Shrestha, University of Yamanashi, Japan

2:35 – 3:20 Afternoon Break – Poster Review

Concurrent Session 4A: Forensics (cont.)

Moderator: Stephanie Moore, Daniel B. Stephens & Associates, Inc.

3:20 – 3:45	<i>Application of Nitrogen Isotopes in Distinguishing Different Sources of Nitrate in Groundwater at Los Alamos National Laboratory, New Mexico</i> Patrick Longmire, Los Alamos National Laboratory
3:45 – 4:05	<i>Nitrate Dynamics Within the Pajaro River, A Nutrient-Rich, Losing Stream</i> Chris Ruehl, University of California, Santa Cruz
4:05 – 4:25	<i>The Use of Tritium in Understanding the Migration Pathways and Fate of Organic Contaminants in Heterogeneous Hydrogeological Flow Environments</i> Ted Koelsch, K2 Enviro, Inc.
4:25 – 4:45	Open

Concurrent Session 4B: Recharge and Tracers (cont.)

Moderator: Alan Jeffrey, ZymaX Forensics

3:20 – 3:45	<i>Groundwater Relationships Between the Fall River Springs and Medicine Lake Volcano-Evaluation of all Available Data</i> Joe Iovenitti, Weiss Associates
3:45 – 4:05	<i>Application of Environmental Isotopes in Understanding Recharge in Semi-Arid Areas</i> Matthew Waterman, Bechtel Corporation
4:05 – 4:25	<i>A Stable Isotope Tracer Experiment Using Hetch-Hetchy Reservoir Water</i> Vic Madrid, Lawrence Livermore National Laboratory
4:25 – 4:45	<i>Successes and Failures of Gas Tracers Experiments Near Spreading Ponds</i> Jordan Clark, University of California, Santa Barbara

4:45 – 5:00

Closing Remarks – Bill Motzer

Student Poster Presentations

Application of Stable Isotope Technique to Investigate the Relationship Between Surface Water and Ground Water from Friant Dam to Mendota Along the San Joaquin River
Sana Alsaoudi, Department of Earth & Environmental Sciences, California State University Fresno

Selenium Isotopes: A Viable Tracer for Geologic Processes?
Rachel Andrus, California State University, Los Angeles

Application of Stable Isotopic Data to Characterize the Water Flow Through a Fractured Terrain of the Sierra Nevada Foothills
Nelson Bernal, Department of Earth & Environmental Sciences, California State University Fresno

Use of Sulfur Isotopes to Identify Bacterial Sulfate Reduction Processes During In Situ Stimulated Bioremediation of a Uranium Contaminated Aquifer

Jenny Druhan, University of California, Berkeley

Using Radium Isotopes to Investigate Submarine Groundwater Discharge in Hawaii

Karen Knee, Stanford University, Department of Geological & Environmental Sciences

Determination of Groundwater Contribution to Merced River During Snowmelt Using

$^{36}\text{Cl}/\text{Cl}$, ^{222}Rn , and $^3\text{He}/^4\text{He}$, Yosemite National Park

Glenn Shaw, University of California, Merced

Poster Presentations

Ultrasensitive Quantitation of $^{14}\text{C}/^{12}\text{C}$ Ratios with Accelerator Mass Spectrometry for Monitoring Degradation

Leili Arjomand, ECC

Understanding the Factors Controlling the Aqueous Geochemistry of an Acid Mine Impaired Watershed

Thomas Butler, ECO:LOGIC Engineering

Using Multi-Isotopes ($\delta^2\text{H}$, $\delta^{18}\text{O}$, $\delta^{15}\text{N}$, $\delta^{11}\text{B}$) and Pharmaceuticals to Differentiate Domestic Wastewater and Non-Wastewater Impacts in Groundwater

Thomas Butler, ECO:LOGIC Engineering

Forensic Isotope Applications for Emerging Contaminants: Chromium, MtBE, Perchlorate, and 1,4-Dioxane

Julie Sueker, ARCADIS BBL, Inc.

Initial Isotopic Evidence for Melting of Bomb Pulse Permafrost Boulder Brook Basin, Rocky Mountain National Park, USA

Julie Sueker, ARCADIS BBL, Inc.