Amy Katherine Rice
Doctoral Student
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EDUCATION

- Master of Science - *Hydrology*, University of Arizona, Tucson, AZ, Dec. 09.
- Graduate Certificate in Water Policy, University of Arizona, Tucson, AZ, August 09.
- Bachelor of Music - *Performance/Clarinet*, summa cum laude, University of Arizona, Tucson, AZ, May 03.

RESEARCH DESCRIPTION

I am interested in subsurface flow and transport and the fate of volatile organic contaminants (VOCs), especially in arid regions. VOCs can form persistent sources in the subsurface, which can contaminate groundwater or intrude up through the ground surface into buildings. VOC transport is a part of research pursuits including landmine detection, CO_2 capture and storage, and climate change modeling. Currently, I am studying trichloroethylene (TCE) vapor transport across the land/atmospheric interface by performing controlled experiments under transient conditions of soil moisture, temperature and using this data to test existing theories and iterate between experiment data and numerical models. My goal is to update conceptual models of shallow subsurface vapor transport to include conditionally significant transport processes and inform placement of mobile sensors and/or networks.

PUBLICATIONS AND PRESENTATIONS

In preparation: Oostrom, M., Rice, A.K., Wietsma, T.W., and Truex, M.J. *Carbon tetrachloride mass flux across the water table: Intermediate-scale experiments and numerical simulations.*

In preparation: Scheibe, T.D., Murphy, E.M., Tartakovsky, A.M., Rice, A.K., Ramanathan, R., Chen, X., Carroll, K.C., and Battiato, I. *MAP: An Analysis Platform for Multiscale Hydrogeologic Modeling with Emphasis on Hybrid Multiscale Methods.*

Rice, Amy Katherine. *Predicting Hydraulic Response: Comparison of Textural and Response Clustering Approaches to Soil Classification*. Master's Thesis. ProQuest/UMI. March 2010.

Rice, Amy. *Optimal Sensor Location: Comparison of Soil Textural Classification and Response Clustering Approaches.* National Ground Water Association Annual Summit. April, 2009.

Rice, Amy. *Predicting Hydraulic Response: Comparison of Textural and Response Clustering Approaches to Soil Classification.* University of Arizona Dept. of Hydrology and Water Resources Annual Hydrology Research Symposium, "El Dia del Agua." March 2009.

EMPLOYMENT

Current **Graduate Student** at Colorado School of Mines with Profs. Kathleen Smits and Tissa Illangasekare working of near subsurface/atmospheric interactions.

11/10-08/12	**Post-Master Research Associate** at the Pacific Northwest National Laboratory. Performed 1-, 2-, and 3-D modeling tasks using the Subsurface Transport Over Multiple Phases (STOMP) simulator in support of DOE remediation guidance document. Processed model results using visualization software including Tecplot, MATLAB, and Excel. Performed laboratory tasks involving the processing of soil cell components. Contributed to multiscale modeling methods review publication. Richland, WA.
07/09-10/10	**Staff Geoscientist/Hydrogeologist** at Schlumberger Water Services. Performed modeling projects using FeFlow (finite element, variably saturated numerical flow program), MODFLOW Surfact (finite difference flow and transport program), and GoldSim (Monte Carlo simulation software). Collected and synthesized data in support of modeling projects. Took part in field work campaigns, processed field data, created report-quality figures, contributed to technical reports. Tucson, AZ.
2008-2009	**Research Assistant** in the University of Arizona Dept. of Hydrology and Water Resources with Prof. Ty Ferre. Completed hydrologic modeling used to test concept of a new soil moisture probe. Conducted field research at Central Arizona Project facilities, studying recharge of Colorado River water. Processed data using GIS technology. Performed gravimetric soil moisture analyses in soil laboratory. Wrote MS thesis detailing an alternative soil classification system based on soil hydrologic response, using pedo-transfer function software and techniques of cluster analysis. Tucson, AZ.
2006-2007	**University of Arizona NASA Space Grant Intern** Project Title: *Light Scattering from Biological Particles.* Mentor organization: *Physics, Material and Applied Mathematics LLC.* Established collaboration between mentor organization and University of Arizona Department Veterinary Sciences for support of NOAA funded project. Tucson, AZ.
2005-2006	**High school math teacher** Held long-term substitute position as high school math teacher. Planned lessons, taught classes, and assisted with homework. Republic, WA.
2005-2006	**High school music teacher** When school board lost funding for full music program, filled in as part-time music instructor in addition to duties teaching math. Taught grades 6-12 band program. Put on full Winter Concert, maintained football pep band, and put on community concert to support reinstatement of music program. Republic, WA.