

PAULA A. CUTILLO

National Park Service, Water Resources Division, Water Rights Branch
1201 Oakridge Drive, Suite 250
Fort Collins, CO 80525

EDUCATION

2003 Ph.D., Hydrogeology, University of Colorado, Boulder, CO
1997 M.S., Watershed Science, Colorado State University, Fort Collins, CO
1994 B.A., Environmental Policy and Analysis, Boston University, Boston, MA

HONORS

2002 Andrews Fellowship
2002 Bruce Curtis Award for Graduate Thesis
2001 William Hiss Award for Creativity in Earth Sciences
2001 W.O. Thompson Fund Award for Graduate Research
1998 Environmental Protection Agency Outstanding Scholar
1994 B.A. with honors, magna cum laude
1990 Boston University Academic Scholarship

MEMBERSHIPS

2001- present American Geophysical Union
2000 - present National Ground Water Association

RESEARCH

Ph.D. Simulation of fluid flow and coupled processes at active margins
Earthquake-induced fluid flow
M.S. Simulation of unsaturated ground-water flow
Influence of soil texture on nitrate leaching in the unsaturated zone

PROFESSIONAL EXPERIENCE

2003-present Hydrogeologist, National Park Service, Water Resources Division, Water Rights Branch, Fort Collins, CO
2001-03 Hydrogeologist (Student Career Experience Program), National Park Service, Water Resources Division, Water Rights Branch, Fort Collins, CO
2000-03 Research/Teaching Assistant, University of Colorado, Boulder, CO
1998-00 Senior Environmental Analyst, Wyoming Department of Environmental Quality, Land Quality Division, Cheyenne, WY
1997-98 Hydrologist, Western Environmental Consultants, Inc., Fort Collins, CO
1996-97 GIS Specialist, Technology Geosystems Inc., Fort Collins, CO
1996 Range Crew Supervisor, U.S. Forest Service, White River National Forest
1995-96 Lab Assistant, Plant Pathology Research Laboratory, Colorado State University
1995 Volunteer, Roosevelt and Arapahoe National Forests
1993 Intern, Massachusetts Department of Environmental Quality, Boston, MA

PUBLICATIONS

Cutillo, P. A., E. J. Screaton, and S. Ge, 2003. Three-dimensional numerical simulation of fluid flow and heat transport within the Barbados Ridge accretionary complex, *Journal of Geophysical Research*, 108(B12), 2555, doi:10.1029/2002JB002240.
Cutillo, P. A., S. Ge, and E. J. Screaton, (*in press*), Hydrodynamic response of subduction zones to seismic activity: a case study for the Costa Rica margin, *Tectonophysics*.
Cutillo, P. A. and S. Ge, (*in press*), Analysis of strain-induced ground-water fluctuations at Devils Hole, Nevada, *Geofluids*.

PRESENTATIONS & EXPERT WITNESS TESTIMONY

Cutillo, P. A., 2004. Potential Impacts to Buffalo and Antelope Springs due to Proposed Ground-Water Withdrawals, Expert Witness Testimony, *Oklahoma Water Resources Board Administrative Hearing, Application No. 2002-590*.

Cutillo, P. A., 2004, Water-Level Changes at Devil's Hole Associated with Barometric Pressure, Earth Tides and Earthquakes, *2004 Annual Devils Hole Workshop, Pahrump, Nevada*.

REPRESENTATIVE MODELING PROJECTS

- Developed a 1-D numerical model using the OPUS code to simulate unsaturated fluid-flow below an agricultural field in the San Luis Valley of Colorado in support of M.S. degree.
- Wrote finite-difference and finite-element computer programs to simulate saturated and unsaturated fluid-flow and solute transport in support of Ph.D. degree.
- Developed 3-D finite-element models using the SUTRA 2D3D.1 code to simulate fluid flow and heat transport in subduction zone settings in support of Ph.D. degree.
- Applied analytical methods to predict the extent of the cone of depression due to an aquifer test at a new production well at Sleeping Rainbow Ranch in Capital Reef National Park and reviewed aquifer test plans.
- Applied analytical methods to estimate the extent of the cone of depression for a production well in the Crane Flats area of Yosemite National Park and provided recommendations for locating monitoring wells and future aquifer testing.
- Developed analytical and numerical (MODFLOW) models to estimate the effects of proposed ground-water development in the Arbuckle-Simpson aquifer on Antelope and Buffalo Springs in Chickasaw National Recreation Area, and presented the results as an expert witness in a hearing before the Oklahoma Water Resources Board.
- Applied analytical methods to estimate potential impacts to the North Fork of the Flathead River in Glacier National Park in Flathead County, MT and prepared reports to accompany NPS water right protests.
- Developed a 3-D finite difference model using the MODFLOW code to simulate seismically-induced fluid flow in the regional carbonate aquifer of Nevada.
- Applied analytical methods to aid in locating and testing new wells to be drilled in the vicinity of Devils Hole in Death Valley National Park.
- Applied analytical methods to estimate potential impacts to the Yellowstone River in Yellowstone National Park in Gardiner, MT and prepared a report to accompany a NPS water right protest.
- Developed analytical and numerical models (MODFLOW) to estimate the effects of a proposed mining operation in the Arbuckle-Simpson aquifer on Antelope and Buffalo Springs in Chickasaw National Recreation area and prepared a report in preparation for water-rights negotiations.
- Developed an analytical method to simulate the effects of a reduction in freshwater discharge in the Kona area to a change in salinity in the brackish ground-water aquifer underlying Kaloko-Honokohau National Historical Park and documented method in a report.
- Served on M.S. Thesis committee for research involving the numerical simulation (MODFLOW) of tectonic strain on waters levels in the area of Devils Hole in Death Valley National Park.
- Applied analytical methods to estimate drawdown at resources in Wind Cave National Park due to proposed production wells and prepared a report to support NPS letter of intervention.