

Michael E. Campana

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WaterWired blog: <http://www.waterwired.org>

WaterWired Twitter: twitter.com/waterwired

EDUCATION

B.S., 1970, College of William and Mary, Williamsburg, Virginia

Major: Geology Thesis: *Jointing and foliation in the Petersburg Granite near Richmond, Virginia*

M.S., 1973, University of Arizona, Tucson, Arizona

Major: Hydrology Thesis: *Determination of hydraulic parameters in a fractured rock aquifer*

Ph.D., 1975, University of Arizona, Tucson, Arizona

Major: Hydrology Minor: Mathematics

Dissertation: *Finite-state models of transport phenomena in hydrologic systems*

PROFESSIONAL EXPERTISE AND INTERESTS

Hydrogeology; regional groundwater flow

Hydrophilanthropy; water, sanitation, and hygiene (WaSH) in developing regions

Interface between scientific and non-scientific water issues

Transboundary water resources (especially groundwater)

Water resources development, planning, and management, and climate change impacts

Education in water resources, hydrogeology, hydrology and related earth/environmental sciences

Environmental fluid mechanics

EXPERIENCE

2006-present. Professor, College of Earth, Ocean and Atmospheric Sciences, Oregon State University (full-time since September 2009). Advise MS and PhD students in the Water Resources Graduate Program and in the Geography and Geology programs. Advise undergraduate geology and geography students. Teach courses in water science and policy, water resources, international and US water resources management, and hydrogeology. Prepare proposals and conduct research in a variety of water-related fields.

2006-2009 Director, Institute for Water and Watersheds, Oregon State University. Provided leadership for campus-wide organization designed to initiate and foster interdisciplinary and multidisciplinary research, teaching, and outreach in water and watersheds. Coordinated and promoted OSU water and watershed activities with key local, state, regional, national, and international stakeholders. Developed and facilitated existing cooperative linkages across multiple units, being responsive to opportunities at the state, national, and international levels in water-related efforts. Identified and developed funding opportunities to support research, teaching, and outreach programs through partnerships with local, state, national, private, and international organizations and supporters. Provided an OSU presence with local, state, national, and international governmental and non-governmental organizations. Directed U.S. Geological Survey-designated state water resources research institute and allocate associated research and related funds. Developed campus-wide open analytical laboratory. Supervised staff.

2006-present. Professor Emeritus of Earth and Planetary Sciences and Water Resources, University of New Mexico, Albuquerque, NM 87131. Retired from the University of New Mexico after 17 years.

2002-present. Founder, President/Treasurer and Chair, Board of Directors, The Ann Campana Judge Foundation. The ACJF is a 501(c)(3) charitable foundation dedicated to undertaking and funding philanthropic projects in and relating to the countries of Guatemala, Honduras, El Salvador, Nicaragua, and Panama that focus on water, health, sanitation, and student involvement. Responsible for overall management of the ACJF including: fund-raising, project development, preparation of RFPs, evaluation of proposals, etc. (see www.acjfoundation.org)

1997-2006. Director, Water Resources Program, MSC05 3110, 1 University of New Mexico, Albuquerque, NM 87131-0001. Responsible for budgetary, programmatic and curricular aspects of a multidisciplinary and interdisciplinary professional program offering a Master's degree in Water Resources. Responsible for implementing a more flexible, two-track curriculum that permits students to specialize in either Hydrosience or Policy/Management. Develop research proposals, obtain over \$3,400,000 in external funding, and perform research related to water resources. Teach water resources and physical hydrology courses and supervise student professional projects (0.50 FTE from August 1997- May 2006).

2003-2006. Interim Director, International Rural Water Institute, University of New Mexico. Direct the activities of a campus-wide fledgling institute focusing on rural water issues in developing countries.

1989-2006. Professor of Hydrogeology, Department of Earth and Planetary Sciences, (Associate Professor from 1989-97; Professor from 1997-2002; Albert and Mary Jane Black Professor, 2002-2006; Emeritus Professor, 2006 - present)), MSC03 2040, 1 University of New Mexico, Albuquerque, NM 87131-0001. Develop teaching and research program in hydrogeology and hydrology. Teach graduate and undergraduate courses, supervise student research. Participate in interdisciplinary research and teaching programs. Developed curricula for undergraduate specialization in hydrogeology and a B.S. in Environmental Science. Obtain \$5,700,000 (\$3,000,000 as PI or co-PI; \$2,700,000 more as a significant participant) in sponsored research from U.S. Department of Energy, National Science Foundation, Sandia National Laboratories, U.S. Geological Survey, State of New Mexico, U.S. Geological Survey, and other sources (0.50 FTE from August 1997-May 2006).

2002-2003. Sabbatical leave. Spent Fall 2002 at the Isotope Hydrology Section, International Atomic Energy Agency, in Vienna. Worked on a variety of problems, mainly related to the use of environmental isotopes to assess groundwater sustainability. Spent Spring 2003 in Honduras, where colleagues from Escuela Agrícola Panamericana in Honduras and I worked to establish a Central American Water Resources Development Center through USAID funding and develop a joint certificate ('diplomado') program in water resources for Latin American water professionals. I also worked on various watershed and philanthropic projects in Honduras, Nicaragua and El Salvador.

1995-1996. Sabbatical leave. Spent most of Fall 1995 at the Research Institute for Groundwater, National Water Research Center, Arab Republic of Egypt, developing research projects of mutual interest (regional flow in the fissured carbonate and Nubian aquifers, etc.) and providing technical assistance to Egyptian hydrologists and engineers. Spent Spring 1996 at University College of Belize as a Fulbright Scholar teaching Watershed Management, designing courses and curricula in natural resource management and developing research projects.

1984-1989 and 1976-1983. Associate Research Professor (Assistant from 1976-79), Water Resources Center, Desert Research Institute, 2215 Raggio Parkway, Reno, NV 89512-1095. Wrote proposals, prepared budgets, obtained funding for and conducted research in hydrology, hydrogeology and related fields. Served as PI/co-PI on 25 projects (over \$4,500,000) sponsored by USGS, DOE, NSF, State of

Nevada and private firms. Supervised research by graduate students, technicians and other professionals. Provided water resources and related information to the general public and government agencies. Played significant roles on other projects worth over \$25,000,000.

1984-1989 and 1976-1983. Associate Professor of Hydrogeology (Assistant from 1976-79), **Department of Geological Sciences, Mackay School of Mines, University of Nevada, Reno, NV 89557-0138.** Developed and taught upper-division and graduate courses. Supervised M.S. (22) and Ph.D. (1) thesis research. Developed curriculum for a B.S. in Hydrogeology. Took a leadership role in the interdisciplinary Graduate Program in Hydrologic Sciences; developed a new core curriculum on two different occasions. (Note: this was a concurrent, non-tenure track position with my DRI position; my duties were 80% research at DRI and 20% teaching/advisement at UNR.)

1988-1989. Visiting Associate Professor, Earth Sciences Board, University of California, Santa Cruz, CA 95064. Taught hydrologic fluid dynamics course, part of a ground-water hydrology course and conducted research while on sabbatical leave from the Desert Research Institute.

1983-1984. Associate Professor, Department of Geology, Georgia State University, Atlanta, GA 30303. Taught historical geology courses and developed graduate courses in hydrogeology and related fields.

1974-1975 and 1973-1974. Associate Faculty Member, Pima Community College, Tucson, AZ 85709. Taught physical and historical geology courses, both lectures and laboratories. Advised students on career opportunities in the earth/environmental sciences.

AWARDS AND HONORS

- Icko Iben Award, American Water Resources Association, 2009
- Keith Anderson Award, Association of Ground Water Scientists and Engineers, 2005
- International Excellence Award, University of New Mexico, 2003-2004
- Albert J. and Mary Jane Black Professor of Hydrogeology, Department of E&PS, UNM, 2002 - 2006
- Gallagher Visiting Scientist, University of Calgary, April 2002
- Fulbright Scholar (Belize), 1995-96 academic year
- Who's Who in the West (24th edition)
- Who's Who in Science and Engineering (5th edition)
- American Men and Women of Science

INVITED PRESENTATIONS (since 2002)

- *Rural Groundwater Development and Capacity Building in a Developing Country.* EWB-USA Mountain Region Workshop, Tucson, AZ, November 2011
- *Harmonizing Water and Energy: The Water-Energy Nexus.* Water Forum for the Americas, Medellín, Colombia, November 2011.
- *Geopolitics of Gas, Water, and Oil in the South Caucasus.* Keynote Address, Korea Water Resources Association, Daegu, ROK, May 2011
- *Groundwater: The 'Rodney Dangerfield of the Hydrologic Cycle.* UN International Water Forum, New York, NY, September 2011
- *What Would Elvis Say? Mississippi v. Memphis and the Curious Case of the Memphis Sand Aquifer.* Univ. of Utah Tanner Center Conference: Water, Conflict and Human Rights, SLC, February 2011
- *From Central America to the South Caucasus: Water Resources in Developing Countries,* OU WaTER Center, Norman, OK, January 2011

- *Mississippi v. Memphis: The Curious Case of the Memphis Sand Aquifer*. Keynote address, UNESCO ISARM 2010 Pilot Course, Paris, December 2010
- *Hydrophilanthropy: Quo Vadis?* Keynote address, Annual Meeting, Montana Section, AWRA, Helena, MT, October 2010
- *Do Water, Oil, and Gas Mix? The Kura-Araks Basin in the South Caucasus*. USGS Oregon Water Science Center Seminar, Portland, OR, May 2010
- *Water Planning: Views from the Land of Enchantment and the Beaver State*. Keynote address, Oklahoma Water Town Hall, Norman, OK, May 2010
- *Activities of the National AWRA*, Keynote address, 38th Annual Meeting, Utah Section, AWRA, Salt Lake City, UT, May 2010
- *My Recent Life as a Foreign-Policy Tool: Transboundary Water Resources and the New 'Great Game' in the South Caucasus*, The Water Institute, U. of Waterloo, Ontario, Canada, March 2010
- *Water and the 4Cs: Climate, Conflict, Cooperation, and Caring*. Truckee River Symposium, Reno, NV, November 2009
- *Drilling Water Wells for Community Water Supply in Developing Countries*, WaTER Conference, Norman, OK, October 2009
- *World Freshwater Resources and the 4Cs: Climate, Conflict, Cooperation, and Compassion*, Southern Illinois University, Carbondale, IL, April 2009
- *Hydrophilanthropy 101: Small-Scale Water Supply Projects in Central America.*, Advanced Watershed Hydrology class, Southern Illinois University, Carbondale, IL April 2009
- *Case Study: Albuquerque "Drying Cities"* Roundtable, Session 1.1.3 *Local Actions: Thinking Beyond the Water Box: What Adaptations to Global and Climate Change*, Fifth World Water Forum, March 2009
- *Is Nonrenewable Groundwater Development Inconsistent with IWRM?* Session 3.4.2, *Strategic Framework for Effective and Sustainable Water Resources Management and Protection*, Fifth World Water Forum, March 2009
- *Nonrenewable ground water management*, side event on *The Role of the Groundwater Silent Revolution: "More Cash and Nature per Drop"*, Fifth World Water Forum, March 2009
- *Water and Sanitation in Central America: Views from the Ivory Tower*, University of Oklahoma WaTER Center Symposium, October 2008
- *The World's Fresh Water Resources and the 4C's: Climate, Conflict, Cooperation, and Caring*, Columbia Gorge Community College, October 2008
- *From Hydrologist to Foreign-Policy Tool: South Caucasus Transnational Water Resources and the New 'Great Game'*, University of Nevada-Reno, November 2007
- *Conflict and Cooperation in the South Caucasus: the Kura-Araks Basin of Armenia, Azerbaijan, and Georgia (or, How I Became a Foreign Policy Tool)*, Oregon State University, Engineers Without Borders banquet, October 2007
- *Hydrohumanity: Quo Vadis?*, Geological Society of America Annual Meeting, Denver, CO, October 2007
- *Water Resources and Climate Change: Securing the Future for the Western USA*, Universidad Santo Tomás, Santiago, Chile, August 2007
- *Water Resources Conflict Management: Lessons from the Western USA*, Universidad Santo Tomás, Copiapó, Chile, August 2007
- *Conflict and Cooperation in the South Caucasus: The Kura-Araks Basin of Armenia, Azerbaijan, and Georgia*, The Last Drop Conference, The Hague, The Netherlands, December 2006
- *Oregon's Water Resources: 20-20 Hindsight from the Year 2030*, Keynote Presentation, Oregon Water Law Conference, Portland, OR, November 2006
- *The NATO-OSCE South Caucasus River Monitoring Project: An Overview*, NATO Advanced Research Workshop, Almaty, Kazakhstan, June 2006

- Department of Civil and Environmental Engineering, University of Oklahoma, November 2005
- UN Day, University of New Mexico, October 2005
- *Dynamics of Transboundary Aquifer Management: Lessons from North America*, International Symposium on Ecosystem Governance, CSIR, South Africa, October 10-13, 2005
- University of New Mexico Water Forum, September 2005
- *Role of Science – Transboundary Water Governance as a Manifestation of a Dialogue*, Stockholm Water Symposium, Sweden, August 2005
- *Working With Transboundary Water Concerns*, Texas A & M University, February 2005
- *Small-Community Water Supply in Developing Countries*, UNM Civil Engineering Seminar, January 2005
- *Science-Based Decision Making for Sustainable Management of Ground Water*, Joint Workshop of the Mexican and U.S. National Academies of Sciences, Mérida, México, February 2004
- Third World Water Forum, Groundwater Sessions, Kyoto-Osaka, Japan, March 2003
- REU Program, University of Notre Dame, July 2002, 2003, 2004
- *Transboundary Water Issues in the South Caucasus*, Tbilisi, Georgia, November 2002
- University of Calgary, Department of Geology and Geophysics, 2002
- Dubai International Conference on Water Resources and Integrated Management in the Third Millennium, Dubai, United Arab Emirates, 2002
- Department of Civil Engineering Seminar, UNM, 2002

PROFESSIONAL SOCIETY LEADERSHIP

- Immediate Past President, American Water Resources Association, 2012
- President, American Water Resources Association, 2011
- Board of Directors, Hydrogeologists Without Borders, 2011-present
- President-Elect, American Water Resources Association, 2010
- President and Founder, Oregon Section, American Water Resources Association, 2009 - 2010
- Board of Directors, American Water Resources Association, 2008 - 2012
- Past Chair, Scientists and Engineers Division, National Ground Water Assn., 2004-2005.
- Chair, Scientists and Engineers Division, National Ground Water Assn., 2002-2003.
- Board of Directors, National Ground Water Association, 2002-2005 (V-P, 2002-2003)
- Board of Directors, Universities Council on Water Resources (UCOWR), 2000-2002.
- Vice President of Academic Affairs, American Institute of Hydrology (AIH), 2001-2002.
- Secretary-Treasurer, Scientists and Engineers Division, National Ground Water Assn., 2000-2001.
- Board of Directors, Scientists and Engineers Division, National Ground Water Assn., 1997-2005.
- Member, U.S. National Committee, International Assn. of Hydrogeologists, 1991-1995.

CURRENT/RECENT TEACHING, RESEARCH/EXTERNAL, SERVICE

Teaching/Mentoring

Oregon State University

I teach courses in *Introduction to Water Science and Policy*; *Water Resources Management in the US*; and *International Water Issues*. I also participate in our certificate *Program in Water Conflict Management and Transformation*. I am planning to develop a summer field course in water resources in developing countries, which I conducted at the University of New Mexico during 2001-2005. I advise graduate students in geography, geology, and water resources.

University of New Mexico

At UNM from 1989-2006 I designed a graduate curriculum in hydrogeology consisting of graduate and upper-division/graduate courses. I also designed and equipped a hydrogeology laboratory. I supervised 50 special problems/independent studies courses (40 graduate students and 10 undergraduate students), 1 Ph.D.

dissertation, 2 undergraduate Honors theses, 31 Master's projects and 12 M.S. theses. I have been a thesis/dissertation committee member in the Departments of Biology, Civil Engineering, Geography, Anthropology and Community and Regional Planning. I developed a hydrogeology option for UNM's B.S. program which allows undergraduates to specialize in hydrogeology. I also developed, along with several UNM colleagues, a B.S. degree in Environmental Science and taught the introductory and capstone courses in that curriculum. Between 2000-2005 I designed 7 new courses: *Environmental Mechanics*; *Geological Fluid Mechanics*; *Physical Hydrology*; *Subsurface Fate and Transport Processes*; *Freshwater Ecosystems*; *Environmental Systems*; and *Advanced Environmental Science*. I also participated in the Freshwater Sciences Interdisciplinary Doctoral Program (FSIDP), a 5-year, \$2,700,000 project funded by NSF's IGERT Program that seeks to educate freshwater scientists at UNM and the University of Alabama. I co-designed and co-taught one of the four FSIDP core courses, Freshwater Ecosystems. I served on UNM's E&PS departmental Graduate Committee for 8 years and on the Undergraduate Committee for 3 years. In March 1997 I became the Director of UNM's Water Resources Program, a joint multidisciplinary and interdisciplinary professional program in University College that involves 40 faculty from the College of Arts and Sciences; and the Schools of Engineering; Law; Architecture and Planning; Fine Arts; and Management. I implemented a new curriculum for the Program that permits students to pursue a technically-based Master's degree in Water Resources (MWR degree). Enrollments in the MWR degree program tripled to 60 since I became Director. Development of a professional Doctorate in Water Resources curriculum was also accomplished. In Fall 2004, with a \$20,000 grant from UNM, three colleagues – an attorney, artist and sociologist – and I taught a ground-breaking *Culture of Water Course* in which we explored the various “voices” and “facets” of water in the Southwestern USA. We were inundated with requests to offer it again. I also worked with Escuela Agrícola Panamericana in Honduras to develop a 12-month “diplomado” certificate in water resources for Latin American water professionals. During the 2001-2005 summers I conducted UNM's capstone MWR summer field course in Honduras where students helped villagers construct rural water systems and assessed their prospects for sustainability. I was also a co-PI for a site REU (with the University of Notre Dame and the University of Nevada-Reno) for Water Resources in Developing Countries and took undergraduates to Honduras to work on research problems in country. I was awarded a grant from the USDA to recruit and retain students from underrepresented groups into the MWR degree program. I was UNM's lead PI on a project to develop a Master of Science in Environmental Management and Engineering at the Eurasian National University in Astana, Kazakhstan.

Recent and Current Research/External Support

Oregon State University

From the U.S. Department of State I received \$330,000 for a *Study of the U.S. Institute for the Environment (SUSIE)*, which entailed developing a 5-week environmental curriculum for 23 undergraduate students from Central America and the Caribbean. The institute was held in Summer 2009 in Corvallis and environs. I also received a USAID grant (\$260,000; through IRG), *Blue Revolution Initiative; Regional Water Governance Benchmarking in the Middle East North Africa (MENA) Region*. My colleagues and I are working with experts from Turkey, Morocco, Oman, Egypt, and Jordan to identify and explore water governance options in the MENA region. I recently completed the South Caucasus River Monitoring project, a seven-year effort funded by NATO and OSCE. I served as overall Project Director and had responsibility for the project, conducted in Armenia, Azerbaijan, and Georgia along with experts from Norway and Belgium. We monitored water quality and water quantity in a transboundary river system in the South Caucasus, the Kura-Araks. This project was ground-breaking as it had far-reaching hydrological and political ramifications. Although the project was not large (c. \$1,350,000) it was often cited by NATO as an exemplary project. My colleagues and I recently submitted a novel NSF IGERT (Integrative Graduate Education Research Traineeship) proposal, *Waterborne Pathogens: Evolution, Ecology, and Environment*. I developed a visionary concept, the Oregon Water Institute, with the University of Oregon and Portland State University as partners; it was deleted from the Governor's budget in September 2008. I was a key player in the creation of ICIWaRM, the International Center for Integrated Water Resources Management (<http://iciwarm.org>) recently designated by UNESCO as the only Category II Research Centre in North America. The U.S. Army

Corps of Engineers – Institute for Water Resources is the lead agency. I am the co-PI on a contract awarded by USAID and UNESCO-IHE to develop

University of New Mexico

With support from NSF and EPA, colleagues from UNM's Departments of Economics and Geography and I developed a coupled hydrologic-economic-water rights model (Water Availability Model or WAM) that will aid water managers in allocating water during drought. Colleagues in UNM's Department of E & PS and Biology and I, along with our counterparts at the University of Alabama, received an NSF IGERT grant to fund 18 Ph.D. students over five years, who will study in our joint Freshwater Sciences Interdisciplinary Doctoral Program. I collaborated with researchers from the Desert Research Institute and the University of Nevada-Reno to examine the contributions of irrigation return flow on the hydrology, water quality and aquatic ecology of the Truckee River east of Reno, NV. I worked in the mountain watersheds of northwestern Honduras examining water sustainability issues and surface water – groundwater interactions. My colleagues in UNM's Departments of Geography and Economics and I developed a workshop on *Valuation of Water in the Americas*, which was held in Caracas, Venezuela, in November 2000. The results were translated into Spanish and Portuguese. I also participated in two projects related to sustainability issues and policy conflicts in the Rio Grande basin. Colleagues from Escuela Agrícola Panamericana in Honduras and I worked to establish the foundation for a Central American Water Resources Development Center through USAID funding. I was instrumental in getting UNM designated as one of the two North American founding institutions in the 10-member, 5-continent consortium, the Universities Partnership for Transboundary Waters (waterpartners.geo.orst.edu), a unique organization dedicated to research, service, teaching and information dissemination in transboundary water issues. I also served as the Interim Director of the International Rural Water Institute as UNM sought to establish an “umbrella” organization to deal with rural water issues: research, teaching and outreach.

Service

I served on the Executive and Steering Committees of the Benton County Water Project and the Benton-Lane-Linn Counties Upper Willamette Water Resources Study Group and served on the Oregon Exempt Groundwater Policy Consensus Work Group and on the Oregon Business Plan's Water Vision Group. I also served for four years as a member the Watershed Management Advisory Commission for the City of Corvallis. I was the main organizer for the Fall 2008 Oregon Statewide Water Roundtables, a series of five meetings around the state (Bend, Newport, Ontario, Medford, and Salem) to allow citizens to identify critical water issues facing Oregon. I run the *WaterWired* blog (www.waterwired.org) and the *WaterWired* Twitter (twitter.com/waterwired). I serve on the External Research and Technical Advisory Board for the Nevada NSF EPSCoR project and on the External Stakeholder Advisory Panel of Southern Illinois University-Carbondale's IGERT project *Multidisciplinary, Team-Based Training in Watershed Science and Policy*. I also am on the External Advisory Board for the University of Oklahoma's WaTER Center. I recently chaired the External Review Panel for the Division of Hydrologic Sciences at the Desert Research Institute.

I am on the Board of Directors of the American Water Resources Association (AWRA), 2008-present, and am its President (2011). I chaired (2002-2003) the 10,000 member Scientists and Engineers Division and was a Vice President of the parent organization, the 14,500-member National Ground Water Association (NGWA), the largest such groups of their kind in the world. I served on the Board of Directors, Universities Council on Water Resources (UCOWR; 2001-2003) and was the Vice President of Academic Affairs, American Institute of Hydrology (AIH; 2001-2002). I serve on two National Academy of Science-National Research Council committees: *Committee on Sustainable Water and Environmental Management in the California Bay-Delta*, 2009-2011; and *Committee on the National Water Quality Assessment (NAWQA) Program*, 2009-2011. I recently served on the *Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin* (2006-2008). I edited a theme issue of *Ground Water* (43(5), September-October 2005) devoted to Transboundary Ground Water, a first for any journal.

I am a volunteer for Lifewater International (www.lifewater.org) and have founded my own 501(c)(3) charitable foundation, the Ann Campana Judge Foundation (www.acjfoundation.org) that initiates and support projects related to water, health, and sanitation issues in Central America. The ACJF has awarded over \$250,000 to support water and sanitation projects in the Guatemala; Dominican Republic; El Salvador (2), Ecuador, Honduras (6), Bolivia, Haiti, Nicaragua (6), Kenya (3), India, Togo, Mexico, Benin, and Peru (2). I am a leader among the academic community in WaSH (Water, Sanitation and Hygiene) issues in developing countries and represent OSU on the Steering Committee of the Universities WaSH Initiative. I also sit on the Board of Directors of Hydrogeologists Without Borders.

Conferences and Symposia

In December 1997 I co-chaired a conference on *Biological Aspects of Ground Water* as part of NGWA's annual meeting. I organized and chaired a highly-successful conference in December 2000 on *Ground Water: A Transboundary, Strategic and Geopolitical Resource*. Over 75 papers were presented to 500 attendees in what is believed to be the first conference devoted to such issues vis-a-vis groundwater. I was also on the organizing committee for the joint UCOWR-ASCE/EWRI-NGWA-USACE Conference on *Integrated Transboundary Water Management*, Traverse City, MI, July 2002. I also chaired the 2001 AWRA Annual Water Resources Conference. I served on the scientific committee for the *Dubai International Conference on Water Resources and Integrated Management*, February 2002. Several of my professional society colleagues and I developed a new annual ground water conference, the *Annual Ground Water Summit*, which was first held April 17-20, 2005, in San Antonio, TX. At this conference I chaired a session on "Ground Water in Developing Countries: Appropriate Technology, Sustainability, and Self-Sufficiency". I chaired an identical session at the 2006 *Summit* and am on the 2007 *Summit* Planning Committee, at which I convened a session on *The Many Facets of Transboundary Ground Water*. I was on the organizing committee for the *Problems of River Monitoring and Ecological Safety of the South Caucasus* workshop, Tbilisi, Georgia, September 2005. I co-convened the *Predictions in Ungauged Basins (PUB) Workshop* in Corvallis, OR, October 2006. I chaired the American Water Resources Annual Conference in Albuquerque, November 2007. I served on the steering committees for the: *Snake/Columbia Basin Energy and Water Summit* (June 2007) and *Water in the Pacific Northwest: Moving Science into Policy and Action* (November 2007). I also co-chaired the *First International Conference on Nonrenewable Ground Water Resources* (October 2008), a conference on *Aquifer Storage and Recovery in Oregon* (February 2008), and a conference on *Wells and the Well-Being of Oregon* in December 2008. I played a major role at the recent Fifth World Water Forum, co-convening one session; a side event; and speaking at two other sessions. I am involved in the Water Forum for the Americas, a run-up to the Sixth World Water Forum in 2012 and serve on the Scientific Committee, UNESCO-IHP International Conference on Transboundary Aquifers: Challenges and New Directions, Paris, December 2010. I served on the (invited) concluding plenary panel of the *Toward Sustainable Groundwater in Agriculture Conference*. I chaired the following conference: an the AWRA international conference on *Integrated Water Resources Management: The Emperor's New Clothes or Indispensable Process?*(June 2011) a regional conference, *The 2011 Oregon Water Conference: Evaluating and Managing Water Resources in a Climate of Uncertainty* (May 2011). I am also the General Chair and Technical Co-Chair for the AWRA Annual Conference to be held in Portland, OR (Fall 2013).

COURSES TAUGHT (Pima Community College; Georgia State University; University of Nevada-Reno; UC-Santa Cruz; University of New Mexico; University College of Belize; Oregon State University)

Undergraduate

Historical Geology (9 times); Physical Geology (4); Environmental Systems (3); Watershed Management (1); The Solid Earth (2), Introduction to Water Science and Policy (2); Water Resources Management in the U.S. (1)

Graduate/Undergraduate

Groundwater Hydrology/Hydrogeology (18); Subsurface Fate and Transport Processes (4); Environmental Mechanics (3); Hydrologic Fluid Dynamics (2); Physical Hydrology (6); Groundwater Analysis (4); Hydrogeology Laboratory (2); Advanced Environmental Science (3); The Culture of Water (1); International Water Resources Management (1)

Graduate

Well Hydraulics (1); Numerical Modeling in Subsurface Hydrology (1); Advanced Hydrogeology (1); Groundwater Mechanics (3); Geological Fluid Mechanics (3); Subsurface Fluids in Geologic Processes (2); Groundwater Hydraulics (7); Freshwater Ecosystems (1); Water Resources I: Contemporary Issues (9); Water Resources II: Models (9); Water Resources III: Field-Based Problems (9); Water Resources Management in the US (1)

FUNDED RESEARCH AND OTHER PROJECTS *(since 1990; as PI/co-PI unless indicated otherwise)*

Establishing a Collaborative Knowledge Sub-network to Improve Groundwater Resources Management in the Middle East and North Africa. USAID and UNESCO-IHE: \$263,368. 11/1/11-10/31/14.

Study of the U.S. Institute for the Environment. U.S. Department of State; \$330,000. 10/1/08 – 9/30/09.

Blue Revolution Initiative; Regional Water Governance Benchmarking in the Middle East North Africa (MENA) Region. IRG-USAID; \$274,000. 10/1/08 – 10/31/10.

Environmental Flow Requirements for the Middle Fork and Coast Fork - Willamette River Literature Review and Summary Report. The Nature Conservancy; \$60,000. 7/1/06-3/31/07.

Joint Venture Agreement. U.S. Forest Service; \$44,000. 10/1/05 – 9/30/06.

Development of a Master of Science degree in environmental management and engineering at the L.N. Gumilyov Eurasian National University, Astana, Kazakhstan. Eurasia Foundation; \$159,000; 5/1/05 – 4/30/06 (Phase I). Lead PI with three other PIs.

Hydopolitical vulnerability and resilience. Oregon State University; \$6,000; 2/1/05 – 6/30/05.

South Caucasus river monitoring. North Atlantic Treaty Organization (NATO) and Organization for Security and Cooperation in Europe (OSCE); \$1,350,000; 10/1/02 – 12/31/08. PI/Project Manager.

Towards the establishment of a Central American water resources development center. Associated Liaison Office, American Assn. of State Colleges & Universities - U.S. Agency for International Development; \$100,000; 10/1/02 – 9/30/04 (co-PI with M. Minnis)

Student recruitment, retention and experiential learning in water resources. U.S. Department of Agriculture; \$150,000; 10/1/02 – 9/30/05.

Sustainable development in a montane watershed, Honduras. U.S. Department of Commerce-NOAA; \$5,000; 5/15/02-1/31/03.

An REU site in water resources for developing countries. National Science Foundation (co-PI with S. Silliman, U. of Notre Dame, and Scott Tyler, U. of Nevada-Reno); \$190,000; 3/1/02-2/28/05

A quantitative assessment of the economic and institutional impacts of climate change on the Upper Rio Grande Valley using an integrated GIS framework. National Science Foundation (co-PI with L. Scuderi, O.P. Matthews, D. Brookshire and J. Chermak); \$675,000; 6/1/00-5/31/04

Sustainable development in Nueva Vida, Honduras. U.S. Department of Commerce-NOAA; \$5,000; 5/29/01-1/31/02.

Assessment of New Mexico water resources data for the Rio Grande Basin. Natural Heritage Institute; \$4,888; 5/17/01-8/31/01.

An integrated GIS framework for water reallocation and decision-making in the Upper Rio Grande Valley. U.S. Environmental Protection Agency (co-PI with O.P. Matthews, D. Brookshire, L. Scuderi); \$410,000; 6/1/00 - 5/31/04.

Water quality and sustainability in the Sandia Basin, East Mountain Area, central New Mexico. U.S. Department of Commerce-NOAA; \$10,000; 6/23/00-2/16/01.

IGERT: Freshwater graduate studies link fundamental science with applications through integration of ecology, hydrology and geochemistry in regions with contrasting climates. National Science Foundation (PIs: C. Dahm, A. Ward, R. Wetzel, W. Lyons, A. Benke, et al.); \$2,700,000; 6/1/00-5/31/05.

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Campana, Michael E., Geoff Klise, and Alyssa M. Neir, 2007. North American transnational ground water: NAFTA, IJC, and IBWC. NGWA 2007 Ground Water Summit, *Program and Abstract Book*, pp. 102-103.

Campana, Michael E., 2006. Teaching drilling, well completion, and pump installation to the Epera Indians of Panama. NGWA Ground Water Expo, *Abstract Book*, p. 21.

Campana, Michael E., Alyssa M. Neir, and Geoffrey T. Klise, 2006. Politics, economics, stakeholder benefits and transboundary ground water: lessons from North America. *Abstracts Volume*, World Water Week in Stockholm, August 20-26, 2006, pp. 39-40.

Faulkner, B.R. and M.E. Campana, 2006. Software for compartmental analysis of nitrate retention in streams. *Abstracts*, North American Benthological Society Annual Meeting, Anchorage, AK, June 2006.

Campana, Michael E., Alyssa M. Neir and Geoffrey T. Klise, 2005. North American ground water: hydrovulnerability and resiliency. *Interest Group Sessions Program and Abstract Book*, 2005 National Ground Water Association Ground Water Expo, National Ground Water Assn., Westerville, OH, pp. 133-134.

Campana, M.E., 2004. International aspects of water management. *Abstracts*, Identifying Technologies to Improve Regional Water Stewardship – North-Middle Rio Grande Corridor, Albuquerque, NM. Office of Science, Policy and Technology, University of New Mexico.

Campana, M.E., O.P. Matthews, L. Scuderi, D. Brookshire, S. Snell, K. Krause, J. Chermak, and B. Cullen, 2002. Reallocation of water and the hydrological effects of climate change in the Upper Rio Grande basin, southwestern USA. *Abstracts*, Dubai International Conference on Water Resources and Integrated Management in the Third Millennium, Dubai, United Arab Emirates, pp. 27-28.

Ghebremicael, S. and M.E. Campana, 2001. Sources and controls on arsenic in the groundwater of Fernley, Nevada. *AWRA Annual Water Resources Conference Proceedings* (Abstracts), American Water Resources Association, Middleburg, VA, TPS-01-3, 236p.

Ghebremicael, S. and M.E. Campana, 2001. Geochemistry of arsenic in the ground water of Fernley, Nevada. Geological Society of America (GSA) Annual Meeting and Exposition *Abstracts* 33(6):A-54.

Campana, M.E., 2000. Ground-water development potential in the karst region of Belize. *Karst 2000, Abstracts*.

Boling, D.M., C.N. Dahm, M.E. Campana, P.V. Unnikrishna, and H.M. Valett, 1998. Nitrate-N utilization by macrophyte communities below a perennial spring-fed stream reach. *Eos*.

Unnikrishna, P.V., M.E. Campana, H.M. Valett, and C.N. Dahm, 1998. Interannual comparisons of stream-groundwater exchange processes in response to spring snowmelt. *Eos*, 79(17):S109.

Campana, M.E., K.E. Smith, J.A. Morrice, H.M. Valett, C.N. Dahm, P.V. Unnikrishna, and M.A. Baker, 1998. Hyporheic zone residence times in first-order streams. *Annales Geophysicae*, v. 16, Supplement II, p. C485.

Unnikrishna, P.V., J.A. Morrice, M.E. Campana, H.M. Valett and C.N. Dahm, 1997. Seasonal vertical exchange processes and lateral hyporheic zone solute transport in a semi-arid montane stream. *Eos*, 78(17):S160.

Morrice, J.A., H.M. Valett, C.N. Dahm, P.V. Unnikrishna and M.E. Campana, 1997. Permeability of the surface water - groundwater ecotone of a headwater stream. *Bulletin*, North American Benthological Society 14(1):111.

Morrice, J.A., H.M. Valett, C.N. Dahm, P.V. Unnikrishna and M.E. Campana, 1997. Retention of terminal electron acceptors in the surface water - groundwater ecotone of a headwater stream. North American Benthological Society Annual Meeting 14(1).

Morrice, J.A., H.M. Valett, C.N. Dahm, P.V. Unnikrishna and M.E. Campana, 1997. Permeability of the surface water - groundwater ecotone of a headwater stream. American Society of Limnology and Oceanography Annual Meeting, Santa Fe, NM.

Campana, M.E., G.J. Wroblicky, H.M. Valett, J.A. Morrice, C.N. Dahm and M.A. Baker, 1996. Stream-groundwater exchange in first-order catchments. *Conference Programme and Book of Abstracts*, INTECOL V Wetlands Conference, Perth, Australia, pp. 42-43.

Valett, H.M., C.N. Dahm, M.E. Campana, P.V. Unnikrishna, M.A. Baker and J.A. Morrice, 1996. Biogeochemical responses to snowmelt in a stream/groundwater ecotone. *Bulletin*, North American Benthological Society 13(1):124.

Unnikrishna, P.V., M.E. Campana, H.M. Valett, C.N. Dahm, K.E. Baker, J.A. Morrice and M.A. Baker, 1996. Hydrologic controls on stream-groundwater ecotone response to spring snowmelt. *Bulletin*, North American Benthological Society 13(1):235.

Morrice, J.A., H.M. Valett, C.N. Dahm, and M.E. Campana, 1995. Hydrologic influences on nitrate retention in headwater streams. *Bulletin*, North American Benthological Society 12(1):132.

Santistevan, M.A., H.M. Valett, C.N. Dahm and M.E. Campana, 1995. Diel fluctuations of groundwater elevations in two first-order montane catchments. *Bulletin*, North American Benthological Society 12(1):202.

Campana, M.E., W.R. Sadler, N.L. Ingraham and R.L. Jacobson, 1995. Ground water resource evaluation using a numerical mixing-cell model and the spatial distribution of deuterium. *Abstracts*, 18th Pacific Science Congress, Beijing, China, p. 124.

Campana, M.E. and J.G. Roth, 1995. Delineation of a carbonate-alluvial ground water flow system using a mixing-cell model and the spatial distribution of deuterium. *Abstracts*, International Symposium on Karst Waters and Environmental Impacts, Antalya, Turkey, p. 51.

Bird, Jerry K. and M.E. Campana, 1995. Recharge estimation of ground-water flow and recharge in the Albuquerque, New Mexico area using deuterium and a numerical mixing-cell model. Geological Society of America (GSA) *Abstracts with Programs*, 27(6):A-98.

Santistevan, M.A., H.M. Valett, C.N. Dahm and M.E. Campana, 1995. Temporal hydrogeologic variability in montane catchments: diel fluctuations of groundwater elevations. *Abstracts*, 80th Annual Ecological Society of America Meeting, Snowbird, UT.

Groffman, A., L. J. Crossey, M.E. Campana, J. Sterling and H. M. Valett, 1995. Biogeochemistry of a first-order montane stream/alluvial aquifer system: Rio Calaveras, northern New Mexico. *GSA Abstracts with Programs*, 27(6):A-95.

Dahm, C.N., H.M. Valett, J. Morrice, M. Baker and M.E. Campana, G. Wroblicky, 1994. Ground water/surface water interactions in stream ecosystems. *Eos*, 75(3):37.

Campana, M.E., G.J. Wroblicky, J.A. Morrice, C.N. Dahm and H.M. Valett, 1994. Hyporheic zone mixing and residence time distributions. *GSA Abstracts with Programs*, 26(7):A-286.

Baker, M.A., H.M. Valett, C.N. Dahm, J.A. Morrice and M.E. Campana, 1994. Carbon dioxide and methane dynamics at the ground water/surface water interface. *Eos*, 75(44):260.

Valett, H.M., C.N. Dahm, J.A. Morrice, M.A. Baker and M.E. Campana, 1994. Hydrologic exchange between streams and alluvial aquifers: implications for the functioning of surface/groundwater ecotones. *Eos*, 75(44):258.

Campana, M.E., G.J. Wroblicky, H.M. Valett, C.N. Dahm, J.A. Morrice and M.A. Baker, 1994. Fluid mean residence times in the hyporheic zone. *Abstracts*, Second International Conference on Ground Water Ecology, Atlanta, GA.

Morrice, J.A., H.M. Valett, C.N. Dahm and M.E. Campana, 1994. Alluvial characteristics, groundwater-surface water exchange and hydrologic retention in first-order montane streams. *Eos*, 75(44):259.

Crossey, L.J., M.E. Campana, T.G. Gates and Peter McCarville, 1993. Post-impact fluid flow and alteration: Manson impact structure, Manson, IA. *GSA Abstracts with Programs* 25(6): A-23.

Wroblicky, G.J., M.E. Campana, H.M. Valett, J.A. Morrice and C.N. Dahm, 1993. Modeling hyporheic zone hydrodynamics of two first-order mountain stream-aquifer systems using MODFLOW. *Bulletin*, North American Benthological Society 10(1):162.

Dahm, C.N., H.M. Valett, J.A. Morrice, G.J. Wroblicky and M.E. Campana, 1993. Nutrient dynamics and hydrology of hyporheic zones of montane catchments. *Bulletin*, North American Benthological Society 10(1):105.

Dam, W.L., M.E. Campana and R.J. Glass, 1993. Local saturated zones above regional water tables in tuffaceous rocks: an overview. *Eos*, 74(43):314.

Campana, M.E., G.J. Wroblicky, C.N. Dahm, H.M. Valett, J.A. Morrice and M.A. Baker, 1992. Hyporheic zone hydrodynamics in first-order montane catchments. *Abstracts*, First International Conference on Ground Water Ecology, Tampa, FL.

Amin, I.E. and M.E. Campana, 1992. A general mathematical model for tracer data analysis. *Abstracts*, Fifth Annual Conference, NM Section, American Water Reso. Assn., Socorro, NM.

Dahm, C.N., H.M. Valett, J.A. Morrice and M.E. Campana, 1992. Biological influences on the hyporheic zones of alluvial channels. *Eos*, 73(43):231.

Groffman, A.R., M.E. Campana and E. Nuttall, 1992. The role of colloids in the transport of contaminants in groundwater adjacent to uranium mill tailings. *Eos*, 73(43):163.

Dahm, C.N., M.E. Campana and H.M. Valett, 1992. Landscape controls on groundwater/stream water interactions and nutrient fluxes in streams and rivers. Seventh Annual U.S. Landscape Ecology Symposium, Corvallis, OR.

Dahm, C.N., M.E. Campana, H.M. Valett, J.A. Morrice and G.J. Wroblicky, 1992. Biogeochemistry and hydrology of stream hyporheic zones. American Society of Limnology and Oceanography winter meeting, Santa Fe, NM.

Amin, I.E. and M.E. Campana 1992. A general mathematical model for tracer data analysis. *Abstracts*, Sixth Symposium on Water Tracing, Karlsruhe, Germany.

Campana, M.E. and I. Amin, 1992. A general mathematical model for tracer data interpretation and transit time calculation in hydrologic systems. Fifth Annual Conference, NM Section, American Water Reso. Assn., Socorro, NM.

Wroblicky, G.J., J.V. Hurley and M.E. Campana, 1992. Remote monitoring of stream hyporheic zones with inexpensive pressure transducer-data acquisition systems. Fifth Annual Conference, NM Section, American Water Reso. Assn., Socorro, NM.

Campana, M.E. and C.N. Dahm, 1991. An approach to modeling and validating hyporheic flow dynamics in montane catchments with variable parent lithologies. *Bulletin*, North American Benthological Society 8(1): 107.

Byer, R.M., Jr. and M.E. Campana, 1991. Regional groundwater flow and recharge, Yucca Mountain and vicinity, Nevada-California. *GSA Abstracts with Programs* 23(5): A215.

Campana, M.E. and C.N. Dahm, 1991. The hyporheic zone and catchment hydrology. *Eos*, 72(44):199.

Campana, M.E. and C.N. Dahm, 1991. Hyporheic zone hydrodynamics in montane catchments. Gordon Research Conference on Hydrological/Geochemical/Biological Processes in Forested Catchments, Plymouth, NH.

Campana, M.E., 1991. Water in the West: quantity and quality. National Science Teachers Association Western Area Convention, Reno, NV.

PROFESSIONAL ACTIVITIES (since 1992)

- National Academy of Sciences-National Research Council *Panel to Review the Draft Bay-Delta Conservation Plan*, 2010-2011
- General Chair and Technical Co-Chair, AWRA Annual Conference, Portland, OR, November 2013
- External Advisory Board, Water Technologies for Emerging Resgions (WaTER) Center, University of Oklahoma, 2011.
- General and Technical Chair, AWRA Summer Specialty Conference, *Integrated Water Resources Management: The Emperor's New Clothes or Indispensable Process?*, Snowbird, UT, June 2011
- General Chair, *The Oregon Water Conference 2011: Managing and Evaluating Water Resources in a Climate of Uncertainty*, Corvallis, OR, May 2011.
- National Academy of Sciences-National Research Council *Committee on Sustainable Water and Environmental Management in the California Bay-Delta*, 2009-2012
- Guest Editor, Special Issue on *Hydrophilanthropy*, *Water Resources IMPACT*, September 2010
- Organizing Committee, International Center for Integrated Water Resources Management, (ICIWaRM; <http://iciwarm.org>), 2010-
- Project Subcommittee, *Water for People Fellowship in Innovation and Sustainability: Integrated Water Resources Management*, 2010
- Steering Committee, Universities WaSH Initiative, 2009-
- External Reviewer, Division of Hydrologic Sciences, Desert Research Institute, Reno-Las Vegas, 2009
- External Advisory Board, Multidisciplinary, Team-Based Training in Watershed Science and Policy IGERT Program, Southern Illinois University-Carbondale, 2009-2013
- Participant/Presenter, US NAS – Ukraine NAS Workshop, *Water Sector Adaptation for Climate Change*, Washington, DC, 2-3 December 2009
- Scientific Committee, *International Conference on Transboundary Aquifers: Challenges and New Directions*, UNESCO-IHP, December 2010
- Moderator, Session on *Groundwater Issues by Country*, Groundwater for the Americas, Panama City, Panama, June 2009
- Moderator, Plenary Session on *Evolving Context of the Role of Ground Water in a Changing Climate*, Fifth Annual Ground Water Summit, Tucson, AZ, April 2009
- National Academy of Sciences-National Research Council *Committee on National Water Quality, Assessment (NAWQA) Program*, 2009-2011
- Co-Coordinator, Topic 3.4 *Managing and Protecting Surface, Ground, Soil and Rain Water*, Fifth World Water Forum, Istanbul, Turkey, March 2009

- Co-Convener, Session 3.4.1 *A Hidden Resource: Sustainably Managing Groundwater for the Future*, Fifth World Water Forum, Istanbul, Turkey, March 2009
- Co-Convener and proposer, Side Event, *Changing Climes, Changing Times :Groundwater in an Uncertain World* (listed as: *Groundwater Resources in a Climate-Changing World*), Fifth World Water Forum, Istanbul, Turkey, March 2009
- Co-Convener, *Wells and The Well-Being of Oregon Symposium*, Salem, OR, December 2008
- Co-Chair, Program Committee, *First Intl. Conference on Nonrenewable Ground Water*, Portland, OR, October 2008
- Juror, First International WaTER Prize, Water & Technology for Emerging Regions (WaTER) Center, U of OK, 2008
- Member, CD25 Group – evaluating predictions made by Marc Reisner in *Cadillac Desert* for 25th anniversary of publication in 2011
- Co-Chair, Program Committee, *Aquifer Storage and Recovery and Artificial Recharge in Oregon*, Corvallis, OR, February 2008
- External Research and Technical Advisory Board, Nevada NSF EPSCoR Project, 2008-present
- Evaluation Team, Canadian Water Resources Network, September 2007
- Chair, American Water Resources Association Annual Conference, Albuquerque, November 2007.
- Organizing Committee, *Collaborative Governance in the West: Prospects, Problems, and Theory*, Corvallis, OR, October 2007
- Coordinating Committee, Great Basin Research and Management Partnership, 2007-2009.
- Program Committee, *Snake-Columbia Basin Energy and Water Summit*, June 2007.
- Program Committee, *Water in the Pacific Northwest: Moving Science into Policy and Action* Conference, Nov. 2007.
- Co-convener, *Predictions in Ungauged Basins Workshop*, Corvallis, OR, October 2006.
- National Academy of Sciences-National Research Council *Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin*, 2006-2007
- *Sustainable, Oceans, Coast, and Waterways Advisory Committee*, H. John Heinz III Center for Science, Economics and the Environment, 2004-present
- Chair/Founder, Transboundary Ground Water Interest Group, National Ground Water Assoc., 2004-2008
- Chair/Founder, Developing Countries Interest Group, National Ground Water Association, 2004-2007
- Guest Editor, Transboundary Ground Water, *Ground Water* 43(5), September-October 2005.
- National Academy of Sciences-National Research Council *Committee on USGS Water Resources Research*, 1998-2001.
- National Academy of Sciences-National Research Council *Committee on Opportunities to Improve the National Water Quality Assessment (NAWQA) Program*, 1999-2001.
- Scientific Committee, Dubai International Conference on Water Resources & Integrated Management, February 2002.
- Chair, American Water Resources Assn. Annual Water Resources Conference, Albuquerque, NM, November 2001.
- Organizing Committee, Joint UCOWR-NGWA-EWRI/ASCE-USACE Meeting on Integrated Transboundary Water Management, Traverse City, MI, July 2002.
- Book Editor, *Ground Water*, 1999 – 2002.
- Associate Editor, *Ground Water*, 1999 – 2002.
- Associate Editor, *Environmental and Engineering Geoscience*, 1995-2002
- Fulbright Program Review Committee, Canada-Mexico-Central America–Caribbean, 1999-2001 (Chair, 2001).

- Technical Program Chair, Geological Society of America Rocky Mountain – South-Central Sections Joint Meeting, Albuquerque, NM, April 2001.
- Chair, AGWSE Annual Meeting, *Ground Water: A Transboundary, Strategic and Geopolitical Resource*, Las Vegas, NV, December 2000.
- Co-Chair, AGWSE Annual Meeting, Nashville, TN, December 1999.
- Guest Co-Editor, E.S. Simpson Memorial Issue, *Hydrogeology Journal*, 6(1), 1998.
- External Reviewer, Water Resources Management Program, UNLV, 1998.
- Member, National Water Initiative Steering Committee, 1997 – 2000.
- Board of Advisors, Utton Transboundary Resources Center, UNM School of Law, 2000 – present.
- Reviewer, *Hydrogeology in Practice* textbook, Prentice Hall, 1998.
- UNM Delegate, Commission on Food, Energy and Renewable Resources, National Association of State Universities and Land-Grant Colleges, 1998 - present.
- Lead UNM Delegate, Universities Council on Water Resources, 1997-2006.
- Co-Chair, First and Second Assemblies for Water Planning in the Middle Rio Grande Valle, 1997.
- Member, Publishing Oversight Committee, National Ground Water Assn., (publishes *Ground Water*, *Ground Water Monitoring and Remediation*, and *Water Well Journal*), 1997-present.
- Member, Program Development and Review Board, New Mexico Water Resources Research Institute, 1997-present.
- Co-Chair, AGWSE Annual Meeting, Las Vegas, NV, September 1997.
- Instructor, five-day short course on General Geology and Hydrology of the Eastern Jemez Mountains and Vicinity, Waste-management Education and Research Consortium (WERC) Program, June 1997.
- Reviewer, *A Mathematical Primer on Groundwater Flow* textbook, Prentice Hall, 1997.
- Reviewer, *Physical Hydrologic Science* textbook proposal, McGraw-Hill, Co., 1996.
- Consultant, Westinghouse Electric Corporation/IT Corporation - Waste Isolation Pilot Plant Project, Carlsbad, NM, 1994.
- Instructor, Groundwater Hydrology and Geochemistry short course, UNM School of Engineering, November 1993.
- Member, Ground Water Ecology Strategic Workgroup, U.S. Environmental Protection Agency, 1992-1994.
- Member, Technical Committee, Second International Conference on Ground Water Ecology, Atlanta, GA, March 1994.
- Chair, Rocky Mountain Ground Water Conference, Albuquerque, NM, October 1993.
- Consultant, Cibola National Forest, 1993. Provided expertise on riparian habitat restoration in the Zuni Mountains, NM.
- Reviewer: *Ground Water*, *Hydrogeology Journal*, *Water Resources Research*, *Journal of Hydrology*, *Hydrological Processes*, *Journal of Hydraulic Engineering*, *Journal of the American Water Resources Association*, and *Limnology and Oceanography*.
- Proposal/program reviewer: National Science Foundation; Challenge Program for Water and Food (IWMI); Republic of Georgia National Science Foundation; Civilian Research and Development Foundation; Canadian Water Network; Swiss National Science Foundation

PROFESSIONAL CONFERENCE PRESENTATIONS (since 1992)

- The Oregon Water Conference 2011, Corvallis, OR, May 2011
- OU WaTER Conference, Norman, OK, October 2011
- American Water Resources Summer Specialty Conference, Snowbird, UT, June 2011
- American Water Resources Spring Specialty Conference, Baltimore, MD, April 2011
- American Water Resources Association Annual Conference, Philadelphia, PA, November 2010
- American Water Resources Assn. Specialty Conference, San Juan, PR, August 2010

- Toward Sustainable Groundwater in Agriculture, San Francisco, June 2010
- Sixth Annual Ground Water Summit, Denver, CO, April 2010
- American Water Resources Association Annual Conference, Seattle, WA, November 2009
- WaTER Conference, Norman, OK, October 2009
- Groundwater for the Americas, Panama City, Panama, June 2009
- Fifth Annual Ground Water Summit, Tucson, AZ, April 2009
- Fifth World Water Forum, Istanbul, Turkey, March 2009
- American Water Resources Association Annual Conference, November 2008
- Universities Council on Water Resources, Durham, NC, July 2008
- American Water Resources Association Annual Conference, November 2007
- Geological Society of America Annual Meeting, Denver, CO, October 2007
- Third Annual Ground Water Summit, Albuquerque, NM, April-May 2007
- The Last Drop Conference, The Hague, The Netherlands, December 2006
- Ground Water EXPO, Las Vegas, NV, December 2006
- World Water Week in Stockholm, August 2006
- Ground Water EXPO, Atlanta, Georgia, December 2005
- International Symposium on Ecosystem Governance, South Africa, October 2005
- Stockholm Water Symposium, August 2005
- First Annual Ground Water Summit, San Antonio, TX, 2005
- Identifying Technologies to Improve Regional Water Stewardship, Albuquerque, NM, 2004
- Third World Water Forum, Kyoto, Japan, March 2003
- UCOWR-ASCE/EWRI Integrated Transboundary Water Management, Traverse City, MI, 2002
- Karst 2000, Marmaris, Turkey, 2000.
- Association of Ground-Water Scientists and Engineers (2), Nashville, TN, 1999
- Third Inter-American Dialogue on Water Management, Panama City, Panama, 1999
- European Geophysical Society XXIII General Assembly, Nice, France, 1998
- Seventh International Symposium on Water Tracing, Portoroz, Slovenia, 1997
- INTECOL V Wetlands Conference, Perth, Australia, 1996 (invited)
- International Symposium on Karst Water Resources, Antalya, Turkey, 1995
- Pacific Science Congress, Beijing, China, 1995
- Geological Society of America Annual Meeting, Seattle, WA, 1994
- Second International Conference on Ground Water Ecology, Atlanta, GA, 1994
- American Geophysical Union Fall Meeting, San Francisco, CA, 1993
- Sixth International Symposium on Water Tracing, Karlsruhe, Germany, 1992
- First International Conference on Ground Water Ecology, Tampa, FL, 1992
- New Mexico Section, American Water Reso. Assn. Annual Mtg., Socorro, NM, 1992

SERVICE

- Benton-Lane-Linn Counties Upper Willamette Water Resources Study Group, 2009-2011
- Water Initiative Working Group, Oregon Business Plan 2008-2009
- Exempt Groundwater Well Policy Consensus Work Group, 2008
- Executive and Steering Committees, Benton County Water Project, 2008-2010
- External Advisory Board, Water Resources Graduate Program, OSU, 2007-2010
- Watershed Management Advisory Commission, City of Corvallis, 2007-2011
- Board of Advisors, Utton Transboundary Resources Center, UNM School of Law, 2002-present
- Founder, President, and Treasurer, The Ann Campana Judge Foundation, 2002-present.
- Member, Water Resources Advisory Committee, Albuquerque-Bernalillo County Water Utility Authority, 2004-2005.

- Alternate, Water Acquisition and Management Subcommittee, Middle Rio Grande Collaborative Program, New Mexico Office of the State Engineer, 2004 – 2006.
- Member, Ad Hoc Committee to Develop Water Well Driller Certification Program, NM State Engineer, 2004-2005
- Volunteer, Lifewater International, 1998-present.

PROFESSIONAL CERTIFICATION

Certified Professional Geologist, State of Indiana (#430)

Professional Hydrogeologist, American Institute of Hydrology (#175)

PROFESSIONAL ORGANIZATIONS

- American Institute of Hydrology
- American Water Resources Association
- Geological Society of America
- National Ground Water Assn. - Scientists and Engineers Division
- International Association of Hydrogeologists
- International Association of Hydrological Sciences

STUDENT ADVISEMENT/THESIS SUPERVISION

I have served on over 200 Master's and Ph.D. committees in water resources administration, biology, hydrology/hydrogeology, geology, geological engineering, soil science, civil engineering, water resources, and range, wildlife, and forestry. I supervised 2 B.S. theses, 35 Master's theses, 32 Master's projects, and 2 Ph.D. dissertations.

STUDENT RESEARCH SUPERVISION

(UNM = University of New Mexico; UNR = University of Nevada-Reno; OSU = Oregon State University)

Ph.D. Dissertations (2)

Isam E. Amin, 1987

A general mathematical model for the interpretation of tracer data and calculation of transit times in hydrologic systems (UNR)

Barton Faulkner, 2007

Compartmental modeling approach for evaluating nutrient retention and attenuation in streams (UNM)

Master's Professional Projects (32)

Abigail L. Brown, 2010

Empowerment and gender equality for water and sanitation in rural India: two case studies (OSU – MS, Water Resources Policy and Management)

Berrin Basak Vener, 2006

The Kura-Araks basin: common objectives and obstacles for an integrated water resources management model among Armenia, Azerbaijan, and Georgia (UNM - Master of Water Resources)

Matthew Lane, 2006

Corrective action plan for the New Mexico landfill (UNM- Master of Water Resources)

Tara Putney, 2006

The sustainable restoration and development of Parque Landeta and the Presa de Las Colonias wetland through effective community participation, San Miguel de Allende, Guanajuato, Mexico (UNM – Master of Water Resources)

Barbara Heemink, 2005

An assessment of domestic water consumption discrepancies between commercial farms and majengos along South Moi Lake Road, Lake Naivasha, Kenya (UNM – Master of Water Resources)

Pallab Mozumder, 2005

Exploring flood mitigation strategies in Bangladesh (UNM – Master of Water Resources)

Heidi R. Henderson, 2005

Nutrient criteria recommendations for eutrophication management of New Mexico reservoirs (UNM - Master of Water Resources)

Darrell Kundargi, 2005

Effects of bovine exclosure fencing on water quality and vegetative conditions, Bluewater Creek, New Mexico (UNM - Master of Water Resources)

Jules Campbell Parrish, 2005

Dynamic simulation modeling of groundwater basins in the Upper Rio Grande Basin, Colorado-New Mexico (UNM - Master of Water Resources)

Melanie L. Luna, 2005

Potential for ground-water contamination from deep well injection of produced waters in the Salt Basin, NM (UNM - Master of Water Resources)

Amy Louise, 2004

Sustainable water supply for the village of Kpandu Dafor, Volta region, Ghana (UNM - Master of Water Resources)

Hani Iwhish, 2004

Fresh water supply enhancement through rooftop rainwater harvesting for West Bank rural communities (UNM – Master of Water Resources)

Nicole L. Marcell, 2004

Exposure evaluation of an aviation gasoline release at a municipal airport in central Wisconsin. (UNM – Master of Water Resources)

Meaghan O'Rourke, 2004

Appropriate erosion control techniques for the rural hillsides of Honduras. (UNM – Master of Water Resources)

Amy Ewing, 2003

Water quality and public health monitoring of surface waters in the Kura-Araks river basin of Armenia, Azerbaijan and Georgia. (UNM – Master of Water Resources)

Lynne M. Paretchan, 2003

Water resource management strategies: Deschutes basin, Oregon. (UNM – Master of Water Resources)

Jessica Bentley, 2003

Constructed surface flow wetlands for oil refinery wastewater treatment in New Mexico
(UNM – Master of Water Resources)

Michael Gabora, 2003

A $\delta^{18}\text{O}$ calibrated compartmental mixing cell model of groundwater flow in the Roswell Basin, southeastern New Mexico (UNM – Master of Water Resources)

Eric T. Riebsomer, 2003

Chemistry variation during purging of alluvial wells at Los Alamos National Laboratory
(UNM – Master of Water Resources)

Kathy Grassel, 2002

Taking out the jacks: issues of jetty jack removal in bosque and river restoration planning
(UNM – Master of Water Resources)

Sherry Evans-Carmichael, 2001

Rancho West Estates water distribution system replacement funding project
(UNM - Master of Water Resources)

Tobin K. Walters, 2000

PCB Remediation alternatives on the St. Lawrence River near Massena, New York: quantitative impacts on the industry, the Mohawk Indian Nation, and the U.S. Environmental Protection Agency (UNM – Master of Water Resources)

Casey W. Cook, 2000

A mixing cell groundwater model of the Fernley, Nevada area. (UNM – Master of Water Resources)

William S. McDonald, 2000

Urbanization of Seven Springs, New Mexico: an evaluation of current and projected impacts on ground- and surface-water resources (UNM - Master of Water Resources Administration)

Linda I. Gordan, 2000

Water supply sustainability through water banking (UNM - Master of Water Resources)

Christopher T. McLean, 2000

Estimates of radionuclide loading to Cochiti Lake from Los Alamos Canyon using manual and automated sampling (UNM - Master of Water Resources)

Jeffrey L. Peterson, 1999

Coordinated water resource planning for the Sandia Basin: a perspective on regional planning needs (UNM - Master of Water Resources Administration)

Elaine S. Brouillard, 1999

Erosion potential of the main branch of the Piedras Marcadas watershed, Petroglyph National Monument, New Mexico (UNM - Master of Water Resources Administration)

Marquis B. Childs, 1999

Soil radionuclide concentrations and preliminary stormwater model assessment at Material Disposal Area G, Los Alamos National Laboratory (UNM - Master of Water Resources Administration)

Tom Krause, 1998

Who speaks for the Rio Jemez? A management plan for the lower Jemez River basin. (UNM - Master of Water Resources Administration)

April M. Fitzner, 1998

Physical and legal aspects of river rehabilitation, Middle Rio Grande, New Mexico (UNM - Master of Water Resources Administration)

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