Michael E. Campana

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EDUCATION

B.S., 1970, College of William and Mary, Williamsburg, Virginia
Major: Geology Thesis: Jointing and foliation in the Petersburg Granite near Richmond, VA
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

Hydrogeologic flow system delineation
Water resources development, planning and management, especially in developing nations
Surface water – ground water – ecosystem interactions
Transboundary water resources; Interface between scientific and non-scientific water issues
Education in water resources, hydrogeology, hydrology and related earth/environmental sciences
Arid zone and tropical hydrology
Environmental fluid mechanics
Hydrophilanthropy

EXPERIENCE

2006-present. Director, Institute for Water and Watersheds, and Professor of Geosciences, Oregon State University. Provide leadership for campus-wide organization designed to initiate and foster interdisciplinary and multidisciplinary research, teaching, and outreach in water resources. Serve as OSU's "point person" vis-à-vis water resources. Assemble interdisciplinary and multidisciplinary teams for various research, teaching and outreach projects; obtain funding for same. Advise M.S. and Ph.D. students in the Water Resources Program; teach occasional courses.

2006-present. Professor Emeritus of Earth and Planetary Sciences and Water Resources, University of New Mexico, Albuquerque, NM 87131.

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 Hydroscience 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 since August 1997).

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. Albert and Mary Jane Black Professor of Hydrogeology, Department of Earth and Planetary Sciences, (Associate Professor from 1989-97; Professor from 1997-2002), **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 since August 1997).

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 developing countries 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).

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.

CURRENT/RECENT TEACHING AND RESEARCH

Teaching/Mentoring

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. In the past five years I have 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 groundbreaking *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.

Research

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 (Integrative Graduate Education Research Traineeship) 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 am currently working in the mountain watersheds of northwestern Honduras examining water sustainability issues and surface water – ground water 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 have also participated in two projects related to sustainability issues and policy conflicts in the Rio Grande basin. In 2002 colleagues from Belgium, Norway, Armenia, Azerbaijan, and Georgia and I obtained funding from NATO and OSCE to monitor and model water quality and water quantity in a transboundary river system in the South Caucasus, the Kura-Araks. This project is ground-breaking as it has far-reaching hydrological and political ramifications. Colleagues from Escuela Agrícola Panamericana in Honduras and I worked to establish the foundation for a Central American Water Resources Development Center though 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. At OSU I am developing a Joint Northwest Water Institute with partners Pacific Northwest National Laboratory and Idaho National Laboratory.

Service

I chaired (2002-2003) the 10,000 member Association of Ground-Water Scientists and Engineers (AGWSE) and was a Vice President of the parent organization, the 14,500-member National Ground Water Association (NGWA). 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 recently served on two National Academy of Science-National Research Council Committees: *USGS Water Resources Research* (1999-2002); and *Opportunities to Improve the National Water Quality Assessment (NAWQA) Program* (1999-2001). I played major roles in the three reports produced by these committees during my terms. I now serve on the NAS-NRC *Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin*. I volunteered to serve on Sandia National Laboratories' *Mixed Waste Landfill Peer Review Panel* (2001). I served as Book Editor and an Associate Editor for *Ground Water* and an Associate Editor for *Environmental and Engineering Geoscience.* 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 both Lifewater International (www.lifewater.org) and Living Water International (www.living-water.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 developing countries. The ACJF has awarded $84,000 to support water and sanitation projects in the Dominican Republic; El Salvador, Ecuador, Honduras (2), Bolivia, Haiti, Nicaragua (3), Kenya (2), India, Togo, Mexico, Benin, and Peru (2).

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 ground water. 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 will convene 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 was a co-convener of the *Predictions in Ungauged Basins (PUB) Workshop* in Corvallis, OR, October 2006. I will chair the American Water Resources Annual Conference in Albuquerque, November 2007. I am currently on the steering committees for the following conferences: *Snake/Columbia Basin Energy and Water Summit* (Summer 2007); *Water in the Pacific Northwest: Moving Science into Policy and Action* (November 2007).

COURSES TAUGHT

Undergraduate

Historical Geology (9 times); Physical Geology (3); Environmental Systems (3);
Watershed Management (1)

Graduate/Undergraduate

Groundwater Hydrology/Hydrogeology (17); 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)

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)

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

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.

Hydropolitical 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 – 9/30/07. 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.

Sustainable water resources development: valuation of water in the Americas. U.S. Department of Commerce-NOAA (co-PI with O.P. Matthews and D. Brookshire); $26,500; 4/24/00-1/31/02.

Preliminary assessment of the transient distribution of deuterium and oxygen-18 in the ground water of the Roswell Basin, southeastern New Mexico. UNM Research Allocations Committee; $7,500; 4/1/00-9/30/00.

Environmental isotopic dynamics in the Roswell Ground-Water Basin, New Mexico, USA. International Atomic Energy Agency (research conducted in concert with IAEA Coordinated Research Programme Isotope response to the dynamic changes in groundwater systems due to long-term exploitation), funding provided for travel only (6/1/99-5/31/02).

Policy conflicts and sustainable water resources development in New Mexico's Rio Grande Basin. U.S. Department of Commerce-NOAA (co-PI with O.P. Matthews); $15,000; 6/1/99-2/15/00.

A multi-level approach to modeling ground- and surface-water exchange in agriculturally-dominated settings. U.S. Geological Survey and Desert Research Institute (co-PI with A. McKay, Desert Research Institute and J. Warwick, University of Nevada-Reno); $742,000 (UNM share: $85,000); 9/1/98-8/31/01.

Sustainable water resources development in New Mexico and the Rio Grande Basin. U.S. Department of Commerce-NOAA (co-PI with O.P. Matthews); $21,500; 6/1/98-9/30/99.

Outcrop characterization of heterogeneity: explicit linkage of hydrologic and sedimentological properties. National Science Foundation, Hydrologic Sciences Program (co-PI with G.A. Smith), $120,000 (8/15/97-8/14/00).

Geochemistry and hydrology of the Red River stream system before and after open-pit mining, Questa area, Taos County, NM. Office of Natural Resource Trustee, State of New Mexico (co-PI with B. Allen, R. Anderson, L. Crossey), $134,000 (6/1/97-9/30/99).

Surface hydrology of Sandia National Laboratories and environs. Sandia National Laboratories, $130,400 (12/15/93-5/31/96).

Subsurface flow and transport research assistant support. Sandia National Laboratories, $58,000 (10/1/95-9/30/97).

Stream/ground water ecotones: hydrology, biogeochemistry and ecology. National Science Foundation, Ecosystems Studies Program (co-PI with C.N. Dahm), $740,000 (2/1/95-7/31/99).

Lecturing in hydrology and earth science at University College of Belize. Fulbright Scholar program, $19,600 (1/1/96-5/31/96).

Compartmental-model simulation of groundwater flow systems. International Atomic Energy Agency (research conducted in concert with IAEA Coordinated Research Programme Use of isotopes for analyses of flow and transport dynamics of groundwater systems), funding provided for travel only (6/15/96-6/15/99).

Experimental flooding at Bosque del Apache National Wildlife Refuge, Rio Grande, New Mexico. National Science Foundation co-PI with H.M. Valett, M.C. Molles, C.S. Crawford, $45,000 (7/1/94-9/30/96).

Yucca Mountain Project. Sandia National Laboratories- U.S. Department of Energy, $205,000 (10/1/92 - 9/30/95).

Development of integrated water budget models. U.S. Fish and Wildlife Service (co-PI with T. Moore, B. Thomson, R. Heggen), $34,100 (5/15/91-9/30/92).

Stream hyporheic zones: hydrology, biogeochemistry, and links to surface waters and plant riparian communities. National Science Foundation (co-PI with C.N. Dahm), $640,000 (3/1/91-2/28/94).

Evaluation of unsaturated zone contaminant transport models for waste management, Phases I and II. Waste Management Education and Research Consortium and U.S. Department of Energy (co-PI with T. Sammis, New Mexico State University), $101,000 (2/10/91-2/28/93).

PUBLICATIONS

Edited Abstract Book

Campana, Michael E. (Editor), 2001. *AWRA Annual Water Resources Conference Proceedings* (Abstracts), American Water Resources Association, Middleburg, VA, TPS-01-3, 236p.

Refereed

Faulkner, B.R. and M.E. Campana, 2007. Compartmental model of nitrate retention in streams. *Water Resources Research* W02406 [doi: 10.1029/2006WR004920,2007]

Campana, M.E., *in press*. A primer on ground-water management. *In* Vaux, H. and L. Marin (eds.), Science-Based Decision Making for Sustainable Management of Ground Water. National Academy Press, Washington, DC.

Campana, M.E., A. Neir and G. Klise, 2007. Dynamics of transboundary ground water management: lessons from North America. *In* A.R. Turton, J. Hattingh, G.A. Maree, D.J. Roux, M. Claassen, and W.F. Strydom, (eds.), Governance as a Trialogue: Government-Society-Science in Transition. Water Resources Development and Management Series, Berlin: Springer-Verlag, pp. 167-196.

Gabora, M. and M.E. Campana, 2006. Groundwater flow, recharge rates, and mean ages in the Roswell Basin, southeastern New Mexico, USA. *In* Isotopic Assessment of Long Term Groundwater Exploitation, International Atomic Energy Agency TECDOC 1507, pp. 29-54.

Campana, M.E., 2005. Foreword: Transboundary Ground Water. *Ground Water* 43(5):646-650.

Tyler, S.W., S.E. Silliman and M.E. Campana, 2004. Undergraduate program focuses on international issues in water resources. *Eos* (*Transactions*, American Geophysical Union) 85(9): 89 and 92.

Campana, M.E., L. Scuderi, O.P. Matthews, D. Brookshire, K. Krause, J. Chermak, B. Cullen, S. Snell and K. Gregory, 2003. Reallocation of water and the hydrological effects of climate change: the upper Rio Grande basin, southwestern USA. *In* Water Resources Perspectives: Evaluation, Management and Policy, A. S. Alsharhan and W.W. Wood, (eds.), Developments in Water Science 50, Elsevier, Amsterdam, pp. 169-181.

Campana, M.E., 2002. Compartment model simulation of ground-water flow systems. *In* Use of Isotopes for Analyses of Flow and Transport Dynamics in Groundwater Systems, International Atomic Energy Agency TECDOC, Vienna, pp. 196-230.

National Research Council, Committee on U.S. Geological Survey Research, 2002. Estimating Water Use in the United States: a New Paradigm for the National Water-Use Information Program. National Academy Press, Washington, DC, 190p (wrote one chapter and contributed to others).

National Research Council, Committee on Opportunities to Improve the U.S. Geological Survey's National Water Quality Assessment (NAWQA) Program, 2002. Opportunities to Improve the U.S. Geological Survey National Water Quality Assessment Program. National Academy Press, Washington, DC, 238p (wrote one chapter and contributed to others).

Matthews, O.P., L. Scuderi, D. Brookshire, K. Gregory, S. Snell, K. Krause, J. Chermak, B. Cullen and M. Campana, 2001. Marketing Western water: can a process based geographic information system improve reallocation decisions? *Natural Resources Journal* 41(2):329-371.

Campana, M.E., G.A. Harrington and L. Tezcan., 2001. Compartmental model approaches to groundwater flow simulation. In W. Mook (ed.), Environmental Isotopes in the Hydrological Cycle: Principles and Applications, v. VI, ch. 3, p. 37-73, Paris, UNESCO.

National Research Council, Committee on U.S. Geological Survey Research, 2000. Investigating groundwater systems on regional and national scales. National Academy Press, Washington, DC, 143p (wrote one chapter, part of another and contributed significantly to remainder of book).

Morrice, J.A., C.N. Dahm, H.M. Valett, P.V. Unnikrishna, and M.E. Campana, 2000. Terminal electron accepting processes in the alluvial sediments of a headwater stream. Journal of the North American Benthological Society 19(4): 593-608.

National Research Council, Committee on U.S.Geological Survey Research, 1999. Hydrologic hazards science at the U.S. Geological Survey. National Academy Press, Washington, DC, 79p.

Wroblicky, G.J., M.E. Campana, H.M. Valett and C.N. Dahm, 1998. Seasonal variation in surface-subsurface water exchange and lateral hyporheic area of two stream-aquifer systems. *Water Resources Research* 34(3):317-328.

Morrice, J.A., H.M. Valett, C.N. Dahm and M.E. Campana, 1997. Alluvial characteristics, groundwater-surface water exchange and hydrologic retention in headwater streams. *Hydrological Processes* 11(3):253-267.

Campana, M.E., W.R. Sadler, N.L. Ingraham and R.L. Jacobson, 1997. A deuterium-calibrated compartment model of transient flow in a regional aquifer system. In A. Kranjc (ed.), Tracer Hydrology 97, A.A. Balkema, pp. 389-496.

Amin, I.E. and M.E. Campana, 1997. Analysis of test pumping data under conditions of variable viscosity recharge. In John Chilton et al. (eds.), Groundwater in the Urban Environment, v. 1, Problems, Processes and Management, A.A. Balkema, pp. 81-84.

Valett, H.M., C.N. Dahm, M.E. Campana, J.A. Morrice, M.A. Baker and C.S. Fellows, 1997. Hydrologic influences on groundwater-surface water ecotones: heterogeneity in nutrient composition and retention. *J. North American Benthological Society* 16(1):239-247.

Campana, M.E. and J.G. Roth, 1997. Delineation of a carbonate-alluvial groundwater flow system using a mixing-cell model and the spatial distribution of deuterium. In G. Gunay and A.I. Johnson (eds.), Karst Waters and Environmental Impacts, A.A. Balkema, pp. 311-318.

Campana, M.E. and R.M. Byer, Jr., 1996. A conceptual evaluation of regional ground-water flow, southern Nevada-California, USA. *Environmental and Engineering Geoscience* II(4):465-478.

Amin, I. E. and M.E. Campana, 1996. A general lumped parameter model for the interpretation of tracer data and transit time calculation in hydrologic systems. *Journal of Hydrology* 179:1-21.

Valett, H.M., J.A. Morrice, C.N. Dahm and M.E. Campana, 1996. Parent lithology, groundwater-surface water exchange and nitrate retention in headwater streams. *Limnology and Oceanography* 41(2): 333-345.

Wroblicky, G.J., M.E. Campana, C.N. Dahm, H.M. Valett, J.A. Morrice, K.S. Henry, and M.A. Baker, 1994. Simulation of stream-groundwater exchange and near-stream flow paths of two first order mountain streams using MODFLOW. Proceedings, Second International Conference on Ground Water Ecology. Bethesda, MD, Amer. Water Res. Assn., pp. 187-196.

Baker, M.A., C.N. Dahm, H.M. Valett, J.A. Morrice, K.S. Henry, M.E. Campana and G.J. Wroblicky, 1994. Spatial and temporal variations in methane distribution at the ground water/surface water interface in headwater catchments. Proceedings, Second International Conference on Ground Water Ecology. Bethesda, MD, Amer. Water Res. Assn., pp. 29-37.

Henry, K.S., H.M. Valett, J.A. Morrice, C.N. Dahm, G.J. Wroblicky, M.A. Santistevan, and M.E. Campana, 1994. Ground water-surface water exchange in two headwater streams. Proceedings, Second International Conference on Ground Water Ecology. Bethesda, MD, Amer. Water Res. Assn., pp. 319-328.

Amin, I.E. and M.E. Campana, 1992. A general mathematical model for tracer data analysis. In H. Hotzl and A. Werner (eds.), Tracer Hydrology, A.A. Balkema, pp. 453-456.

Wroblicky, G.J., M.E. Campana, H.M. Valett, J.A. Morrice, K.S. Henry, C.N. Dahm, J.V. Hurley and J.M. Noe, 1992. Remote monitoring of stream hyporheic zones with inexpensive pressure transducer-data acquisition systems. Proceedings, First International Conference on Ground Water Ecology. Bethesda, MD, Amer. Water Res. Assn., pp. 267-277.

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Karst, G.B., M.E. Campana and R.L. Jacobson, 1988. A mixing-cell model of the hydrothermal flow system, northern Dixie Valley, Nevada. *Transactions,* Geothermal Resources Council, 12:167-174.

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Campana, M.E., A. Neir and G. Klise, 2006. Dynamics of transboundary ground water management: lessons from North America. Water Resources Program, University of New Mexico, Pub. No. WRP-16.

Matthews, O.P., D. S. Brookshire and M.E. Campana, 2001. The economic value of water: results of a workshop in Caracas, Venezuela, November 2000. Water Resources Program, University of New Mexico, Pub. No. WRP-4 (in English, Spanish and Portuguese).

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Amin, I.E. and M.E. Campana, 1990. A general mathematical model for the interpretation of tracer data and transit time calculation in hydrologic systems. Publication No. 41122, 60p.

Roth, J.G. and M.E. Campana, 1989. A mixing-cell model of the Railroad Valley regional groundwater flow system, central Nevada. Publication No. 41123, 175p.

Kirk, S.T. and M.E. Campana, 1988. Simulation of groundwater flow in a regional carbonate alluvial system with sparse data: the White River flow system, southeastern Nevada. Publication No. 41115, 76p.

Campana, M.E. and R.L. Boone, 1987. Clear Creek recharge investigation. Chapter II in D.F. Schulke (ed.), Great Basin recharge studies. Publication No. 41104, pp. 6-30.

Feeney, T.A., M.E. Campana and R.L. Jacobson, 1987. A deuterium-calibrated groundwater flow model of the western Nevada Test Site and vicinity. Publication No. 45057, 46p.

Pottorff, E.J., S.J. Erikson and M.E. Campana, 1987. Hydrologic utility of borehole temperatures in Areas 19 and 20, Pahute Mesa, Nevada Test Site. Publication No. 45060, 189p.

Campana, M.E. and R.L. Boone, 1984. Parameter estimation in the vadose zone. Publication No. 41093, 55p.

Jacobson, R.L., N.L. Ingraham and M.E. Campana, 1983. Isotope hydrology of a Basin and Range geothermal system. Publication No. 41087, 18p.

Mahin, D.A. and M.E. Campana, 1983. Discrete-state compartment model of a limestone groundwater reservoir -- the Edwards aquifer near San Antonio, Texas. Publication No. 41077, 41p.

Szecsody, J.E., R.L. Jacobson and M.E. Campana, 1983. Environmental isotopic and hydrogeochemical investigation of recharge and subsurface flow in Eagle Valley, Nevada. Publication No. 42037, 120p.

Truschel, A.D. and M.E. Campana, 1983. A parametric model for peak flow prediction in ungaged ephemeral watersheds. Publication No. 41083, 120p.

Boone, R.L., M.E. Campana and C.M. Skau, 1983. Relationships among precipitation, snowmelt, subsurface flow, groundwater recharge and streamflow generation in the Clear Creek watershed, eastern Sierra Nevada. Publication No. 41084, 113p.

Campana, M.E., A.B. Cunningham, A.S. Navoy and R.L. Bateman, 1982. Quantitative evaluation of factors affecting flash floods on ephemeral watersheds. Publication No. 41072, 24p.

Dowden, J.E., M.E. Campana, S.W. Wheatcraft and R.L. Jacobson, 1982. Artificial recharge of runoff in Cold Spring Valley, Nevada. Publication No. 41071, 50p.

Ingraham, N.L., R.L. Jacobson and M.E. Campana, 1982. Hydrologic interpretation of shallow subsurface temperature data. Publication No. 41076, 35p.

Bohm, B., N.L. Ingraham, M.E. Campana and R.L. Jacobson, 1980. Environmental isotope hydrology of the Dixie Valley geothermal system. Appendix C in E.J. Bell (ed.) Geothermal reservoir assessment case study, northern Basin and Range Province, northern Dixie Valley, volume III. Mackay Minerals Research Institute, University of Nevada-Reno, Reno, NV 89557, pp. C1 - C26.

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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.

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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.

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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.

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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 Bethological 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.

AWARDS AND HONORS

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 LECTURES (since 1992)

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 Trialogue, 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
Colby College Geology Department Seminar, 1998
New Mexico Riparian Council Annual Meeting, 1998
Hydrologic Sciences Program Seminar, University of Nevada-Reno, 1997
Workshop on Isotope Hydrology, International Atomic Energy Agency, Paris, 1996
CSIRO Workshop on Surface Water-Ground Water Interactions, Perth, Australia,1996
Research Inst. for Groundwater, Nat'l. Water Res. Ctr., Arab Rep. of Egypt, 1995
Ministry of Public Works and Water Reso. short course, Arab Rep. of Egypt, 1995
Inst. de Geofisica, Universidad Nacional Autonoma de México, México, D.F., 1994
Department of Environmental Sciences, Policy and Management, UC-Berkeley, 1994
Earth and Environmental Sciences Division, Los Alamos National Laboratory, 1994
Hydrology Program Seminar, New Mexico Tech, 1993
Water Resources Program, University of Nevada-Las Vegas, 1992
National Science Teachers' Assn. Western Area Convention, 1992

PROFESSIONAL ACTIVITIES AND OFFICES (since 1992)

Chair, American Water Resources Association Annual Conference, Albuquerque, November 2007.

Co-convener, *Predictions in Ungauged Basins Workshop*, Corvallis, OR, October 2006

National Academy of Science-National Research Council *Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin*, 2006-present

Member, *Sustainable, Oceans, Coast, and Waterways Advisory Committee*, H. John Heinz III Center for Science, Economics and the Environment, 2004-2006.

Chair, Transboundary Ground Water Interest Group, National Ground Water Association, 2004-present.

Chair, Developing Countries Interest Group, National Ground Water Association, 2004-present.

Past Chair, Association of Ground-Water Scientists and Engineers, (AGWSE) 2004-2005.

Chair, Association of Ground-Water Scientists and Engineers, (AGWSE) 2002-2003.

Guest Editor, Transboundary Ground Water, *Ground Water* 43(5), September-October 2005.

Board of Directors, National Ground Water Association, 2002-2005.

Board of Directors, Universities Council on Water Resources (UCOWR), 2000-2003.

Vice President of Academic Affairs, American Institute of Hydrology (AIH), 2001-2002.

National Academy of Science-National Research Council *Committee on USGS Water Resources Research*, 1998-2001.

National Academy of Science-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.

Conference 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.

Secretary-Treasurer, Association of Ground-Water Scientists and Engineers, (AGWSE) 2000-2001.

Board of Directors, Association of Ground-Water Scientists and Engineers, (AGWSE) 1997-2005.

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-present.

Co-Chair, First and Second Assemblies for Water Planning in the Middle Rio Grande Valley, 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.

Member, U.S. National Committee, International Assn. of Hydrogeologists, 1991-1995.

Reviewer, *Ground Water, Hydrogeology Journal, Water Resources Research, Journal of Volcanology and Geothermal Research, Journal of Hydrology, Hydrological Processes, Environmental and Engineering Geoscience, Journal of Hydraulic Engineering, Journal of the North American Benthological Society, Journal of the American Water Resources Association,*and *Limnology and Oceanography.*

Proposal reviewer, National Science Foundation; National Science and Engineering Research Council of Canada; U.S. - Israel Binational Science Foundation; Los Alamos National Laboratory; New Mexico Water Resources Research Institute; Republic of Georgia National Science Foundation

PROFESSIONAL CONFERENCE PRESENTATIONS (since 1992)

The Last Drop Conference, The Hague, The Netherlands, December 2006
Third Annual Ground Water Summit, Albuquerque, NM, April-May 2007
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
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

Member, Watershed Advisory Commission, City of Corvallis, 2007-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
Founder, President, and Treasurer, The Ann Campana Judge Foundation, 2002-present.
Volunteer, Living Water International, 1999-present.
Volunteer, Lifewater International, 1998-present.
Member, ACDI/VOCA (Agriculture Cooperative Development International/Volunteers in Overseas Cooperative Assistance), 1995-present.

PROFESSIONAL CERTIFICATION

Certified Professional Geologist, State of Indiana (#430)
Professional Hydrogeologist, American Institute of Hydrology (#175)

PROFESSIONAL ORGANIZATIONS

American Association for the Advancement of Science
American Geophysical Union
American Institute of Hydrology

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

STUDENT ADVISEMENT/THESIS SUPERVISION
I have served on over 180 M.S. and Ph.D. committees in water resources administration, biology, hydrology/hydrogeology, geology, geological engineering, civil engineering, and range wildlife and forestry. I supervised 2 B.S. theses, 34 Master's theses, 31 Master's projects, and 2 Ph.D. dissertations.

STUDENT RESEARCH SUPERVISION
(UNM = University of New Mexico; UNR = University of Nevada-Reno
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, expected 2007
Compartmental model analysis of nutrient retention in streams (UNM)

Master's Professional Projects **(31)**
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 $\delta^{18}O$ calibrated compartmental mixing cell model of groundwater flow in the Roswel 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)

A. Kyle Harwood, 1995
The urban stormwater contribution of dissolved trace metals from the North Floodway Channel, Albuquerque, NM, to the Rio Grande (UNM - Master of Water Resources Administration)

M.S. Theses (34)
Erin A. Carroll, 2006
A water quality assessment of the upper Rio Fonseca drainage basin, Boaco, Nicaragua (UNM)

Katherine A. Klise, 2005
Analysis of non-Fickian dispersion for laboratory-scale tracer experiments in cross-bedded sandstone (UNM)

Stephanie J. Moore, 2003
Streamflow, infiltration, and recharge in the Arroyo Hondo watershed, north-central New Mexico (UNM)

Senait T. Ghebremicael, 2002
Source of and controls on arsenic in the groundwater of the Fernley area, Nevada (UNM)

Jerry K. Bird, 1998
Evaluation of aquifer recharge using a mass-balance model and conservative tracers, Sandia National Laboratories/Kirtland Air Force Base, Albuquerque, New Mexico (UNM)

Sharman L. Carpenter, 1997
Numerical simulation of density-dependent contaminant transport in ground water near Lake Karachai, Russia (UNM)

Robert N. Gray, 1997
Hydrologic budget analysis and numerical simulations of groundwater flow in Los Alamos Canyon near Los Alamos, New Mexico (UNM)

James R. Brainard, 1997
Vadose zone flow processes in heterogeneous alluvial fan deposits: experimental design, data evaluation and error analysis (UNM)

Leslie A. Hohweiler, 1996
A method for predicting land subsidence as a result of groundwater withdrawal, Albuquerque, New Mexico (UNM)

John L. Appel, 1995
Hydrogeologic framework of the High Creek calcareous fen, South Park, Park County, Colorado (UNM)

Gregory J. Wroblicky, 1995
Numerical modeling of stream-groundwater interactions, near-stream flowpaths and hyporheic zone hydrodynamics of two first-order mountain stream-aquifer systems (UNM)

Armand R. Groffman, 1994
The characterization of groundwater chemistry and colloids downgradient from uranium mill tailings at Slick Rock and Rifle, Colorado (UNM)

Robert M. Byer, 1991
A carbon-14 calibrated discrete-state compartment model of the groundwater flow system, Yucca Mountain and vicinity, Nevada-California (UNR)

William R. Sadler, 1990
A deuterium-calibrated, discrete-state compartment model of regional groundwater flow, Nevada Test Site and vicinity (UNR)

Kenneth R. Churan, 1989
A transient input discrete-state compartment model of groundwater flow in the Ojo Alamo Sandstone, San Juan Basin, New Mexico (UNR)

Edward J. Pottorff, 1988
A new approach for simulating heat transfer and groundwater flow in the Leach Hot Springs hydrothermal system, Pershing County, Nevada (UNR)

James G. Roth, 1988
Delineation of the Railroad Valley flow system using a deuterium calibrated-groundwater model (UNR)

Amy K. Hadiaris, 1988
Quantitative analysis of groundwater flow in Spanish Springs Valley, Washoe County, Nevada (UNR)

Susan J. Erikson, 1988
Thermometry as a tool for determining the hydrologic properties of the vadose zone (UNR)

Thomas A. Feeney, 1987
A deuterium-calibrated groundwater flow model of the western Nevada Test Site and vicinity (UNR)

Stephen T. Kirk, 1987
Analysis of the White River groundwater flow system using a deuterium-calibrated discrete-state compartment model (UNR)

Gary B. Karst, 1987
Analysis of the northern Dixie Valley groundwater flow system using a discrete-state compartment model (UNR)

William Linderfelt, 1987
Numerical analysis of infiltration and near-surface percolation in relation to Yucca Mountain, Nevada (UNR)

David H. Emme, 1986
Delineation of subsurface flow in the Upper Meadow Valley Wash area, southeastern Nevada (UNR)

Anthony D. Truschel, 1983
A reservoir-routing model calibration method relating storage elements to basin geomorphology for peak runoff prediction from extreme summer storm events in ungaged arid watersheds (UNR)

Richard L. Boone, 1983
Groundwater recharge and subsurface flow processes on a hillslope in the Clear Creek watershed, eastern Sierra Nevada (UNR)

Neil L. Ingraham, 1982
Environmental isotope hydrology of the Dixie Valley geothermal system, Dixie Valley, Nevada (UNR)

James E. Szecsody, 1982
Use of major ion chemistry and environmental isotopes to delineate subsurface flow in Eagle Valley, Nevada, (UNR)

John E. Dowden, 1981
Numerical simulation of artificial recharge in Cold Spring Valley, Nevada (UNR)

Donald E. Price, 1981
Hydrogeologic study of groundwater-surface water interactions at Topaz Lake, NV (UNR)

Salem S. Arghin, 1980
Hydrogeology of the Al-Marj Basin, Libya (UNR)

Robert C. Broadbent, 1980
Numerical modeling of the effects of artificial recharge in the Las Vegas Valley, Nevada (UNR)

Ahmidi A. Alkaseh, 1979
Hydrogeological and hydrogeochemical aspects of the Jalo area, Libya (UNR)

Donald A. Mahin, 1978
Analysis of groundwater flow in the Edwards limestone aquifer, San Antonio area, Texas (UNR)

B.S. Theses (2)
Kristine Baker-Smith, 1997
Compartment modeling of groundwater residence times and stream-aquifer interactions (UNM)

Mark A. Burkhard, 1991
A modified submerged pressure outflow cell for the determination of soil moisture retention characteristics (UNM)