

**OREGON STATE UNIVERSITY**  
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## **EDUCATION**

B.S., Geology, College of William and Mary, 1970  
M.S., Hydrology, University of Arizona, 1973  
Ph.D., Hydrology (Minor: Mathematics), University of Arizona, 1975. Dissertation: Finite-State Models of Transport Phenomena in Hydrologic Systems, 252p

## **ACADEMIC POSITIONS**

Graduate Teaching Assistant, University of Arizona 1973  
Associate Faculty Member, Pima Community College, Tucson, AZ, 1973-75  
Assistant Research Professor, Desert Research Institute, Reno, NV, 1976-79 (0.80 FTE)  
Assistant Professor, Department of Geological Sciences, University of Nevada, Reno, NV 1976-79 (0.20 FTE; non-tenure track)  
Associate Research Professor, Desert Research Institute, Reno, NV, 1979-1983 and 1984-1989 (0.80 FTE)  
Associate Professor, Department of Geological Sciences, University of Nevada, Reno, NV, 1979-1983 and 1984-1989 (0.20 FTE; non-tenure track)  
Associate Professor, Department of Geology, Georgia State University, Atlanta, GA, 1983-84  
Associate Professor, Department of Earth and Planetary Sciences, University of New Mexico, 1989-1997 (0.50 FTE in 1997)  
Professor, Department of Earth and Planetary Sciences, University of New Mexico, 1997-2002  
Albert and Mary Jane Black Professor of Hydrogeology, Department of Earth and Planetary Sciences, University of New Mexico, Albuquerque, NM, 2002-2006 (0.50 FTE)

Director and Professor, Water Resources Program, University of New Mexico, Albuquerque, 1997-2006 (0.50 FTE)

Emeritus Professor of Hydrogeology, Department of Earth and Planetary Sciences, University of New Mexico, 2006 - present

Director, Institute for Water and Watersheds, Oregon State University, 2006-2009

Professor, Department of Geosciences, Oregon State University, 2009-2011

Professor, College of Earth, Ocean, & Atmospheric Sciences, Oregon State University, 2012-

## **EDITORSHIPS**

Guest Editor, Special Issue on 'Integrated Water Resources Management: The Emperor's New Clothes or Indispensable Process?', *Water Resources IMPACT*, May 2011

Guest Editor, Special Issue on 'Hydrophilanthropy', *Water Resources IMPACT*, Sept. 2010

Guest Co-Editor, E.S. Simpson Memorial Issue, *Hydrogeology Journal*, 6(1), 1998.

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

Guest Editor, *Odyssey Magazine*, 'Thirsty Planet' issue, March 2013

Associate Editor, *Environmental and Engineering Geoscience*, 1995-2002

Book Editor, *J of Ground Water*, 1999-2002

Associate Editor, *J. Ground Water*, 1985-87

## **FIELDS OF SPECIALIZATION**

Hydrogeology

Water Resources Policy and Management

Water, Sanitation, and Hygiene (WaSH) in Developing Regions

## **HONORS AND AWARDS**

President's Award for Excellence, American Water Resources Association, 2013

Icko Iben Award, American Water Resources Association, 2009. Promoting understanding and communication among water resources disciplines.

Keith Anderson Award, National Ground Water Association, Scientists and Engineers Division, 2005. For outstanding service to the division.

International Excellence Award, University of New Mexico, 2003-2004

Gallagher Visiting Scientist, University of Calgary, April 2002

Fulbright Scholar (Belize), 1995-96 academic year

## **PROFESSIONAL ACTIVITIES**

### **Professional Organizations**

American Water Resources Association

President, 2011

Board of Directors, 2008-2012

Founder and President, Oregon State Section, 2007-08; Vice President, 2009-2013

National Ground Water Association

Board of Directors, National Ground Water Research & Educational Fdn., 2014 -

Board of Directors, 2002-2005

Vice President, 2002-2003

Scientists & Engineers Division (BoD, 1996-2005; Secretary-Treasurer, 2001- 2002

Chair, 2002-2003)  
 American Institute of Hydrology  
 Vice President of Academic Affairs, 2001-2002  
 International Association of Hydrogeologists  
 U.S. National Committee, 1991-1995  
 Universities Council on Water Resources  
 Board of Directors, 2000-2002  
 International Water Resources Association  
 Canadian Water Resources Association  
 International Water Association

**Conference Convener, Chair, Co-Chair (since 2006)**

Technical Chair, *Integrated Water Resources Management: Theory to Application*, AWRA Summer Specialty Conference, Reno, NV, June 2014  
 General Chair and Technical Co-Chair, AWRA Annual Conference, Portland, OR, Nov. 2013  
 Convener, General and Technical Chair, AWRA Summer Specialty Conference, *Integrated Water Resources Management: The Emperor's New Clothes or Indispensable Process?*, Snowbird, UT, June 2011  
 Convener and General Chair, *The Oregon Water Conference 2011: Managing and Evaluating Water Resources in a Climate of Uncertainty*, Corvallis, OR, May 2011  
 Co-Convener and Co-Chair, *Wells and The Well-Being of Oregon Symposium*, Salem, OR, Dec. 2008  
 Co-Convener and Co-Chair, *First Intl. Conference on Nonrenewable Ground Water*, Portland, OR, Oct. 2008  
 Co-Convener and Co-Chair, *Aquifer Storage and Recovery and Artificial Recharge in Oregon*, Corvallis, OR, Feb. 2008  
 Chair, American Water Resources Association Annual Conference, Albuquerque, Nov. 2007  
 Co-Convener, *Predictions in Ungauged Basins Workshop*, Corvallis, OR, October 2006

**Conference Committees, Sessions, Moderators, etc. (since 2006)**

Co-Convener and Moderator, Session on International Issues, AWRA Annual Conference, Tysons Corner, VA, OR, November 2014  
 Co-Convener, *Water Contamination and Treatment in Developing Countries*, Geological Society of America Annual Meeting, Vancouver, BC, October 2014  
 Co-Convener and Co-Moderator, Sessions on Groundwater & IWRM and IWRM-WASH Nexus, Summer Specialty Conference, Reno, NV, June 2014  
 Moderator, Sessions on International Issues and Groundwater, AWRA Annual Conference, Portland, OR, November 2013  
 Moderator, Session on International Issues, AWRA Annual Conference, Jacksonville, FL November 2012  
 Co-Convener and Co-Moderator, Session on *Groundwater and Development: Towards the Effective Integration of Hydrogeology in 'Water and Sanitation' Projects*, IAH 39<sup>th</sup> World Congress, Niagara Falls, ON, September 2012  
 Co-Convener, Session on *Source Water Protection*, American Water Works Association Conference on Sustainable Water Resources Management, Portland, OR, March 2012  
 Convener and Moderator, Session on *Groundwater: Can We Put the 'Integrated' in 'Integrated Water Resources Management?'*, Sixth World Water Forum, Marseille, France, March 2012  
 Moderator, Session on *Groundwater and IWRM*, AWRA Summer Specialty Conference, *Integrated Water Resources Management: The Emperor's New Clothes or Indispensable Process?*, Snowbird, UT, June 2011

Moderator, Session on *Water Management*, The Oregon Water Conference 2011, Corvallis, Or, May 2011.

Scientific Committee, International Conference on Transboundary Aquifers: Challenges and New Directions, UNESCO-IHP, December 2010

Participant/Presenter, US NAS – Ukraine NAS Workshop, *Water Sector Adaptation for Climate Change*, Washington, DC, December 2009

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

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 Chair, 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

Program Committee, Snake-Columbia Basin Energy and Water Summit, Boise, ID, June 2007.

Program Committee, *Water in the Pacific Northwest: Moving Science into Policy and Action* Conference, Stevenson, WA, Nov. 2007

Co-Convener and Moderator, Session on *Hydrophilanthropy*, American Water Resources Association Annual Conference, Albuquerque, NM, Nov.. 2007

Co-Convener and Moderator, Session on *Hydrophilanthropy*, National Ground Water Association Ground Water Summit, San Antonio, TX, April 2006

### **Committees, Commissions, and Boards**

#### ***National Research Council***

Panel to Review the Draft Bay-Delta Conservation Plan, 2010-2011

Committee on Sustainable Water and Environmental Management in the California Bay-Delta, 2009-2012

Committee to Evaluate Cycle 3 Science Plan of the USGS National Water Quality, Assessment (NAWQA) Program, 2009-2012

Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin, 2006-2007

Committee on USGS Water Resources Research, 1998-2001.

Committee on Opportunities to Improve the National Water Quality Assessment (NAWQA) Program, 1999-2001

Committee to Evaluate the USGS National Water Quality Assessment (NAWQA) Pilot Program, 1988-1991

#### **Others (since 2001)**

Steering Committee – Global Water Partnership 2014 -

Board of Directors, Hydrogeologists Without Borders, 2012 -

Advisory Committee – Universities WaSH Network, 2014 -

Technical Advisory Committee – Integrated Water Mgmt, Water Research Fdn, 2014

External Review Panel, Climate Change Center Proposals, CONICYT (Chilean NSF)

External Advisory Board, Water Technologies for Emerging Regions (WaTER) Center, University of Oklahoma, 2011.- present

Organizing Committee, International Center for Integrated Water Resources Management, (ICIWaRM; <http://iciwarm.org>), 2010-2012

Steering Committee, Universities WaSH Initiative, 2009-2013  
 External Evaluation Team, Division of Hydrologic Sciences, Desert Research Institute, 2008  
 External Advisory Board, Multidisciplinary, Team-Based Training in Watershed Science and Policy IGERT Program, Southern Illinois University-Carbondale, 2009-2013  
 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 25<sup>th</sup> anniversary of publication in 2011  
 External Research & Technical Advisory Board, Nevada NSF EPSCoR Project, 2008-2013  
 Evaluation Team, Canadian Water Resources Network, September 2007  
 Coordinating Committee, Great Basin Research and Management Partnership, 2007-2009.  
*Sustainable, Oceans, Coast, and Waterways Advisory Committee*, H. John Heinz III Center for Science, Economics and the Environment, 2004-2007  
 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  
 Fulbright Program Review Committee, Canada-Mexico-Central America–Caribbean, 1999-2001 (Chair, 2001).

## PUBLICATIONS

### Reviewed

#### **Book Review**

Campana, Michael E., 2007. The Agricultural Groundwater Revolution: Opportunities and Threats to Development. *Ground Water* 45(6): 656.

#### **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.

#### **Book Chapters**

Vener, Berrin Basak and Michael E. Campana, 2010. Conflict and cooperation in the South Caucasus: the Kura-Araks Basin of Armenia, Azerbaijan, and Georgia. In M. Arsel and M. Spoor (eds.), *Water, Environmental Security and Sustainable Rural Development: Conflict and Cooperation in Central Eurasia*. Oxford, UK: Routledge, pp. 144-174.

Klise, Geoffrey T., Alyssa M. Neir, Michael E. Campana, Amy Ewing, Berrin Basak Vener, and Alistair Rieu-Clarke, 2009. Hydrovulnerability of West Asia. Chapter 3 [pp. 57-87] In A.T. Wolf, and M. Macomber (eds.), *Hydropolitical Vulnerability and Resilience along International Waters: Asia*. Nairobi, Kenya: United Nations Environment Programme, 184p. [[http://www.unep.org/pdf/hydropolitical\\_AS.pdf](http://www.unep.org/pdf/hydropolitical_AS.pdf)]

Neir, Alyssa M., Geoffrey T. Klise, and Michael E. Campana, 2009. Hydropolitical Vulnerability of North America. Chapters 2 through 5 [pp. 17-56] In A.T. Wolf and M. Macomber (eds.), *Hydropolitical Vulnerability and Resilience along International Waters: North America*. Nairobi, Kenya: United Nations Environment Programme, 114p. [[http://www.unep.org/pdf/hydropolitical\\_NA.pdf](http://www.unep.org/pdf/hydropolitical_NA.pdf)]

Campana, Michael E., Berrin Basak Vener, Nodar P. Kekelidze, Bahruz Suleymanov, and Armen Saghatelyan, 2008. Science for peace: monitoring water quality and quantity in the Kura-Araks Basin of the South Caucasus. In J. E. Moerlins, M.K. Khankhasayev, S.F. Leitman, and E.J. Makhmudov (eds.), *Transboundary Water Resources: A Foundation for Regional Stability in Central Asia*. NATO Science for Peace and Security Series C: Environmental Security. Berlin: Springer, pp. 153-170.

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.

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 A. S. Alsharhan and W.W. Wood, (eds.), *Water Resources Perspectives: Evaluation, Management and Policy*, Developments in Water Science 50, Elsevier, Amsterdam, pp. 169-181.

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. Paris: UNESCO, pp. 37-73.

#### ***National Research Council Committee and Panel Reports***

National Research Council, Committee on Preparing for the Third Decade (Cycle 3) of the National Water-Quality Assessment (NAWQA) Program; National Research Council, 2012. *Preparing for the Third Decade (Cycle 3) of the National Water-Quality Assessment (NAWQA) Program*. National Academy Press, Washington, DC, 185p.

National Research Council, Committee on Sustainable Water and Environmental Management in the California Bay Delta, 2012. *Sustainable Water and Environmental Management in the California Bay Delta*. National Academy Press, Washington, DC, 280p.

National Research Council, Panel to Review California's Draft Bay Delta Conservation Plan, 2011. *A Review of the Use of Science and Adaptive Management in California's Draft Bay Delta Conservation Plan*. National Academy Press, Washington, DC, 100p.

National Research Council, Committee on Sustainable Water and Environmental Management in the California Bay Delta, 2010. *A Scientific Assessment of Alternatives for Reducing Water Management Effects on Threatened and Endangered Fishes in California's Bay Delta*. National Academy Press, Washington, DC, 93p.

National Research Council, Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin, 2008. *Hydrology, Ecology, and Fishes of the Klamath River Basin*. National Academy Press, Washington, DC, 249p.

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).

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.

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.

National Research Council, Committee to Review the U.S. Geological Survey National Water Quality Assessment Pilot Program, 1990. *A Review of the U.S.G.S. National Water Quality Assessment Pilot Program*. National Academy Press, Washington, DC, 153p.

### ***Papers and Reports***

Campana, Michael E., 2014. Groundwater management: Quo vadis? *Water Resources IMPACT*. 16(1): 26-28.

Campana, Michael E., Berrin Basak Vener, and Baek Soo Lee, 2012. Hydrostrategy, hydrogeopolitics, and security in the Kura-Araks basin of the South Caucasus. *Journal of Contemporary Water Research and Education*, 149:22-32 [<http://is.gd/HE269V>]

Campana, Michael E., *in press*. Mississippi vs. Memphis: the curious case of the Memphis Sand Aquifer. ISARM Workshop on Transboundary Groundwater, Paris.

Sabo, John L., Tushar Sinha, Laura C. Bowling, Gerrit Schoup, Wesley W. Wallender, Michael E. Campana, Keith A. Cherkauer, Pam L. Fuller, William L. Graf, Jan W. Hopmans, John S. Kominoski, Carissa Taylor, Stanley W. Trimble, Robert H. Webb, and Ellen E. Wohl, 2010. Reclaiming freshwater sustainability in the Cadillac Desert. *Proceedings, National Academy of Sciences*, 107 (50):21263-21270 [<http://www.pnas.org/cgi/doi/10.1073/pnas.1009734108>]

Campana, M.E., A. M. Neir and G.T. Klise, 2010. North American transnational groundwater issues: cooperation and conflict. *Proceedings, UNESCO-IHP ISARM 2010 International Conference on Transboundary Aquifers: Challenges and New Directions*, Paris, France. Topic 3. [CD only]

Campana, Michael E. 2010. Hydrophilanthropy and experiential learning in Honduras. *Water Resources IMPACT*, 12(5): 6-9.

Campana, Michael E. 2010. Hydrophilanthropy, WaSH, and experiential learning in developing countries. *Journal of Contemporary Water Research and Education*, Issue 145: 36-44.

Campana, M.E., 2009. The water and energy connection: a recent dialogue. *Ground Water* 47(6): 763-764.

Vener, Berrin Basak and Michael E. Campana, 2008. Conflict, Cooperation, and the new 'Great Game' in the Kura-Araks Basin of the South Caucasus. *Proceedings*, Universities Council on Water Resources/National Institutes for Water Resources (UCOWR/NIWR) Annual Conference, Durham, NC. [CD only]

Neir, Alyssa M. and Michael E. Campana, 2007. The peaceful resolution of US-Mexico transboundary water disputes. *Economics for Peace and Security Journal* 2(2): 35-41 [www.epsjournal.org.uk]

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., 2007. A primer on groundwater management. In L. Holliday, L. Marin, and H. Vaux (eds.), *Sustainable Management of Groundwater in Mexico: Proceedings of a Workshop*. Washington, DC: National Academy Press, pp. 26-35.

Ward, T.J., S. Abdymanapov, A. Wilson, S. Shaikhin, G. Gleason, B. Thomson, Z. Masalimov, M. Myrzakhmet, V. Torubara, and M. Campana, 2007. Development of the Master of Science degree in environmental management and engineering at the Eurasian National University, Kazakhstan: a global partnership. *Proceedings*, International Conference on Engineering Education, Lisbon, Portugal, November 2007.

Vener, Berrin Basak and Michael E. Campana, 2006. Conflict and cooperation in the South Caucasus: the Kura-Araks Basin of Armenia, Azerbaijan, and Georgia. In M. Spoor and M. Arsel (eds.) *Proceedings, The Last Drop? Water, Security and Sustainable Development in Central Eurasia*. The Hague, Netherlands. [CD only]

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., 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.

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.

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.



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.

Kirk, S.T. and M.E. Campana, 1990. A deuterium-calibrated groundwater flow model of a regional carbonate-alluvial system. *Journal of Hydrology*, 119:357-388.

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.

Campana, M.E., 1987. Generation of ground-water age distributions. *Ground Water* 25(1):51-58.

Campana, M.E. and R.L. Boone, 1986. Hydrologic monitoring of subsurface flow and groundwater recharge in a mountain watershed. *Proceedings, Cold Regions Hydrology Symposium*. Bethesda, MD, American Water Resources Association, pp. 263-273.

Campana, M.E. and D.A. Mahin, 1985. Model-derived estimates of groundwater mean ages, recharge rates, effective porosities and storage in a limestone aquifer. *Journal of Hydrology* 76:247-264.

Campana, M.E. and E.S. Simpson, 1984. Groundwater residence times and recharge rates using a discrete-state compartment model and C-14 data. *Journal of Hydrology*, 72:171-185.

Campana, M.E., 1976. Application of carbon-14 ground-water ages in calibrating a flow model of the Tucson Basin aquifer, Arizona. *Hydrology and Water Resources in Arizona and the Southwest*, 6:197-202.

### **Unreviewed Research Reports**

Kekelidze, N., M.E. Campana, B. Suleymanov, A. Saghatelian, F. Adams, E. Steinnes, 2009. *Final Report: South Caucasus River Monitoring*. NATO Project SFP 977991, 48p.

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).

Campana, M.E., O.P. Matthews, R. DeSimone and D. DeSimone (eds.), 2000. Policy conflicts and sustainable water resources development in New Mexico's Rio Grande Basin. Water Resources Program, University of New Mexico, Pub. No. WRP-2.

Matthews, O.P., M.E. Campana, D. DeSimone, R. DeSimone and N. Gillard (eds.), 1999. Case studies of sustainable water resources development, Rio Grande Basin, New Mexico. Water Resources Program, University of New Mexico, Pub. No. WRP-1.

Campana, M.E. and S.L. Carpenter, 1993. Development and evaluation of an unsaturated zone mixing-cell transport model for waste management. Technical completion report, Waste-Management Education and Research Consortium, New Mexico State University, Las Cruces, NM, 50p. plus 4 appendices.

**Note: unless otherwise indicated, the following are publications of the Water Resources Center (now Division of Hydrologic Sciences), Desert Research Institute, 2215 Raggio Parkway, Reno, NV 89512.**

Pottorff, E.J. and M.E. Campana, 1992. A new approach for simulating heat transfer and ground-water flow and its application to the Leach Hot Springs hydrothermal system, Pershing County, Nevada. Publication No. 41121, 139p.

Sadler, W.R., M.E. Campana, R.L. Jacobson and N.L. Ingraham, 1992. A deuterium-calibrated, discrete-state compartment model of regional groundwater flow, Nevada Test Site and vicinity. Publication No. 45088, 77p.

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 ungauged 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.

Campana, M.E., R.L. Jacobson and N.L. Ingraham, 1980. Shallow temperature survey. Chapter 6 in E.J. Bell (ed.) Geothermal reservoir assessment case study, northern Basin and Range Province, northern Dixie Valley, volume I. Mackay Minerals Research Institute, University of Nevada-Reno, Reno, NV 89557, pp. 187-205.

Bohm, B., R.L. Jacobson, M.E. Campana and N.L. Ingraham, 1980. Hydrology and hydrogeochemistry. Chapter 5 in E.J. Bell (ed.) Geothermal reservoir assessment case study, northern Basin and Range Province, northern Dixie Valley, volume I. Mackay Minerals Research Institute, University of Nevada-Reno, Reno, NV 89557, pp. 159-186.

Campana, M.E., 1980. Hydrology and water quality, Chapter V in An environmental overview of geothermal development: northern Nevada. Mackay School of Mines, University of Nevada-Reno, Reno, NV 89557, pp. V1-V38.

Merritt, R.G., R.L. Jacobson and M.E. Campana, 1978. Investigation of the Sun Valley shallow groundwater system. Project Report 52, 19p.

Case, C.M., M.E. Campana, E.N. Cooper and R.O. Patt, 1977. Examination of thermodynamic soil cooling combined with home air-conditioning as a water and energy conservation technique. Technical Report H-W No. 31, 29p.

**Abstracts for talks (last 5 years)**

- Campana, Michael E. 2014. South Caucasus saga: water, energy, and security in the Kura-Araks Basin of Armenia, Azerbaijan, and Georgia. AWRA Annual Conference, Tysons Corner, VA.
- Campana, Michael E. 2014. Groundwater: quo vadis? AWRA Annual Conference, Tysons Corner, VA.
- Campana, Michael E. 2014. Establishment of a potable water partnership in Omoa, Honduras. Geological Society of America Annual Meeting, Vancouver, BC.
- Campana, Michael E. 2014. IWRM and groundwater: have the twain met yet? AWRA Summer Specialty Conference, Reno, NV.
- Campana, Michael E. 2014. IWRM and potable water systems in rural Honduras. AWRA Summer Specialty Conference, Reno, NV.
- Costello, Denise and Campana, M. 2013. An evaluation of a water, sanitation, and hygiene (WASH) Program for rural communities in northern Afghanistan. AWRA Annual Conference, Portland, OR.
- Campana, Michael E., 2013. Melting glaciers and groundwater storage: Ever the twain shall meet? AWRA Annual Conference, Portland, OR.
- Campana, Michael E., 2013. Growing groundwater governance in Graceland: The Memphis Sand aquifer. AWRA Annual Conference, Portland, OR.
- Campana, Michael E., 2013. Hydrophilanthropy, hydrogeology, and Hydrogeologists Without Borders: Integrating groundwater with international development. AWRA Annual Conference, Portland, OR.
- Campana, Michael E., 2013. Evolution of a potable water partnership in Omoa, Honduras. OU WaTER Conference, Norman, OK.
- Campana, Michael E., 2013. Hydrogeologists Without Borders: Integrating groundwater with international development. OU WaTER Conference, Norman, OK.
- Campana, Michael E., 2013. Hydrogeologists Without Borders: Connecting groundwater professionals with international development. CWRA Annual Congress, Saskatoon, SK.
- Campana, Michael E., 2012. Groundwater development on the Embera Indian comarca, southern Darien Province, Panama. IAH 2012 Congress, Niagara Falls, Ontario.
- Campana, Michael E., 2012. The groundwater-IWRM conundrum. AWRA Annual Water Resources Conference, Jacksonville, FL.
- Campana, Michael E. 2012. Does the USA need a national water (fill in the blank) vision, strategy, policy, ethic? Canadian Water Resources Association-Canadian Geophysical Union National Conference, Banff, Alberta.
- Campana, Michael E., 2012. Crisis, conflict, security, sustainability: the future of water. Naval Academy Science and Engineering Conference, Annapolis, MD.

- Campana, Michael E., 2011. IWRM and groundwater: and never the twain shall meet? AWRA Summer Specialty Conference, Snowbird, UT.
- Campana, Michael E., 2011. Climate change and Oregon's water future, The Oregon Water Conference 2011, Corvallis, OR.
- Campana, Michael E., 2011. Oregon's water future. AWRA Spring Specialty Conference, Baltimore, MD.
- Campana, Michael E., 2011. Rural groundwater supply in a developing country, OU WaTER Conference, Norman, OK.
- Campana, Michael E., 2010. Mississippi vs. Memphis: the curious case of the Memphis Sand aquifer. ISARM Workshop on Transboundary Groundwater, Paris.
- Campana, M.E., A.M. Neir, and G.T. Klise, 2010. Transnational groundwater: lessons from North America. *Abstracts*, UNESCO-IHP ISARM 2010 International Conference on Transboundary Aquifers: Challenges and New Directions, Paris, p. 101.
- Campana, Michael E., 2010. The Universities WaSH consortium: water, sanitation, and hygiene for the developing world. American Water Resources Association Annual Conference, Philadelphia, PA
- Campana, Michael E., 2010. Hydrophilanthropy, WaSH and experiential learning in Honduras. American Water Resources Association Annual Conference, Philadelphia, PA
- Campana, Michael E., 2010. Groundwater supply and empowerment for the Embera Indians, southern Darien province, Panama. American Water Resources Association, International Specialty Conference and 8th Caribbean Islands Water Resources Congress on Tropical Hydrology and Sustainable Water Resources in a Changing Climate, San Juan, Puerto Rico
- Campana, Michael E., 2010. Groundwater and integrated water resources management: and never the twain shall meet? Toward Sustainable Groundwater in Agriculture Conference, San Francisco, CA
- Campana, Michael E. 2010. The new Great Game: water, gas, and oil, in the South Caucasus. Ground Water Summit, Denver, CO
- Campana, Michael E. et al. 2009. Statewide water roundtables: taking Oregon's water pulse. American Water Resources Association Annual Conference, Seattle, WA
- Campana, Michael E., 2009. Drilling water wells for community water supply in developing countries. WaTER Conference, Norman, OK
- Campana, Michael E., 2009. Empowering the Epera Indians through groundwater, southern Darien Province, Panama, Groundwater for the Americas, Panama City, Panama
- Campana, Michael E., 2008. Potable water and empowerment for the Epera Indians, Panama. *Proceedings*, American Water Resources Association Annual Conference, New Orleans, LA.

Campana, Michael E., 2008. Waterblogged: water in the blogosphere. *Proceedings*, American Water Resources Association Annual Conference, New Orleans, LA.

Campana, Michael E. and Berrin Basak Vener, 2008. Conflict, Cooperation, and the New 'Great Game' in the Kura-Araks Basin of the South Caucasus. Universities Council on Water Resources/National Institutes for Water Resources (UCOWR/NIWR) Annual Conference, Durham, NC.

### RECENT INVITED LECTURES

- *Integrated Water Resources Management: The Emperor's New Clothes or Indispensable Process?* Western SD Hydrology Meeting, Rapid City, SD, April 2014
- *Hydrophilanthropy: What YOU Can Do?* NGWA Groundwater Expo, Nashville, TN, December 2013
- *Hydrophilanthropy: Quo Vadis?* Keynote address, Forest Research Sym. VPI&SU, March 2012
- *The Energy-Water Nexus*, Water Forum for the Americas, Medellin, Colombia, November 2011
- *Water, Energy, Cooperation, and Conflict in the Kura-Araks Basin of the South Caucasus*, Keynote Address, Korea Water Resources Assn. Annual Conference, Daegu, ROK, May 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
- *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, 38<sup>th</sup> 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

### WEBINARS

Have conducted webinars for the Canadian Water Network (Use of Social Media for Students and Young Professionals); National Ground Water Association (Hydrophilanthropy); American Water Resources Association (Hydrophilanthropy)

### TEACHING AND ADVISING

*Oregon State University*

**Student Thesis Advisor**

Morgan Crowell, MS, Water Resources Science, 2012

Paul Kingsley, MS (Professional Science Masters), Environmental Science, 2012

Evan S. Miles, MS, Water Resources Science, 2011  
 Abigail Brown, MS, Water Resources Policy and Management, 2010  
 Yoshiko Sano, MS, Water Resources Policy and Management, 2009  
 Denise Costello, MS, Geography, 2013  
 Morgan Crowell, Water Resources Policy and Management, expected 2014  
 Baek Soo 'Peggy' Lee, PhD, Water Resources Science, expected 2015  
 Maria Gibson, PhD, Geology, expected 2015  
 Michael Sumner, MS, Water Resources Engineering, expected 2015  
 Katherine Valentine, BS, Environmental Sciences, expected 2015  
 Emilene Sivagnanam, BS, Environmental Sciences, expected 2014  
 Nicholas Kusanto, BS, Chemical Engineering, expected 2014

#### **Student Advisory Committees**

Jennifer Veilleux PhD, Geography  
 Mariya Pak, PhD, Geography  
 Jacob Petersen-Perlman, PhD, Geography  
 Brian Chaffin, PhD, Geography  
 Julie Watson, PhD Geography  
 Kimberly Ogren, PhD Geography  
 Kara DiFrancesco, PhD, Water Resources Engineering  
 Alexandra Savotkina, PhD, Geography  
 Denni Ridwan, MS, Water Resources Engineering, 2013  
 Patrick Macquarrie, PhD Geography, 2012  
 Harmony Burright, MS, Water Resources Policy and Management, 2012  
 Cyndi Comfort, MS (Professional Science Masters) Environmental Science, 2011  
 Sierra Echo Franks, MS, Sustainable Resources, 2012  
 Jennifer Holderman, MS, Water Resources Science, 2009  
 Four others – all MS

#### **Graduate Council Representative**

Brendan Galipeau, MS, Anthropology, 2012  
 Jillian Egan, MA, Communications, 2012  
 Six others

#### **Student Thesis Advisor – Other than OSU**

##### ***University of New Mexico - Earth & Planetary Sciences degrees, specializing in Hydrogeology***

Barton Faulkner, PhD, 2007  
 Compartmental modeling approach for evaluating nutrient retention and attenuation in streams

Erin A. Carroll, MS, 2006  
 A water quality assessment of the upper Rio Fonseca drainage basin, Boaco, Nicaragua

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

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



- Senait T. Ghebremicael, MS, 2002  
Source of and controls on arsenic in the groundwater of the Fernley area, Nevada
- Jerry K. Bird, MS, 1998  
Evaluation of aquifer recharge using a mass-balance model and conservative tracers, Sandia National Laboratories/Kirtland Air Force Base, Albuquerque, New Mexico
- Sharman L. Carpenter, MS, 1997  
Numerical simulation of density-dependent contaminant transport in ground water near Lake Karachai, Russia
- Robert N. Gray, MS, 1997  
Hydrologic budget analysis and numerical simulations of groundwater flow in Los Alamos Canyon near Los Alamos, New Mexico
- James R. Brainard, MS, 1997  
Vadose zone flow processes in heterogeneous alluvial fan deposits: experimental design, data evaluation and error analysis
- Kristine Baker-Smith, BS, 1997  
Compartment modeling of groundwater residence times and stream-aquifer interactions
- Leslie A. Hohweiler, MS, 1996  
A method for predicting land subsidence as a result of groundwater withdrawal, Albuquerque, New Mexico
- John L. Appel, MS, 1995  
Hydrogeologic framework of the High Creek calcareous fen, South Park, Park County, Colorado
- Gregory J. Wroblicky, MS, 1995  
Numerical modeling of stream-groundwater interactions, near-stream flowpaths and hyporheic zone hydrodynamics of two first-order mountain stream-aquifer systems
- Armand R. Groffman, MS, 1994  
The characterization of groundwater chemistry and colloids downgradient from uranium mill tailings at Slick Rock and Rifle, Colorado
- Mark A. Burkhard, BS, 1991  
A modified submerged pressure outflow cell for the determination of soil moisture retention characteristics
- University of New Mexico – Master of Water Resources (MWR) degrees - specializing in Water Resources or Water Resources Administration. These were projects, not theses.***
- Berrin Basak Vener, MWR, 2006  
The Kura-Araks basin: common objectives and obstacles for an integrated water resources management model among Armenia, Azerbaijan, and Georgia
- Matthew Lane, MWR, 2006

## Corrective action plan for the New Mexico landfill

Tara Putney, MWR, 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

Barbara Heemink, MWR, 2005

An assessment of domestic water consumption discrepancies between commercial farms and majengos along South Moi Lake Road, Lake Naivasha, Kenya

Pallab Mozumder, MWR, 2005

Exploring flood mitigation strategies in Bangladesh

Heidi R. Henderson, MWR, 2005

Nutrient criteria recommendations for eutrophication management of New Mexico reservoirs

Darrell Kundargi, MWR, 2005

Effects of bovine exclosure fencing on water quality and vegetative conditions, Bluewater Creek, New Mexico

Jules Campbell Parrish, MWR, 2005

Dynamic simulation modeling of groundwater basins in the Upper Rio Grande Basin, Colorado-New Mexico

Melanie L. Luna, MWR, 2005

Potential for ground-water contamination from deep well injection of produced waters in the Salt Basin, NM

Amy Louise, MWR, 2004

Sustainable water supply for the village of Kpandu Dafor, Volta region, Ghana

Hani Iwhish, MWR, 2004

Fresh water supply enhancement through rooftop rainwater harvesting for West Bank rural communities

Nicole L. Marcell, MWR, 2004

Exposure evaluation of an aviation gasoline release at a municipal airport in central Wisconsin.

Meaghan O'Rourke, MWR, 2004

Appropriate erosion control techniques for the rural hillsides of Honduras.

Amy Ewing, MWR, 2003

Water quality and public health monitoring of surface waters in the Kura-Araks river basin of Armenia, Azerbaijan and Georgia

Lynne M. Paretchan, MWR, 2003

Water resource management strategies: Deschutes basin, Oregon

- Jessica Bentley, MWR, 2003  
Constructed surface flow wetlands for oil refinery wastewater treatment in New Mexico
- Michael Gabora, MWR, 2003  
A  $\delta^{18}\text{O}$  calibrated compartmental mixing cell model of groundwater flow in the Roswell Basin, southeastern New Mexico
- Eric T. Riebsomer, MWR, 2003  
Chemistry variation during purging of alluvial wells at Los Alamos National Laboratory
- Kathy Grassel, MWR 2002  
Taking out the jacks: issues of jetty jack removal in bosque and river restoration planning
- Sherry Evans-Carmichael, MWR, 2001  
Rancho West Estates water distribution system replacement funding project
- Tobin K. Walters, MWR, 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
- Casey W. Cook, MWR, 2000  
A mixing cell groundwater model of the Fernley, Nevada area
- William S. McDonald, MWR, 2000  
Urbanization of Seven Springs, New Mexico: an evaluation of current and projected impacts on ground- and surface-water resources
- Linda I. Gordan, MWR, 2000  
Water supply sustainability through water banking
- Christopher T. McLean, MWR, 2000  
Estimates of radionuclide loading to Cochiti Lake from Los Alamos Canyon using manual and automated sampling
- Jeffrey L. Peterson, MWR, 1999  
Coordinated water resource planning for the Sandia Basin: a perspective on regional planning needs
- Elaine S. Brouillard, MWR, 1999  
Erosion potential of the main branch of the Piedras Marcadas watershed, Petroglyph National Monument, New Mexico
- Marquis B. Childs, MWR, 1999  
Soil radionuclide concentrations and preliminary stormwater model assessment at Material Disposal Area G, Los Alamos National Laboratory
- Tom Krause, MWR, 1998  
Who speaks for the Rio Jemez? A management plan for the lower Jemez River basin
- April M. Fitzner, MWR, 1998

Physical and legal aspects of river rehabilitation, Middle Rio Grande, New Mexico

A. Kyle Harwood, MWR, 1995

The urban stormwater contribution of dissolved trace metals from the North Floodway Channel, Albuquerque, NM, to the Rio Grande

*University of Nevada-Reno (all degrees are in Hydrology and Hydrogeology)*

Robert M. Byer, MS, 1991

A carbon-14 calibrated discrete-state compartment model of the groundwater flow system, Yucca Mountain and vicinity, Nevada-California

William R. Sadler, MS, 1990

A deuterium-calibrated, discrete-state compartment model of regional groundwater flow, Nevada Test Site and vicinity

Kenneth R. Churan, MS, 1989

A transient input discrete-state compartment model of groundwater flow in the Ojo Alamo Sandstone, San Juan Basin, New Mexico

Edward J. Pottorff, MS, 1988

A new approach for simulating heat transfer and groundwater flow in the Leach Hot Springs hydrothermal system, Pershing County, Nevada

James G. Roth, MS, 1988

Delineation of the Railroad Valley flow system using a deuterium calibrated-groundwater model

Amy K. Hadiaris, MS, 1988

Quantitative analysis of groundwater flow in Spanish Springs Valley, Washoe County, Nevada

Susan J. Erikson, MS, 1988

Thermometry as a tool for determining the hydrologic properties of the vadose zone

Isam E. Amin, PhD, 1987

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

Thomas A. Feeney, MS, 1987

A deuterium-calibrated groundwater flow model of the western Nevada Test Site and vicinity

Stephen T. Kirk, MS, 1987

Analysis of the White River groundwater flow system using a deuterium-calibrated discrete-state compartment model

Gary B. Karst, MS, 1987

Analysis of the northern Dixie Valley groundwater flow system using a discrete-state compartment model

William Linderfelt, MS, 1987

Numerical analysis of infiltration and near-surface percolation in relation to Yucca Mountain, Nevada

David H. Emme, MS, 1986

Delineation of subsurface flow in the Upper Meadow Valley Wash area, southeastern Nevada

Anthony D. Truschel, MS, 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

Richard L. Boone, MS, 1983

Groundwater recharge and subsurface flow processes on a hillslope in the Clear Creek watershed, eastern Sierra Nevada

Neil L. Ingraham, MS, 1982

Environmental isotope hydrology of the Dixie Valley geothermal system, Dixie Valley, Nevada

James E. Szecsody, MS, 1982

Use of major ion chemistry and environmental isotopes to delineate subsurface flow in Eagle Valley, Nevada

John E. Dowden, MS, 1981

Numerical simulation of artificial recharge in Cold Spring Valley, Nevada

Donald E. Price, MS, 1981

Hydrogeologic study of groundwater-surface water interactions at Topaz Lake, NV

Salem S. Arghin, MS, 1980

Hydrogeology of the Al-Marj Basin, Libya

Robert C. Broadbent, MS, 1980

Numerical modeling of the effects of artificial recharge in the Las Vegas Valley, Nevada

Ahmidi A. Alkaseh, MS, 1979

Hydrogeological and hydrogeochemical aspects of the Jalo area, Libya

Donald A. Mahin, MS, 1978

Analysis of groundwater flow in the Edwards limestone aquifer, San Antonio area, Texas

### **Student Advisory Committees**

Excluding those I chaired, I have served on over 150 Master's and PhD committees in water resources administration, biology, hydrology/hydrogeology, geology, geological, geography, engineering, soil science, civil engineering, water resources, economics, environmental science, and range, wildlife, and forestry.

### **Courses Taught at UNM, UNR, and OSU (emboldened)**

***Undergraduate***

Historical Geology (9 times); Physical Geology (4); Environmental Systems (3);  
Watershed Management (1); **The Solid Earth (2), Introduction to Water Science and  
Policy (6; includes two Honors sections); Water Resources Management in the U.S. (2)**

***Graduate/Undergraduate***

Groundwater Hydrology/Hydrogeology (18); **Hydrogeology (1)**; 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 (2); Water Resources Management in the US (3); Physical  
Hydrogeography (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 (3)**

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

A Statewide Suitability Assessment of Aquifer Storage Recovery in Washington.  
Washington State Department of Ecology; \$57,000. 6/1/2012 – 4/30/13

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. [**Note:** award suspended after UNESCO vote admitting Palestine; expect  
eventual reinstatement]

Surface Water Quality Modeling in the Kura-Araks River Basin of the South Caucasus. OSU  
Vice President for Research. \$10,000. 4/15/11 – 1/31/13.

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.

**University of New Mexico**

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 – 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.

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).

## CONSULTING

What little consulting I do is for nonprofits, mostly related to water and sanitation issues in developing countries.

## PUBLIC SERVICE ACTIVITIES

### Outreach

WaterWired blog (<http://www.waterwired.org>). Has averaged one post daily since January 2007. Provides information, news, commentary, and analysis of important global freshwater issues. Enjoys objective and comprehensive reputation. WaterWired is picked up by e-news aggregators and other blogs/websites. Has attracted students and others to Oregon State University. I also post to other blogs/sites: AWRA blog and <http://siswebs.org/water>

WaterWired Twitter (<http://twitter.com/waterwired>). Same as above but within the confines of the Twitter format. Mostly forward links to news items, websites, blog posts, etc. Over 6,000 followers and 22,000+ Tweets since February 2009..

The Oregon Water List (TOWL; <http://lists.oregonstate.edu/mailman/listinfo/oregon-water-list>). This traditional email list is more about information (news, jobs) than discussion. Initially oriented solely to the PNW, it now has an international following of over 1,100 subscribers.

In addition to my electronic outreach activities, I provide information in more traditional ways: presentations to off-campus groups (average six yearly); phone; email (mostly – I average about ten such inquiries per week.)

### Community Service Activities (since 2002)

Groundwater Advisory Committee, Oregon Water Resources Department, 2011-present

Hydrogeologists Without Borders – Board of Directors, 2011- present

Watershed Management Advisory Committee, City of Corvallis, 2007-2011

Benton-Lane-Linn Counties Upper Willamette Water Reso. Study Group, 2009-2011

Water Initiative Working Group, Oregon Business Plan, 2008-2009

Exempt Groundwater Well Policy Consensus Work Group, State of Oregon, 2008

Executive and Steering Committees, Benton County Water Project, 2008-2010

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,  
New Mexico State Engineer, 2004-2005  
Volunteer, Lifewater International, 1997- 2004  
Volunteer, Living Water International, 1998-2004

**Ann Campana Judge Foundation**

Founder, President, Treasurer, Ann Campana Judge Foundation (501c3), 2002 - present.  
*Mission Statement: The Ann Campana Judge Foundation exists to promote, undertake, support, and fund philanthropic projects focused on potable water, sanitation, and health in developing countries.*

The ACJF currently works exclusively in Central America, mainly in Honduras and Nicaragua. The ACJF funds other nonprofits and works in northwestern Honduras building small village (100- 400 residents) water and sanitation systems. Visit: <http://www.acjfoundation.org>