

## JAMES M. THOMAS

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### EDUCATION

- 1996 Ph.D. Hydrology/Hydrogeology, University of Nevada-Reno, Reno, Nevada
- 1980 M.A. Geology, Indiana University, Bloomington, Indiana
- 1975 B.A. Geology, University of Vermont, Burlington, Vermont

### EXPERIENCE

- 2007-present: Research Professor, Desert Research Institute, Division of Hydrologic Sciences  
As a research professor and Senior Director of DRI's Center for Watersheds and Environmental Sustainability, I am the program manager for several large research programs including the Walker Basin Project, the Water Resource Evaluation Program for the State of Nevada, and DRI's Lake Tahoe research program. All three of these programs consist of numerous individual but related projects. These large interdisciplinary programs conduct research at the watershed scale to obtain information needed to inform land management and regulatory agencies for making decisions and setting water policy. My research is primarily in the areas of hydrology, water chemistry, and application of isotopes to solving hydrologic problems. A major focus of this research involves water resource evaluations in arid climates, age dating groundwater, effectiveness of erosion control projects on removing fine sediment and nutrients from stormwater runoff, developing safe drinking water supplies in rural villages of West Africa, and the effects of climate change on water resources.
- 2005-present Senior Director of Center for Watersheds and Environmental Sustainability (CWES)  
The Director of CWES is responsible for developing interdisciplinary and interdivisional research programs involving watershed science. The primary focus of the Director is developing an integrated science program that will be used for science-based decision making by land managers and regulators in the Lake Tahoe and Walker Lake basins. As time allows, the Director also is responsible for developing interdisciplinary and interdivisional research in other watersheds in Nevada and internationally.
- 1999-2007: Associate Research Professor, Desert Research Institute, Division of Hydrologic Sciences  
My research is primarily in hydrology and water chemistry and involves using hydrologic, geochemical, and isotopic data to help understand geochemical, hydrologic, and biological processes in groundwater and surface water systems. Main areas of current research include (1) northern Nevada watersheds, with emphasis on nutrient and suspended sediment loading in the Lake Tahoe and Walker Lake basins and the effectiveness of best management practices; (2) eastern and southern Nevada, with emphasis on the evaluation of groundwater resources in regional flow systems including the Nevada Test Site and Yucca Mountain areas; and (3) West Africa, with emphasis on developing safe water supplies in rural villages and evaluating sustainability of those water resources.
- 1999-present: Faculty member of the Hydrologic Sciences Graduate Program at the University of Nevada, Reno. Duties include teaching courses in the program, funding and working with graduate students as research assistants, and faculty advisor to international student association.
- 1980-1999: Research Hydrologist, U.S. Geological Survey, Carson City, Nevada

Research primarily involved water chemistry with emphasis on modeling geochemistry of groundwaters to determine their age, geochemical processes affecting water chemistry, identifying sources or processes that produce observed water chemistry, and evaluating surface water chemistry and processes producing water chemistry in watersheds.

1997-1999: Adjunct Professor, Hydrologic Sciences Graduate Program, University of Nevada, Reno, Reno, Nevada

Taught Isotope Hydrology, which covers the theory of isotopes used in hydrologic studies and emphasizes application of isotopes for solving geochemical and hydrologic problems.

1978-1980: Research Assistant, Indiana University, Bloomington, Indiana

Collected, analyzed, and interpreted hydrologic, geologic, and geochemical data to determine the effects of coal mining on groundwater chemistry and evaluate flow-system interpretations in karst terrain.

1978: Environmental Scientist, Amax Coal Company, Indianapolis, Indiana

Hydrologic and geochemical monitoring for evaluating reclaimed open-pit coal mining sites.

## COLLABORATIVE RESEARCH

Battelle Pacific Northwest Laboratories  
Lamont-Doherty Earth Observatory of Columbia University  
Lawrence Livermore National Laboratory  
Southern Nevada Water Authority  
University of Arizona Accelerator Facility  
University of Nevada-Reno  
University of South Carolina  
U.S. Geological Survey

## PROFESSIONAL ACTIVITIES

Presented research and chaired theme sessions at international, national, and local conferences, including the American Geophysical Union, American Water Resources Association, Canadian/ American Conference on Hydrology, Geological Society of America, International Symposium on Water-Rock Interaction, Rocky Mountain Conference on Analytical Chemistry, and the Nevada Water Conference.

## PROFESSIONAL MEMBERSHIPS

American Geophysical Union  
Geological Society of America  
International Association of Geochemistry and Cosmochemistry  
International Association of Hydrology  
Nevada Water Resources Association  
Phi Kappa Phi National Honor Society  
The Geochemical Society

## BIBLIOGRAPHY

- Thomas, J.M., 1980, Water chemistry and flow system of the early Pennsylvanian Mansfield Formation aquifer system in Clay County, Indiana: Indiana University, M.A. thesis, 76 p.
- Harrill, J.R., Welch, A.H., Prudic, D.E., Thomas, J.M., Carman, R.L., Plume, R.W., Gates, J.S., and Mason, J.L., 1983, Aquifer systems in the Great Basin region of Nevada, Utah and adjacent states - a study plan: U.S. Geological Survey Open-File Report 82-445, 49 p.
- Schaefer, D.H., Thomas, J.M., and Duffrin, B.G., 1984, Principal facts for gravity stations in Dixie, Fairview and Stingaree Valleys, Churchill and Pershing Counties, Nevada: U.S. Geological Survey Open-File Report 84-586, 15 p.
- Welch, A.H., and Thomas, J.M., 1984, Aqueous geochemistry and isotope hydrology of the White River system, eastern Nevada: Geological Society of America Abstracts with Programs, v. 16, no.6, p. 689.
- Bedinger, M.S., Harrill, J.R., Langer, W.H., Thomas, J.M., and Mulvihill, D.A., 1985, Maps showing ground-water levels, springs, and depth to ground water, Basin and Range Province, Nevada: U.S. Geological Survey Water-Resources Investigations Report 83-4119-B, II p.
- Bedinger, M.S., Harrill, J.R., and Thomas, J.M., 1985, Maps showing ground-water units and withdrawal, Basin and Range Province, Nevada: U.S. Geological Survey Water-Resources Investigations Report 83-4119-A, 10 p.
- Thomas, J.M., Welch, A.H., and Preissler, A.M., 1985, Geochemical evolution of ground water in a hydrologically closed basin, northern Basin and Range Province, Nevada: Banff, Canada, Proc./Practical Appl. of Ground-Water Geochemistry Conf., June 1984, p. 189.
- Carlton, S.M., and Thomas, J.M., 1986, Documentation for a digital computer model of the basin-fill aquifer in Smith Creek valley, Lander County, Nevada: U.S. Geological Survey Regional Aquifer-System Analysis Report, 6 p.
- Thomas, J.M., Mason, J.L., and Crabtree, J.D., 1986, Ground-water levels in the Great Basin region of Nevada, Utah, and adjacent states: U.S. Geological Survey Hydrologic Investigations Atlas 694-B, 2 sheets.
- Thomas, J.M., and Hoffman, R.J., 1987, Nevada ground-water quality, in Moody, W.M., and others, National Water Summary 1986 - Hydrologic events and ground-water Quality: U.S. Geological Survey Water-Supply Paper 2325, p. 355-362.
- Harrill, J.R., Gates, J.S., and Thomas, J.M., 1988, Major ground-water flow systems in the Great Basin region of Nevada, Utah, and adjacent states: U.S. Geological Survey Hydrologic Investigations Atlas 694-C, 2 sheets.
- Harrill, J.R., Gates, J.S., Thomas, J.M., and Mifflin, M., 1988, Ground-water flow systems in the Great Basin, in Hydrogeology: Geological Society of America. The geology of North America, v. 0-2, plate 3, scale 1:1,000,000.
- Thomas, J.M., 1988, Delineation of regional ground-water flow systems in southern Nevada using isotopic and chemical data: Geological Society of America Abstracts with Programs, v. 20, no. 7, p. 363.
- Thomas, J.M., Carlton, S.M., and Hines, L.B., 1989, Ground-water hydrology and simulated effects of development in Smith Creek Valley, a hydrologically closed basin in Lander County, Nevada: U.S. Geological Survey Professional Paper 1409-E, 57 p.

- Thomas, J.M., Welch, A.H., and Preissler, A.M., 1989, Geochemical evolution of ground water in Smith Creek Valley--a hydrologically closed basin in central Nevada, U.S.A.: *Applied Geochemistry*, v. 4, no. 5, p. 493-510.
- Dettinger, M.D., Schaefer, D.H., and Thomas, J.M., 1990, Tertiary-age extensional patterns as a geologic framework for interpreting regional ground-water flow in the eastern Great Basin, Nevada and Utah, in Flanigan, D.M.H., and others, eds., *Oil fields and geology of the Pine Valley. Eureka County area, Nevada: 1990 Fieldtrip Guidebook*, Nevada Petroleum Society, p. 55.
- Thomas, J.M., Schaefer, D.H., and Dettinger, M.D., 1990, Use of geochemical data to trace ground-water flow, which could affect oil migration, in carbonate-rock aquifers of the eastern Great Basin, Nevada and Utah, in Flanigan, D.M.H., and others, eds., *Oil fields and geology of the Pine Valley, Eureka County area, Nevada: 1990 Fieldtrip Guidebook*, Nevada Petroleum Society, p. 56.
- Thomas, J.M., Welch, A.H., and Gundersen, L.C.S., 1990, Distribution and sources of radon 222 in ground water in the Carson River Basin, western Nevada and eastern California, U.S.A.: *Transactions, American Geophysical Union*, v.71, no. 43, p. 1305.
- Welch, A.H., Thomas, J.M., and Gundersen, L.C.S., 1990, Distribution and sources of uranium in the Carson River Basin, western Nevada and eastern California, U.S.A.: *Transactions, American Geophysical Union*, v. 71, no. 43, p. 1305.
- Thomas, J.M., Lyles, B.F., and Carpenter, L.A., 1991, Chemical and isotopic data for water from wells, springs, and streams in carbonate-rock terrane of southern and eastern Nevada and southeastern California, 1985-1988: *U.S. Geological Survey Open-File Report 89-422*, 24p.
- Thomas, J.M., 1993, Carbon-14 dating of ground water in carbonate-rock aquifers of southern Nevada - A complex problem: *Geological Society of America Abstracts with Programs*, v. 25, no. 6, p. A-90.
- Thomas, J.M., Welch, A.H. and Gundersen, L.C.S., 1993, Distribution and sources of uranium in ground water in the Carson River Basin, western Nevada and eastern California, U.S.A.: *35th Rocky Mountain Conference on Analytical Chemistry Program and Abstracts*. July 25- 29, 1993, abstract no. 322.
- Thomas, J.M., Welch, A.H., Lico, M.S., Hughes, J.L., and Whitney, R., 1993, Radionuclides in ground water of the Carson River basin, western Nevada and eastern California, U.S.A.: *Applied Geochemistry*, v. 8, no. 5, p. 447-471.
- Thomas, J.M., and Lawrence, S.J., 1994, Ground-water quality and geochemistry in Dayton, Stagecoach, and Churchill Valleys, western Nevada: *U.S. Geological Survey Open-File Report 93-356*, 69 p.
- Thomas, J.M., 1995, Water budget and salinity of Walker Lake, western Nevada: *U.S. Geological Survey Fact Sheet*, ES-I 15-95, 4 p.
- Welch, KA., Lyons, W.B., Graham, E., Neumann, K., Thomas, AM., and Mikesell, D., 1995, The determination of major element chemistry in terrestrial waters from Antarctica using ion chromatography: *International Ion Chromatography Symposium '95*, Dallas, Texas.
- Burr, G.S., Thomas, J.M., and Courtney, C., 1996, Radiocarbon dating of dissolved organic and inorganic components in groundwater: *Radiocarbon*, v. 38, no. 1, p. 12.
- Graham, M.J., Thomas, J.M., and Metting, F.B., 1996, Part 2 Water Resource Quality (Natural Systems) - Groundwater, in L.W. Mays, ed., *Water Resources Handbook*, Chap. 11: McGraw-Hill, p. 11.1-11.39.

- Maurer, D.K., Plume, R.W., Thomas, J.M., and Johnson, A.K., 1996, Water resources and effects of changes in ground-water use along the Carlin trend, north-central Nevada: U.S. Geological Survey Water-Resources Investigations Report 96-4134, 146 p.
- Thomas, J.M., 1996, Geochemical and isotopic interpretation of groundwater flow, geochemical processes, and age dating of groundwater in the carbonate-rock aquifers of the southern Basin and Range: University of Nevada, Reno, Ph.D. dissertation, 135 p.
- Thomas, J.M., Welch, A.H., and Dettinger, M.D., 1996, Geochemistry and isotope hydrology of representative aquifers in the Great Basin region of Nevada, Utah, and adjacent states: U.S. Geological Survey Professional Paper 1409-C, 100 p.
- Thomas, J.M., Winograd, I.J., and Coplen, T.B., 1996, Carbon-14 dating of groundwater in southern Nevada: Three decades of surprises: Geological Society of America Abstracts with Programs, v. 28, no. 7, p. A-197.
- Welch, K.A., Lyons, W.B., Graham, B., Neumann, K., Thomas, J.M., and Mikesell, D., 1996, Determination of major element chemistry in terrestrial waters from Antarctica by ion chromatography: *Jour. of Chromatography A*, v. 739, p. 257-263.
- Thomas, J.M., Allander, K.K., Peterson, D.H., and Dettinger, M.D., 1997, Salt budget of Walker Lake, a terminal lake in western Nevada: *Transactions. American Geophysical Union*, v. 78, no. 46, p. F-227.
- Welch, A.H., Lawrence, S.L., Thomas, J.M., Schaefer, D.H., and Lico, M.S., 1997, Ground-water quality assessment of the Carson River basin, Nevada and California: Results of investigations, 1987-1991: U.S. Geological Survey Water-Supply Paper 2356-A, 93 p.
- Tyler, S.W., Cook, P.G., Butt, A.Z., Thomas, J.M., Doran, P.T., and Lyons, W.B., 1998, Evidence of deep circulation in two perennially ice-covered Antarctic lakes: *Limnology and Oceanography*, v. 43, no. 4, p. 625-635.
- Burr G.S., Thomas J.M., Jeffrey D., and Courtney C., 1999, Sample preparation of Dissolved Organic Carbon in groundwater for AMS  $^{14}\text{C}$  analysis: Proceedings: 8th International Conference on Accelerator Mass Spectrometry, 6-10 September, 1999. Vienna, Austria.
- Hershey, R.L., Rose T.P., Benedict, F.C., Thomas, J.M., 1999, Chemical and isotopic composition of groundwater recharge to the Oasis Valley flow system, Nevada: *Transactions. American Geophysical Union*, v. 80, no. 46, p. F-327.
- Rose T.P., Hershey, R.L., Thomas, J.M., Benedict, F.C., Hudson, G.B., Eaton, G.F., and Kenneally, J.M., 1999, Environmental isotopes in the Pahute Mesa-Oasis Valley groundwater flow system: *Transactions. American Geophysical Union*, v. 80, no. 46, p. F-328.
- Seiler, R.L., Zaugg, S.D., Thomas, J.M., and Howcroft, D.L., 1999, Caffeine and pharmaceuticals as indicators of wastewater contamination in wells: *Ground Water*, v. 37, no. 3, p. 405-410.
- Thomas, J.M., 1999, Comment on "Isotope hydrology of southern Nevada groundwater: stable isotopes and radiocarbon" by M.L. Davisson, D.K. Smith, J. Kenneally, and T.P. Rose: *Water Resources Research*, v. 35, no. 11, p. 3577-3579.
- Thomas, J.M., Benedict, F.C., Hershey, R.L., Rose T.P., 1999, Geochemical evaluation of sources, flow paths, and travel times of groundwater flow to Oasis Valley, Nevada: *Transactions. American Geophysical Union*, v. 80, no. 46, p. F-327.

- Thomas, J.M., Thodal, C.E., and Seiler, R.L., 1999, Identification of nitrate sources contributing to ground water in the Indian Hills area of Douglas County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 99-4042, 22 p.
- Burr G.S., Thomas J.M., Reines D., Courtney C. and Jull A.J.T., 2000, Sample preparation of dissolved organic carbon in groundwater for AMS  $^{14}\text{C}$  analysis: Proceedings: 17th International Radiocarbon Conference, Judean Hills, Israel 18-23 June, 2000.
- Landmeyer, J.E., P.M. Bradley and J.M. Thomas, 2000, Biodegradation of disinfection byproducts as a potential removal process during aquifer storage and recovery: *Journal of American Water Resources Association*, v. 36, no. 4, p. 861-867.
- Thomas, J.M., W.A. McKay, E. Cole, J.E. Landmeyer, and P.M. Bradley, 2000, The fate of haloacetic acids and trihalomethanes in an aquifer storage and recovery program, Las Vegas, Nevada: *Ground Water*, v. 38, no. 4, 605-614.
- Thomas, J.M., M. Stute, J.F. Clark and G.B. Hudson, 2000, Noble gases suggest groundwater flow across flow barriers in southern Nevada: *Geological Society of America Abstracts with Programs*, A-483.
- Burr, G.S., J.M. Thomas, D. Reines, D. Jeffrey, C. Courtney, A.J.T. Jull and T. Lange, 2001, Sample preparation of dissolved organic carbon in groundwater for AMS  $^{14}\text{C}$  analysis: *Radiocarbon*, v. 43, p. 183-190.
- Gorham, T.A., J.M. Thomas, and D.P. Boyle, 2001, Modeling concentrations of total dissolved solids in the Walker River to estimate hysteresis patterns and loading in Walker Lake, a terminal lake in western Nevada: *Geological Society of America Abstracts with Programs*, A-182.
- Morse, B.S., J.M. Thomas, and G.S. Burr, 2001, Radiocarbon dating of groundwater using paleoclimatic data and dissolved organic carbon in the southern Great Basin, Nevada and California: *Geological Society of America Abstracts with Programs*, A-107.
- Pohll, G., D. McGraw, J. Ralston, B. Bohm, J. Thomas, A. McKay, M. Widmer, T. Minor, G. Lamorey, O. Dahan, R. Carroll, K. Cupp, E. Jacobson, E. McDonald, E. Stevick and J. Huntington, 2001. Evaluation of groundwater and solute transport in the Fernley-Wadsworth Area: *Desert Research Institute Publication No. 41173*, 282 p.
- Ralston, J., J.M. Thomas, B. Bohm, and W.A. McKay, 2001, The influence of irrigation infiltration on the evolution of groundwater chemistry near Fernley, Nevada: *Geological Society of America Abstracts with Programs*, A-110.
- Thomas, J.M., S.C. Calhoun and W.B. Apambire, 2001, A deuterium mass-balance interpretation of groundwater sources and flows in southeastern Nevada: *Desert Research Institute Publication No. 41169*, 46 p.
- Thomas, J.M., T.A. Gorham, and K.K. Allander, 2001, Salt budget of Walker Lake, Nevada: *Nevada Water Resources Association Annual Conference Abstracts of Technical Presentations*, p 17.
- Thomas, J.M., B.S. Morse, G.S. Burr, and D.L. Reines, 2001, Age dating groundwater using dissolved organic carbon—an example from southern Nevada, USA: *Water-Rock Interaction, Proceedings of the 10<sup>th</sup> International Symposium on Water-Rock Interaction*, 1581-1584.
- Lyons, W.B., L.V. Benson, T.D. Bullen, K.A. Welch, J.M. Thomas, C.H. Nezat, E.Y. Graham and J. Kidd, 2002, Strontium isotopic signatures of the streams and lakes of Taylor Valley, Southern Victoria Land, Antarctica: Chemical weathering in a polar climate: *Aquatic Geochemistry*, v. 8, no. 2, p. 75-95.

- Thomas, J.M. and K.F. Pohlmann, 2002, Knowing the sources of water flowing from springs in the Great Basin is critical to their management: Spring—Fed Wetlands Important Scientific and Cultural Resources of the Intermountain Region, May 7-9, 2002 Las Vegas, Nevada, p. 13.
- Thomas, J.M., 2002, An isotopic and geochemical evaluation of groundwater in the Tule Desert area of southeastern Nevada: Virgin Valley Water District Report, 22 p.
- Thomas, J.M., F.C. Benedict Jr., T.P. Rose, R.L. Hershey, J.B. Paces, Z.E. Peterman, I.M. Farnham, K.H. Johannesson, A.K. Singh, K.J. Stetzenbach, G.B. Hudson, J.M. Kenneally, G.F. Eaton, and D.K. Smith, 2002, Geochemical and isotopic interpretations of groundwater flow in the Oasis Valley Flow System, Southern Nevada: Desert Research Institute Publication no. 45190, 285 p.
- Benedict, F.C., T.P. Rose, J.M. Thomas, R. Waddell and R. Jacobson. 2003. Geochemistry Technical Basis Document. Desert Research Institute, Division of Hydrologic Sciences, Publication No. 45205.
- Leonard, A., Thomas, J., Burr, G., and C. Galang, 2003, A dedicated sample preparation line for dissolved organic carbon in groundwater. Proceedings of the 18<sup>th</sup> International Radiocarbon Conference, Wellington, New Zealand 1-5 September, 2003.
- Rose, T.P., F.C. Benedict Jr., J.M. Thomas, W.S. Sicke, R.L. Hershey, J.B. Paces, I.M. Farnham and Z.E. Peterman, 2003, Geochemical data analysis and interpretation of the Pahute Mesa-Oasis Valley groundwater flow system, Nye County, Nevada: UCRL Livermore, CA: Lawrence Livermore National Laboratory.
- Sicke, W. and J. Thomas, 2003, Geochemical and isotopic evaluation of Pahute Mesa-Oasis Valley groundwater flow paths, southern Nevada: Watershed Management for Water Supply Systems.
- Thomas, J. M., 2003. West Africa Water Initiative (WAWI) Water Chemistry Field Method Manual, Release 1.0, December 2003, 137 p.
- Thomas, J.M. and W.H. Albright, 2003, Estimated groundwater recharge to Dry Valley, Northwestern Nevada, using the chloride balance method: Desert Research Institute Publication no. 41191, 25 p.
- Thomas, J.M. and W. B. Apambire, 2003, A Deuterium Mass Balance Model Approach for Evaluating a Groundwater Budget of a Regional Flow System in Southeastern Nevada. Geological Society of America Abstracts with Programs, 252-4.
- Thomas, J.M., G.B. Hudson, M. Stute and J.F. Clark, 2003, Noble gas loss may indicate groundwater flow across flow barriers in southern Nevada. *Environmental Geology*, v. 43, 568-579.
- Thomas, J.M. and T.P. Rose, 2003, Special Topic: Environmental isotopes in Hydrogeology. *Environmental Geology*, v. 43, 532-533.
- Dahan, O., D. McGraw, E. Adar, G. Pohll, B. Bohm, and J. Thomas, 2004, Multi-variable mixing cell model as a calibration and validation tool for hydrogeologic groundwater modeling. *Journal of Hydrology*, v. 293, 115-136.
- Gunter, M., Thomas, J., Mihevc, T., and A. Hayvaert, 2004, Nutrient and suspended solid concentrations for stormwater runoff in the Lake Tahoe Basin. Publication of Abstracts, Research as a Tool in the Tahoe Basin Issues, 2<sup>nd</sup> Biennial Conference on Tahoe Environmental Concerns, May 17-19, 2004.
- Jones, T., Thomas, J., French, R. and T. Mihevc, 2004, Evaluation of effectiveness of three types of highway alignment BMPs for sediment and nutrient control. Publication of Abstracts, Research as a Tool in the Tahoe Basin Issues, 2<sup>nd</sup> Biennial Conference on Tahoe Environmental Concerns, May 17-19, 2004.

- Mihevc, T., Thomas, J. and M.Gunter, 2004, Evaluation of urban runoff BMP effectiveness through assessment of mechanical treatment technologies and wetland systems employed at the Stateline Stormwater Project. Desert Research Institute Publication no. 41204, 60 p.
- Thomas, J., Mihevc, T., Cooper, C., Gunter, M., Heyvaert, A. and G. Michalski, 2004, Groundwater nutrient loading to Lake Tahoe in a near-shore area with high turbidity and chlorophyll. Desert Research Institute Publication no. 41213, 18 p.
- Thomas, J., T. Mihevc, D. Sada, and E. Sawyer, 2004, Annual data report for geochemical monitoring and interpretation for water budget development for the White River and Meadow Valley Wash regional groundwater flow systems: Desert Research Institute Letter Report, 18 p.
- Acheampong, S.Y., Thomas, J.M. and C.A. Cooper, 2005, Estimation of circulation depths of some low temperature thermal springs in east-central, Nevada. Nevada Water Resources Association 2005 Conference, Reno, Nevada.
- Ayamsegna, J.A., Ampabire, W.B., Thomas, J.M., and A. Lutz, 2005, Groundwater quality assessment, treatment, and monitoring in the Greater Afram Plains and northern region of Ghana. National Groundwater Association, Ground Water Summit, San Antonio, 76-78.
- Deverel, S., Thomas, J., Decker, D., Earman, S., Mihevc, T. and S. Acheampong, 2005, Groundwater evaporation estimates using stable isotope and chloride data, Yelland Playa, Spring Valley, Nevada. Desert Research Institute Publication no. 41219, 16 p.
- Hershey, R.L., Thomas, J.M., Rose, T.P., Paces, J.B., Farnham I.M. and F.C. Benedict Jr., 2005, Evaluation of groundwater movement in the Frenchman Flat CAU using geochemical and isotopic analysis. Desert Research Institute Publication no. 45207, 90 p.
- Jones, T., Thomas, J., Mihevc, T. and M. Gunter, 2005, Evaluation of effectiveness of three types of highway alignment BMPs for sediment and nutrient control. Desert Research Institute Publication no. 41209, 118 p.
- Lutz, A., Thomas, J., Apambire, B., Ayamsegna, J., and A. McKay, 2005, Ground water resource sustainability in a small watershed in northern Ghana. National Groundwater Association, Ground Water Summit San Antonio, 82-84.
- Mihevc, T., Thomas, J., Cooper, C., Powell, R. and J. Larson, 2005, Groundwater nutrient loading to Bridgeport Reservoir. Desert Research Institute Publication no. 41214, 64 p.
- Patterson, G.L. and J.M. Thomas, 2005, Carbon-14 groundwater analysis. Office of Science and Technology International, Annual Report 2005, 183-185.
- Rominger, D., Kozubowski, T.J., Panorska, A.K. and J.M. Thomas, 2005, Antidegradation water quality standards analysis project: Final report. Desert Research Institute Publication no. 41214, 156 p.
- Thomas, J., Deverel, S., Decker, D., Earman, S., Mihevc, T. and S. Acheampong, 2005, Groundwater evaporation from a playa in Spring Valley, Nevada. Transactions. American Geophysical Union, v. 86. no. 52, H33-G-08.
- Winograd, I.J., Fridrich, C.J., Sweetkind, D., Belcher, W.R., and J.M. Thomas, 2005, Comment on "Testing the interbasin flow hypothesis at Death Valley, California". American Geophysical Union, EOS, v. 86, no. 32, 294-297.
- Bohm, B., Thomas, J., Dahan, O., Ralston, J., and McKay, W., 2006, Ground water chemistry evolution under unsaturated zone sulfate salt dissolution in a Great Basin lacustrine aquifer, western United States. Transactions. American Geophysical Union, v. 87. no. 52, H41B-0387.



- Cablk, M., Zhu, J., Kratt, C., Jasoni, R., Young, M., Thomas, J. and J. Arnone, 2006, Multi-scale remote sensing observations as a basis for estimating evapotranspiration across the eastern Great Basin Desert, Nevada, USA. *Transactions. American Geophysical Union*, v. 87. no. 52, H23E-1551.
- Coats, R., Gunter, M., Heyvaert, A., Thomas, J., Luck, M., and Reuter, J., 2006, Water quality, watershed characteristics and land use in the Tahoe basin. Nevada Water Resources Association Lake Tahoe Science Plan Workshop October 18-20, 2006 Abstracts, p. 55.
- Goddard, K.E., Welch, A.H. and J.M. Thomas, 2006, BARCASS: An integrated, multi-agency hydrogeologic study of east-central Nevada. Nevada Water Resources Association 2006 Conference, February 21-23, Mesquite, Nevada.
- Heyvaert, A.C., Bachand, P.A.M. and J.M. Thomas, 2006, Phosphorus sorption characteristics of soils from selected stormwater infiltration sites in the Lake Tahoe Basin. U.C. Davis publication, 46 p.
- Heyvaert, A., Thomas, J., Edwards, R., Stassenburgh, C., Reuter, J., and Goldman, C., 2006, Preliminary results from a watershed source apportionment study of fine sediment loadings into Lake Tahoe. Nevada Water Resources Association Lake Tahoe Science Plan Workshop October 18-20, 2006 Abstracts, p. 63.
- Jasoni, R.L., Cablk, M.E., Thomas, J.M., Decker, D.L., Albright W.H. and Arnone, J.A., 2006, Evapotranspiration in Smoke Creek Desert, Nevada. Desert Research Institute Publication no. 41224, 62 p.
- Lundmark, K.W., Pohl, G.M., Carroll, R.W. and J.M. Thomas, 2006, Regional water budget accounting and uncertainty analysis using a deuterium-calibrated discrete state compartment model: White Pine County, Nevada, and adjacent areas in Nevada and Utah. *Transactions. American Geophysical Union*, v. 87, no. 52, H41E-0456.
- Parra, A., Stassenburgh, C., Goldman, C., Heyvaert, A., Mihevc, M., and Thomas, J., 2006, Development of a long-term stormwater monitoring network for the Lake Tahoe basin. Nevada Water Resources Association Lake Tahoe Science Plan Workshop October 18-20, 2006 Abstracts, p. 69.
- Patterson, G.L. and J.M. Thomas, 2006, Carbon-14 groundwater analysis. Office of Science and Technology International, Annual Report 2006, 6 p.
- Rose, T.P., F.C. Benedict Jr., J.M. Thomas, W.S. Sicke, R.L. Hershey, J.B. Paces, I.M. Farnham and Z.E. Peterman, 2006, Geochemical data analysis and interpretation of the Pahute Mesa-Oasis Valley groundwater flow system, Nye County, Nevada. Lawrence Livermore National Laboratory report UCRL-TR-224559, 155 p.
- Sawyer, F.E., Thomas, J.M., and S. Earman, 2006, A coupled mixing cell and geochemical flow path model of the White River Flow System, Nevada, USA. National Ground Water Association 2006 Ground Water Summit, San Antonio, TX.
- Sawyer, F.E., Thomas, J.M., and S. Earman, 2006, Coupled mixing cell and mass balance flow path models of the White River Flow System, Nevada, USA. *Transactions. American Geophysical Union*, v. 87. no. 52, H41E-0452.
- Thomas, J., T. Mihevc, D. Sada, R. Powell and C. Rosemond, 2006, Annual data report for geochemical monitoring and interpretation for water budget development for the White River and Meadow Valley Wash regional groundwater flow systems. Desert Research Institute Letter Report, 118 p.
- Carroll, R.W.H., Thomas, J.M., and S. Sharpe, 2007, Water rights purchases/leasing using the current Walker Lake total dissolved solids (TDS) model. Nevada Water Resources Association 2007 Truckee River Symposium October 16-18, Abstracts.

- Hershey, R.L., Heilweil, V.M., Gardner, P., Lyles, B.F., Earman, S., Thomas, J.M., and K.W. Lundmark, 2007, Ground-water chemistry interpretations supporting the Basin and Range Regional Carbonate-Rock Aquifer System (BARCAS) study, eastern Nevada and Western Utah. Desert Research Institute Publication no. 41230, 104 p.
- Knochenmus, L.A., Laczniak, R.J., Moreo, M.T., Sweetkind, D.S., Wilson, J.W., Thomas, J.M., Leigh, J., Hershey, R.L., Earman, S., Lyles, B.F. and K.W. Lundmark, 2007, Ground-water Conditions, *in* Welch, A.H., Bright, D.J. and L.A. Knochenmus (eds.), Water resources of the Basin and Range carbonate-rock aquifer system, White Pine County, Nevada and adjacent areas in Nevada and Utah. U.S. Geological Survey Scientific Investigations Report 2007-5261, 96 p.
- Lutz, A., J.M. Thomas, G. Pohll, W.A. McKay and W.B. Apambire, 2007, Ground water resource sustainability in the Bani area of Mali. National Ground Water Association 2007 Ground Water Summit, Albuquerque, NM, Program with Abstracts, 233.
- Lutz, A., Thomas, J., Pohll, G. and A. McKay, 2007, Groundwater resource sustainability in the Nabogo Basin of Ghana, West Africa. *Journal of African Earth Sciences*, v. 49, p. 61-70.
- Mihevc, T. and J. Thomas, 2007, Water chemistry, stable isotope, chlorofluorocarbon, and noble gas sampling and analyses of Arrow Creek Well #4, Desert Research Institute Letter Report, 7 p.
- Patterson, G.L. and J.M. Thomas, 2007, Carbon-14 groundwater analysis. Office of Science and Technology International, Annual Report 2006, 3 p.
- Sawyer, F.E., J.M. Thomas, S. Earman and R. Carroll, 2007, Coupled mixing-cell and mass balance flowpath models of the Whiter River Flow System, Nevada. National Ground Water Association 2007 Ground Water Summit, Albuquerque, NM, Program with Abstracts, 104-105.
- Sharpe, S.E., M.E. Cablk and J.M. Thomas, 2007, The Walker Basin, Nevada and California: Physical Environment, Hydrology, and Biology. Desert Research Institute Publication no. 41231, 63 p.
- Thomas, J.M., D.L. Decker, G.L. Patterson, Z.E. Peterman, T.M. Mihevc, J. Larsen and R.L. Hershey, 2007, Yucca Mountain area saturated zone dissolved organic carbon isotopic data. Yucca Mountain Nevada System of Higher Education Final Report, 15 p.
- Thomas, J.M. and T.M. Mihevc, 2007, Stable isotope evaluation of water budgets for the White River and Meadow Valley Wash regional groundwater flow systems in east-central and southeastern Nevada. Desert Research Institute Letter Report, 189 p.
- Arnone, J.A. III, Jasoni, R.L., Larsen, J.D., Fenstermaker, L.F., Wohlfahrt, G., Cratt, C.B., Lyles, B.F., Healey, J., Young, M.H. and Thomas, J.M., 2008, Variable evapotranspiration water losses from lowland agricultural and native shrubland ecosystems in the Great Basin of Nevada, Desert Research Institute Publication no. 655.7250.
- Coats, R., Larsen, M., Heyvaert, A., Thomas, J., Luck, M. and J. Reuter, 2008, Nutrient and sediment production, watershed characteristics, and land use in the Tahoe Basin, California-Nevada. *Journal of American Water Resources Association*: v. 44, no. 3, 754-770.
- Collopy, M., Miller, W. and J. Thomas, 2008, Tahoe Annual Summit—25 years of student research at Lake Tahoe. University of Nevada, Reno and Desert Research Institute Publication, 57 p.
- Heyvaert, A. C, Thomas J.M. and J.E. Reuter, 2008, Development of a long-term integrated Tahoe regional stormwater monitoring network. Desert Research Institute Publication, 85 p.

- Trembath-Reichert, E., Mailoux, B., Stute, M., Van Geen, A., Freyer, G., Zheng, Y., O'Mullan, G., Foster, R., Thomas, J. and Buccholz, B., 2008,  $^{14}\text{C}$  analysis of microbial DNA from Bangladesh groundwater: Implications for deep aquifer sustainability. Geological Society of America Abstracts with Programs, 327-7.
- Collopy, M.E., W.M. Miller, J.M. Thomas, and A.C. Heyvaert, 2009, Tahoe Annual Summit Report—A legacy of research, education, and outreach. University of Nevada, Reno and Desert Research Institute Publication, 33 p.
- Collopy, M.E. and Thomas, J.M., 2009, Restoration of a desert lake in an agriculturally dominated watershed: The Walker Lake Basin, Bureau of Reclamation Report, 1092 p.
- Heyvaert, A.C., Lutz, A., Memmott, J.C., Thomas, J.M., and Stone, M.C., 2009, Development and application of a limnological database and ecological model for Walker Lake in western Nevada, USA. International Symposium on Terminus Lakes, Oct 26-29, Reno, Nevada, p. 43.
- Jasoni, R.L., Lyles, B.F., Thomas, J.M., Larsen, J.D. and Arnone, J.A., 2009, Comparison of evapotranspiration rates measured in the Great Basin using the eddy covariance, Bowen ratio energy balance, and static chamber dome methods. Desert Research Institute Publication no. 656.9020, 37 p.
- Jasoni, R.L., Thomas, J.M., Cablk, M.E., Decker, D.L., Lyles, B.F., Arnone, J.A. and Albright W.H., 2009, Evapotranspiration in Smoke Creek Desert, Nevada. Desert Research Institute Publication no. 41224R, 62 p.
- Lutz, A., J.M. Thomas, G. Pohll, M. Keita and W.A. McKay, 2009, Sustainability of ground water in Mali, West Africa. *Environmental Geology*, 58 (7):1441-1450.
- Reuter, J.E., Thomas, J.M. and A.C. Heyvaert, 2009, Water Quality Chapter, in *Hymanson and Collopy, eds.*, Comprehensive Science Plan for the Lake Tahoe Basin: Conceptual Framework and Research Strategies. GTR publication.
- Collopy, M.E., Thomas, J.M., Miller W.M. and A.C. Heyvaert, 2010, Tahoe Annual Summit Report—A legacy of research, education, and outreach. University of Nevada, Reno and Desert Research Institute Publication, 31 p. and including a poster
- Eissa, M.A., Thomas, J.M., Dawoud, M.I., Pohll, G., Gomaa, M.A., Dahab, K.A. and R.L. Hershey, 2010, Groundwater resource sustainability in Wadi Watir, Gulf of Aqaba, Sinai, Egypt. 10<sup>th</sup> International Conference on Development of Drylands, Cairo, Egypt, December 12-15, 2010.
- Heyvaert, A. C., Reuter, J.E., Schladow, S.G. and J.M. Thomas, 2010, Tracking fine sediment particles in urban runoff and following the Angora Fire, 5<sup>th</sup> Biennial Lake Tahoe Basin Science Conference, March 16-17, Incline Village, Nevada.
- Heyvaert, A. C., Thomas, J.M., Reuter, J.E. and S.G. Schladow, 2010, Characteristics and patterns of urban stormwater runoff into Lake Tahoe, Great Lakes of the World International Symposium, Incline Village, Nevada, USA, August 2-4.
- Lutz, A., Thomas, J.M. and A. Panorska, 2010, Environmental controls on stable isotope precipitation values over Mali and Niger, West Africa. *Environmental Earth Sciences*, 62 (8): 1749-1759.
- Thomas, J.M., Heyvaert, A. C., Mihevc, T., Thodal, C.E., Allander, K.K., Rowe, T.G., and J.E. Reuter, 2010, Groundwater is an important source of nutrient loading to Lake Tahoe, CA-NV, USA, Great Lakes of the World International Symposium, Incline Village, Nevada, USA, August 2-4.

- Thomas, J.M. and A. Lutz, 2010, Engaging students in water resources issues in developing countries. American Geophysical Union Fall Meeting, San Francisco, CA.
- Bisiaux, M., Edwards, R., Heyvaert, A., Thomas, J., Fitzgerald, B., Susfalk, R., Schladow, G. and M. Thaw, 2011, Stormwater and fire as sources of black carbon nanoparticles to Lake Tahoe. *Environmental Science and Technology*, 45 (6): 2065-2071.
- Clow, D.W., Peavler, R.S., Roche, J., Panorska, A.K., Thomas, J.M. and S. Smith, 2011, Assessing possible visitor-use impacts on water quality in Yosemite National Park. *Environmental Monitoring and Assessment*.
- Huntington, J., Sullivan, A., Minor, T., Mihevc, T., Lyles, B., McCurdy, G., Allen, R., Pohl, G. and J. Thomas, 2011, Towards updating and enhancing existing agricultural consumptive use and basin Water budget estimates throughout the state of Nevada. Nevada Water Resources Association 2011 Annual Conference, February 1-3, Abstracts.
- Lutz, A., Thomas, J.M, and M. Keita, 2011, Effects of population growth and climate variability on sustainable groundwater in Mali, West Africa. *Sustainability*, 3(1), 21-34; doi:10.3390/su3010021.
- Lundmark, K.W., Pohl, G.M., Carroll, R.W.H. and J.M. Thomas, (in review) Regional Water Budget Uncertainty Analysis Using a Mass Balance Mixing-Cell Model: Eastern Nevada and Western Utah, USA. *Journal of Hydrology*.