

Anne E. Carey

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Education

- Ph.D.** Hydrology and Hydrogeology, University of Nevada, Reno, 1995
Research advisor Stephen W. Wheatcraft
Dissertation entitled “Dispersion and Electrolyte Diffusion in Salt Water Intrusion”
- S. M.** Civil and Environmental Engineering, Massachusetts Institute of Technology, 1986
Research advisor François M. M. Morel
Thesis entitled “Thorium Sorption onto Marine Particles”
- B. S.** Microbial Ecology, University of Massachusetts, 1975

Experience

Associate Dean for Student Services, College of Mathematical and Sciences, The Ohio State University, 2007–2009

Participant, HERS Bryn Mawr Summer Institute for Women in Higher Education, 2007

Associate Professor of Hydrogeology, School of Earth Sciences, The Ohio State University, 2005–present

Assistant Professor of Hydrogeology, Department of Geological Sciences, The Ohio State University, 1999–2005

Faculty Member, Byrd Polar Research Center, The Ohio State University, 1999–present

Assistant Director, Southeastern Regional Center, National Institute for Global Environmental Change, 1998–1999

Associate Research Engineer, Environmental Institute, The University of Alabama, 1998–1999

Associate Research Scientist, Center for Freshwater Studies, The University of Alabama

Faculty Member, Center for Freshwater Studies, The University of Alabama, 1996–1999

Temporary Assistant Professor, Department of Civil and Environmental Engineering, The University of Alabama, 1995–1998

Graduate Research Assistant, Graduate Program in Hydrology and Hydrogeology, University of Nevada, 1990–1995

Senior Associate, Gradient Corporation, Cambridge, Massachusetts, 1987–1990

Graduate Research Assistant, Graduate Teaching Assistant, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, 1984–1986

Ralph M. Parsons Laboratory, MIT, Cambridge, Massachusetts, 1983–1984
Consultant to Homestake Mining Company, Lead, South Dakota

Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, 1969–1983
Laboratory Assistant, Research Assistant, Research Associate, Geology & Geophysics Department, and Chemistry Department

Awards

Fellow, American Association for the Advancement of Science, elected 2009
Fellow, Geological Society of America, elected 2006
Outstanding Hydrology Ph.D. Candidate, Mackay School of Mines, University of Nevada, 1996
Phi Kappa Phi National Honor Society, elected 1995
DOE EPSCoR Traineeship, 1993
Outstanding Student Proposal, Geological Society of America, Hydrogeology Division, 1992
California State University Doctoral Incentive Award, 1992
University of Nevada Hydrology and Hydrogeology Program Director's Award, 1991

Professional Affiliations

American Association for the Advancement of Science
American Geophysical Union
American Society of Limnology and Oceanography
Association for Women Geoscientists
Geochemical Society
Geological Society of America
National Association of Geoscience Teachers

Professional Service and Engagement

Member, Director's Advisory Committee, School of Earth Sciences, 2009–present
Member, Honors Faculty Advisory Committee, Ohio State, 2009–present
Invited participant, NSF MARGINS Source to Sink workshop, Gisborne, New Zealand, April 2009
Invited participant, Symposium on Tropical Hydrology, Smithsonian Tropical Research Institution, March 2009
Member, subcommittee on Arts and Humanities, College of Arts and Sciences Committee on Curriculum and Instruction, Ohio State, 2008–2009
Chair, Undergraduate Committee, School of Earth Sciences, Ohio State, 2008–present
Coordinating undergraduate academic advisor, School of Earth Sciences, Ohio State, 2008–present
Organizer, topical session on “Small Mountainous River: From the Watershed to the Global Ocean,” American Society for Limnology and Oceanography Ocean Sciences Meeting, 2008
Faculty advisor, ΣΓΕ Earth Sciences honorary society, Ohio State chapter, 2008–present
Founding faculty advisor, Women in Math and Science undergraduate student club, Ohio State, 2007–present
Member, Dean's Executive Committee, College of Mathematical and Physical Sciences, Ohio State, 2007–2009
Honors Director, College of Mathematical and Physical Sciences, The Ohio State University, 2007–2009
Chair, Geological Society of America Hydrogeology Division Distinguished Service Committee, 2006–2007
Participant, President's and Provost's Leadership Institute, The Ohio State University, 2006–2008
Organizer, Two topical sessions (oral and poster) on “Quantitative studies of the sources, fate and transport of dissolved and suspended materials in streams,” American Geophysical Union Fall meeting, 2005
Organizer, Topical session on “Hydrologic impacts of urbanization on water resources,” Geological Society of America annual meeting, 2004

- Member, Geological Sciences 100 *ad hoc* committee, Geological Sciences Department, Ohio State, 2005–2006
- Invited participant, RiOMar national workshop on river-dominated ocean margins, November 16–17, 2004
- Member, Undergraduate Committee, Geological Sciences Department, Ohio State, 2005–present
- Member, Curriculum Committee, Geological Sciences Department, Ohio State, 2004–2006
- Invited participant, CUAHSI national workshop on Hydrologic Observatories, August 24–25, 2004
- Guest co-editor, special volume of *Applied Geochemistry* entitled “A Tribute to Gunter Faure,” 2004
- Associate editor, *Environmental & Engineering Geoscience*, 2002–2009
- Presider, Geological Society of America annual meeting topical session in honor of Gunter Faure, 2002
- Member, Bownocker Distinguished Lecture Committee, Geological Sciences Department, Ohio State 2001–2002
- Member, Geological Sciences 100 Oversight Committee, Geological Sciences Department, Ohio State, 2000–2001
- Member, NSF Hydrologic Sciences Task Force, 2001
- Invited participant (of 25 total participants), NSF GEO/EAR Hydrology Summit, January 25–26, 2001
- Chair, Geological Society of America Hydrogeology Division Technical Program Committee, 2001
- Member, Graduate Faculty, Environmental Science Graduate Program, Ohio State, 2000–present
- Member, Geological Society of America Joint Technical Program Committee, 2000–2001
- Member, NSF Hydrologic Sciences Proposal Review Panel, March 8–9, 2000
- Organizer, Topical Session on submarine groundwater discharge, Geological Society of America Southeastern sectional meeting, 2000
- Member, Graduate Studies Committee, Geological Sciences Department, Ohio State, 1999–2004
- Member, Graduate Faculty, Geological Sciences Department, OSU, 1999–present
- Member, Advisory Board, DOE National Institute for Global Environmental Change Southeast Regional Center, 1999–2002
- Organizer, Topical Session, Geological Society of America annual meeting, 1999
- Invited briefing for staff of Senator John Breaux of Louisiana on the role of the Mississippi River in Gulf of Mexico hypoxia, Washington, D.C., July 25, 1999
- Invited briefing to fertilizer industry’s Clean Water Working group. Washington, D.C., June 17, 1999
- Invited participant in Department of Energy’s National Institute for Global Environmental Change meeting to draft FY 2000 Request for Proposals, Chicago, Illinois, June 10–11, 1999
- Invited participant, Department of Energy’s Joint Science team meeting on Carbon Cycling and Climate Change. Indianapolis, Indiana, June 3–4, 1999
- Member, Gulf of Mexico Program Nutrient Enrichment Focus Team, 1998–1999
- Chair, American Water Resources Association Annual Conference, Groundwater Quantity Session, 1998
- Presider, Geological Society of America Annual Meeting Hydrogeology session III, Karst, Nitrates, Tracers & Aquitards, 1998
- Presider, Geological Society of America Annual Meeting Hydrogeology session III, Surficial & General Hydrogeology, 1996
- Presider, Geological Society of America Annual Meeting session, Hydrogeology III, 1995
- Presider, Geological Society of America Annual Meeting session, Quantitative Hydrogeology, 1994

Other Professional Experience

Extensive experience in hydrogeology, aqueous geochemistry, contaminant transport modeling, water quality analysis, marine geochemistry, analytical chemistry, and radiochemistry. Participant in GSA's 2003 Penrose Research Conference on *Tectonics, Climate and Landscape Evolution*. Participant in four Gordon Research Conferences in *Environmental Sciences: Water*. Participant in AGU's Penrose Research Conference on *Scaling Issues in Hydrology*. Participant in seven oceanographic cruises and numerous international hydrological field expeditions.

Publications

*Goldsmith, S. T., **A. E. Carey**, B. M. Johnson, S. A. Welch, W. B. Lyons, W. H. McDowell and J. S. Pigott, 2010, Stream Geochemistry, Chemical Weathering and CO₂ Consumption Potential of Andesitic Terrains, Dominica, Lesser Antilles, *Geochimica et Cosmochimica Acta* 74(1):85–103, doi: 10.1016/j.gca.2009.10.009.

Herrman, K. S., V. Bouchard, T. Granata, **A. E. Carey**, and R. H. Moore, 2009, The effect of riparian land use on transport hydraulics in agricultural headwater streams located in northeast Ohio, USA, *Hydrological Processes*, doi:10.1002/hyp.7489.

*Goldsmith, S. T., S.-J. Kao, **A. E. Carey**, W. B. Lyons, T.-Y. Lee and J. Chen, 2008a, Extreme storm events as agents of landscape denudation and carbon sequestration, *Geology*, 36(6):483–486, doi: 10.1130/G24624A.1.

*Goldsmith, S. T., **A. E. Carey**, W. B. Lyons, and D. M. Hicks, 2008b, Geochemical fluxes and weathering of volcanic terrains on high standing islands: Taranaki and Manawatu-Wanganui regions of New Zealand, *Geochimica et Cosmochimica Acta*, 72:2248–2267, doi:10.1016/j.gca.2007.12.024.

Fitzgibbons, T. O., W. B. Lyons, C. B. Gardner and **A. E. Carey**, 2008, A preliminary study of the Hg flux from selected Ohio watersheds to Lake Erie, *Applied Geochemistry*, 23(12):3434–3441, doi:10.1016/j.apgeochem.2008.07.013.

Harris, K. J., **A. E. Carey**, W. B. Lyons, K. A. Welch and A. G. Fountain, 2007, Solute and isotope geochemistry of subsurface ice melt seeps in Taylor Valley, Antarctica, *Geological Society of America Bulletin*, 119(5):548–555, doi:10.1130/B25913.1.

Lyons, W. B., T. O. Fitzgibbon, K. A. Welch, **A. E. Carey**, 2006, Mercury geochemistry of the Scioto River, Ohio: Impact of agriculture and urbanization. *Applied Geochemistry*, 21:1880–1888, doi:10.1016/j.apgeochem.2006.08.005.

Carey, A. E., S.-J. Kao, D. M. Hicks, C. A. Nezat and W. B. Lyons, 2006, Chemical and physical weathering in Taiwan and New Zealand, in Willett, S. D., Hovius, N., Brandon, M. T., and Fisher, D. M. eds., *Tectonics, Climate and Landscape Evolution*: Geological Society of America Special Paper 398 Penrose Conference Series, p. 339–351, doi:10.1130/2006.2398(21).

Lyons, W. B., K. A. Welch, **A. E. Carey**, D. H. Wall, R. A. Virginia, A. G. Fountain, P. T. Doran, B. M. Csathó, and C. M. Tremper, 2005, Groundwater seeps in Taylor Valley, Antarctica: An example of a decadal subsurface melt event. *Annals of Glaciology*, 40:200–206.

Carey, A. E., W. B. Lyons, C. B. Gardner, S. T. Goldsmith and D. M. Hicks, 2005, Dissolved organic carbon yields from small mountainous rivers on New Zealand. *Geophysical Research Letters*, doi:10.1029/2005GL023159.

Carey, A. E., W. B. Lyons and J. S. Owen, 2005, Significance of landscape age, uplift, and weathering rates to ecosystem development. *Aquatic Geochemistry*, 11:215–239, doi:10.1007/s10498-004-5733-6.

Lyons, W. B., **A. E. Carey**, D. M. Hicks and C. A. Nezat, 2005, Chemical weathering in high sediment yielding watersheds. *Journal of Geophysical Research–Earth Surface* 110(F1), F01008, doi:10.1029/2003JF000088.

*Gardner, C. B. and **A. E. Carey**, 2004, Trace metal and major ion inputs into the Olentangy River from an urban storm sewer. *Environmental Science & Technology* 38(20):5319–5326, doi:10.1021/es0497835.

Dowling, C. B., Poreda, R. J., A. G. Hunt and **Carey, A. E.**, 2004, Ground water discharge and nitrate flux to the Gulf of Mexico. *Ground Water* 42(3):401–417.

*Munson, S. A. and **A. E. Carey**, 2004, Organic matter sources and transport in an agriculturally dominated temperate watershed, *Applied Geochemistry* 19(7):1111–1121, doi:10.1016/j.apgeochem.2004.01.010.

Carey, A. E., C. B. Dowling and R. J. Poreda, 2004, Alabama Gulf Coastal groundwaters: ^4He and ^{14}C as groundwater dating tools. *Geology* 32(4):289–292, doi:10.1130/G20081.1.

*El-Kaddah, D. N. and **A. E. Carey**, 2004, Hydrologic modeling of the Cahaba River watershed, Alabama. *Environmental Geology* 45. 323–338, doi:10.1007/s00254-003-0890-2.

Carey, A. E., C. A. Nezat, J. R. Pennock, T. Jones and W. B. Lyons, 2003, Nitrogen budget of the Mobile-Alabama River system watershed. *Geochemistry Exploration Environment Analysis* 3:239–244.

Carey, A. E., C. A. Nezat, W. B. Lyons, S.-J. Kao, D. M. Hicks and J. S. Owen, 2002, Trace metal fluxes to the ocean: the importance of high-standing oceanic islands. *Geophysical Research Letters* 29, doi:10.1029/2002GL015690.

Lyons, W. B., C. A. Nezat, **A. E. Carey**, and D. M. Hicks, 2002, Organic carbon flux from high-standing oceanic islands. *Geology* 30(5):439–442.

Carey, A. E., W. B. Lyons, J.-C. Bonzongo, and J. C. Lehrter, 2001, Nitrogen budget of the Upper Mississippi River watershed. *Environmental & Engineering Geoscience* 7(3):251–265.

Carey, A. E., J. R. Pennock, J. C. Lehrter, W. B. Lyons, W. W. Schroeder and J.-C. Bonzongo, 1999, *The Role of the Mississippi River in Gulf of Mexico Hypoxia*. The University of Alabama Environmental Institute Technical Report Number 70.

Benson, D. A., **A. E. Carey**, and S. W. Wheatcraft, 1998, Numerical advective flux in highly variable velocity fields. *Journal of Contaminant Hydrology* 34(3):207–233.

Carey, A. E., S. W. Wheatcraft, R. J. Glass and J. P. O'Rourke, 1995, Non-Fickian ionic diffusion across high concentration gradients. *Water Resources Research* 31(9):2213–2218.

Lyons, W. B., **A. E. Carey**, A. L. Herczeg, S. Huey, K. R. Font and R. Jackson, 1995, Preliminary ages of groundwater from flowing wells in Owens Valley near Independence, California. In *Water in the 21st Century: Conservation, Demand and Supply*. (L. H. Austin, editor), AWRA Annual Spring Symposium, American Water Resources Association, Herndon, Va., TPS-95-1, pp. 111–115.

Lyons, W. B., R. M. Lent, N. Djukic, S. Maletin, V. Pujin and **A. E. Carey**, 1992, Geochemistry of surface waters, Vojvodina, Yugoslavia. *Journal of Hydrology* 137:33–55.

Lyons, W. B., S. Welch, D. T. Long, M. E. Hines, A. M. Giblin, **A. E. Carey**, P. G. Macumber, R. Lent and A. L. Herczeg, 1992, The trace metal geochemistry of the Lake Tyrrell system brines. *Chemical Geology* 96:115–132.

Tyskland, M., **A. E. Carey**, C. Rappe and G. C. Miller, 1992, Photolysis of OCDF and OCDD. In *Organohalogen Compounds*, Vol. 8, (A. Aitio, editor), Institute of Occupational Health, Helsinki, Finland, pp. 293–296.

Lyons, W. B., A. R. Chivas, R. M. Lent, S. Welch, E. Kiss, P. A. Mayewski, D. T. Long and **A. E. Carey**, 1990, Metal concentrations in surficial sediments from hypersaline lakes, Australia. *Hydrobiologia*. 197:13–22.

Cochran, J. K., **A. E. Carey**, E. R. Sholkovitz and L. D. Surprenant, 1986, The geochemistry of uranium and thorium in coastal marine sediments and sediment pore waters. *Geochimica et Cosmochimica Acta* 50:663–680.

Nelson, D. M., **A. E. Carey** and V. T. Bowen, 1984, Plutonium oxidation state distributions in the Pacific Ocean during 1980-1981. *Earth and Planetary Science Letters* 68:422–430.

Sholkovitz, E. R., J. K. Cochran and **A. E. Carey**, 1983, Laboratory studies of the diagenesis and mobility of $^{239,240}\text{Pu}$ and ^{137}Cs in nearshore sediments. *Geochimica et Cosmochimica Acta* 47:1369–1379.

Sholkovitz, E. R., **A. E. Carey** and J. K. Cochran, 1982, The aquatic chemistry of plutonium in seasonally anoxic lake water. *Nature* 300:159–161.

Carey, A. E. and B. W. Schroeder, 1978, Rapid sampling culture chamber. *Applied and Environmental Microbiology* 35:976–977.

Blakemore R. P. and **A. E. Carey**, 1978, Effects of polychlorinated biphenyls on growth and respiration of heterotrophic marine bacteria. *Applied and Environmental Microbiology* 35:323–328.

A. E. Carey and G. R. Harvey, 1978, Metabolism of polychlorinated biphenyls by marine bacteria. *Bulletin of Environmental Contamination and Toxicology*, 20:527–534.

Manuscripts In Press or In Review

Lyons, W. B., S. T. Goldsmith, **A. E. Carey**, G. T. McElwee, and R.S. Harmon, 2010, Organic carbon in small rivers, Panama, *Environmental Geology*, in review.

Lee, T. Y., **A. E. Carey**, J. C. Huang and S. J. Kao, 2009, Sampling strategy and optimal estimator to obtain reliable material fluxes from high-standing rivers in Taiwan, *Journal of Hydrology*, in press.

*Goldsmith, S. T., **A. E. Carey**, and S. Bhattiprolu, 2009, X-Ray Fluorescence (XRF) Analysis of Riverbed Sediments from Varying Lithology, *Applied Geochemistry*, in review.

Costa, O. S., W. B. Lyons, G. T. McElwee, R. S. Harmon, **A. E. Carey**, E. J. Sass, V. L. Bouchard, and H. Mitasova, 2009, Nutrient concentrations and nitrogen speciation in tropical watersheds of central Panama, *Aquatic Sciences*, in review.

* Papers by my students.

Recent Presentations At Scientific Meetings And Published Abstracts

Goldsmith†, S. T., S. A. Welch, A. M. Trierweiler, J. M. Von Bargen, C. A. Mondro, J. E. Stutz, and A. E. Carey, 2009, Periodic anthropogenic bioturbation of a small urban pond, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 655. Poster.

Harmon, R. S., W. B. Lyons†, S. T. Goldsmith, A. E. Carey, K. A. Welch, S. A. Welch, G. T. McElwee, and H. Mitasova, 2009, Ingerson Lecture: Riverine Geochemistry and Chemical Weathering Across Panama, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 683. Geochemical Society's Ingerson Lecture. Talk.

Mondro†, C. A., S. T. Goldsmith, A. E. Carey, A. M. Trierweiler, B. M. Johnson, and S. A. Welch, 2009, Transport of dissolved organic carbon in mountainous rivers of Dominica, Lesser Antilles, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 664. Poster.

Trierweiler†, A. M., C. A. Mondro, A. E. Carey, S. A. Welch, and C. Restrepo, 2009, Carbon and nutrient export dynamics in small mountains watersheds prone to landsliding, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 134. Poster.

Von Bargen†, J. M., S. T. Goldsmith, A. E. Carey, H.-J. Kao, S. A. Welch, and C. A. Mondro, 2009, Controls on soil development and carbon storage on the high-standing island of Taiwan, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 665. Poster.

Welch, S. A., A. E. Carey†, and S. T. Goldsmith, 2009, Dissolution kinetics of andesitic volcanics, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 376. Talk.

Goldsmith, S. T.†, A. E. Carey, and S. Bhattiprolu, 2008, X-ray fluorescence (XRF) and loss on ignition analysis of riverbed sediments from varying lithology, Geological Society of America *Abstracts with Programs*, Vol. 40, No. 6, Abstract #156-2. Talk.

Carey, A. E.†, J. A. Mendoza, G. T. McElwee, K. A. Welch, and W. B. Lyons, 2008, Preliminary Assessment of Stream Geochemistry in West Central Nicaragua During Baseflow Conditions, American Society for Limnology and Oceanography Ocean Sciences Meeting. Talk.

Goldsmith†, S. T., B. M. Johnson, and A. E. Carey, 2008, Weathering and CO₂ Consumption Potential of Andesitic-Dacitic Terrains, Dominica, Lesser Antilles, American Society for Limnology and Oceanography Ocean Sciences Meeting. Talk.

Costa†, O. S., W. B. Lyons, G. T. McElwee, A. E. Carey, R. S. Harmon, E. J. Saas and V. L. Bouchard, 2008, N and P Concentrations and N Speciation in a Tropical Watershed, Panama, American Society for Limnology and Oceanography Ocean Sciences Meeting. Talk.

- Carey†, A. E., Z. Karanovic, and J. E. Dibb, 2007, Fallout Radionuclides as Sediment Tracers in Southern Alps Chemical and Physical Weathering Studies, Geological Society of America *Abstracts with Programs*, Vol. 39, No. 6, p. 36. Talk.
- McElwee†, G. T., W. B. Lyons, R. S. Harmon, A. E. Carey and S. T. Goldsmith, 2007, The Geochemistry of Stream Sediments, Panama: Weathering in Tropical Watersheds, 2007, Geological Society of America *Abstracts with Programs*, Vol. 39, No. 6, p. 36. Talk.
- Goldsmith†, S. T., S.-J. Kao, A. E. Carey, W. B. Lyons, and T.-Y. Lee, 2007, Potential CO₂ Sequestration Associated with a Typhoon Event, Typhoon Mindulle, Choshui River, Taiwan, Geological Society of America *Abstracts with Programs*, Vol. 39, No. 6, p. 36. Talk.
- Goldsmith†, S. T., A. E. Carey, and W. B. Lyons, 2007, Chemical weathering of Taranaki volcanics, North Island, New Zealand, Goldschmidt 2007, *Goldschmidt Conference Abstracts*, p. A 339. Talk.
- Carey†, A. E., 2006, An undergraduate research forum as a learning experience for Geological Sciences majors, Geological Society of America *Abstracts with Programs*, Vol. 38, No. 7, p. 500. Poster.
- Goldsmith†, S. T., A. E. Carey, and S. Bhattiprolu, 2006, Preparation and x-ray fluorescence (XRF) analysis of riverbed sediments from varying lithology, Geological Society of America *Abstracts with Programs*, Vol. 38, No. 7, p. 352. Poster.
- Jacobs†, A. N., K. A. Welch, C. E. Landis, W. B. Lyons, and A. E. Carey, 2006, Seasonal variations of major ions at two locations along the Olentangy River, Columbus, Ohio. North-Central Section Annual Meeting, Geological Society of America *Abstracts with Programs*, Vol. 38, No. 4, p. 53. Poster.
- Goldsmith†, S. T., A. E. Carey, W. B. Lyons and D. M. Hicks, 2005, Geochemical Fluxes and Weathering on High Standing Islands: Taranaki and Manawatu-Wanganui Regions, New Zealand. American Geophysical Union Fall Meeting 2005, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Poster. First author is my student.
- Carey†, A. E., Z. Karanovic and J. E. Dibb, 2005, Fallout Radionuclides as Tracers in Southern Alps Sediment Studies. American Geophysical Union Fall Meeting 2005, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Poster.
- Carey†, A. E., R. J. Poreda and W. B. Lyons, 2005, Geochemistry of a Gulf Coastal Aquifer System, Baldwin County, Alabama, Geological Society of America Annual Meeting, Geological Society of America *Abstracts with Programs*, Vol. 37, No. 7, p. 470. Talk.
- Harris†, K. J., W. B. Lyons, A. E. Carey, K. A. Welch and A. G. Fountain, 2005, Solute and isotope geochemistry of near-surface ice melt seeps in Taylor Valley, Antarctica, Geological Society of America Annual Meeting, Geological Society of America *Abstracts with Programs*, Vol. 37, No. 7, p. 356. Poster.
- Lyons†, W. B., T. O. Fitzgibbon, K. A. Welch and A. E. Carey, 2005, Mercury geochemistry of the Scioto River, Ohio: Impact of agriculture and urbanization, Goldschmidt 2005 Conference Abstract, *Geochimica Cosmochimica Acta*, 69(10S):A700.

Goldsmith†, S. T., A. E. Carey and D. M. Hicks, 2004, Geochemical fluxes and weathering on high standing islands, Geological Society of America Annual Meeting. Abstract #76285. Geological Society of America *Abstracts with Programs*. Poster. First author is my student.

Carey†, A. E. and W. B. Lyons, 2004, Urban effects on water quality in a Cornbelt river, Geological Society of America Annual Meeting. Abstract #76275. Geological Society of America *Abstracts with Programs*. Talk.

Lyons†, W. B., R. A. Virginia, A. E. Carey, C. Tremper, B. Csathó and D.H. Wall, 2004, Groundwater seeps in Taylor Valley Antarctica: An example of a decadal subsurface melt event, International Glaciological Society International Symposium on Ice and Water Interactions: Processes Across the Phase Boundary, July 2004. Talk.

Munson, S. A., and A. E. Carey†, 2003, Organic matter sources and transport in the Upper Scioto River, Ohio. Geological Society of America Annual Meeting. Abstract #62760. Geological Society of America *Abstracts with Programs*, Vol. 35, No. 6, September 2003, p. 484. Talk. First author is my student.

Gardner†, C. B., and A. E. Carey, 2003, Urban highway sewersheds as geochemical contributors to natural waters: Major ions and selected trace metals. Geological Society of America *Abstracts with Programs*, Vol. 35, No. 6, September 2003, p. 403. Poster. First author is my student.

Carey†, A. E., S.-J. Kao, D. M. Hicks and W. B. Lyons, 2003, Chemical and physical weathering in Taiwan and New Zealand. Geological Society of America Penrose Conference on Tectonics, Climate and Landscape Evolution, January 2003. Poster.

Carey†, A. E., Owen, J. S., and Lyons, W. B., 2002, Chemical weathering at Fu-shan TERN watershed, Taiwan. Geological Society of America Annual Meeting *Abstracts with Program*, p. 533. Talk.

Haught†, S., and Carey, A. E., 2002, DOC and nutrient export from a small Ohio watershed during storm events, Geological Society of America Annual Meeting *Abstracts with Program*, p.148. Poster. First author is my student.

Carey†, A. E., D. M. Hicks, W. B. Lyons and C. A. Nezat, 2001, Elemental fluxes and sediment yields from New Zealand Rivers. Geological Society of America Annual Meeting *Abstracts with Program*, p. 282. Talk.

Carey†, A. E., J. S. Owen and W. B. Lyons, 2001, Chemical weathering rates from watersheds in the Central Range, Taiwan. Earth System Processes Joint Meeting Geological Society of American and Geological Society of London, p. 82. Poster.

Lyons†, W. B., and A. E. Carey, 2001, Influence of urbanization on water quality: A tale of two cities. Earth System Processes Joint Meeting Geological Society of American and Geological Society of London, p. 75. Talk.

Nezat†, C. A., A. E. Carey, S.-J. Kao, W. B. Lyons and J. S. Owen, 2001, The geochemistry of dissolved load and sediments in high sediment-yielding rivers of Taiwan. Geological Society of America Annual Meeting *Abstracts with Program*, p. 282. Talk.

Carey†, A. E., R. J. Poreda, W. B. Lyons and S. W. Wheatcraft, 2001, Greenhouse Warming and the Effect of Sea level Rise on Water Resources on the Coastal Plain of the Gulf Coast, USA. Department of Energy National Institute for Global Environmental Change Southeast Regional Center Annual Meeting, Durham, North Carolina, Nov. 29, 2001. Talk.

Carey†, A. E., A. C. Green and K. A. Welch, 2000, The Footprint of Metropolitan Columbus, Ohio on Water Quality in the Scioto River. Geological Society of America Annual Meeting *Abstracts with Program*, p. A-484, Abstract # 52380. Talk.

Dowling†, C.B., R.J. Poreda, A.E. Carey, 1999, The Characterization of a Gulf Coastal Aquifer System in Baldwin County, Alabama Using Dissolved Gas, Major and Trace Element Chemistry, Stable Isotopes and $^3\text{He}/^3\text{H}$ Age-Dating, *Eos Trans. AGU Annual Spring Meeting*, May 1999. Talk.

Carey†, A. E., W. B. Lyons, J.-C. Bonzongo, J. C. Lehrter, and S. K. H. Smith, 1999, Carbon Fluxes, Land-Use Change and Oxygen-Depletion—The Mississippi River Basin and Gulf of Mexico, Geological Society of America Annual Meeting *Abstracts with Program*, p. A-323. Talk.

Nezat†, C. A., E. Y. Graham, N. L. Green, W. B. Lyons, K. Neumann, A. E. Carey and M. Hicks, 1999, The physical and chemical controls on rare earth element concentrations in dissolved load, suspended load and river channel sediments of the Hokitika River, New Zealand, Geological Society of America Annual Meeting *Abstracts with Program*, p. A-256. Talk.

†Indicates presenter.

Invited Lectures and Presentations

Since 1999, I have given invited lectures at the National Institute for Geological Sciences (NIGS) University of Philippines, the Centro de Investigaciones Geocientíficas (CIGEO) Universidad Nacional Autónoma de Nicaragua, Academia Sinica Taiwan, National Central University Taiwan, California Institute of Technology, Byrd Polar Research Center, Rutgers University, University of Florida, Bowling Green State University and the University of South Florida. Other invited lectures have been presented at International Atomic Energy Agency's Marine Laboratory in Monte Carlo, Monaco, Woods Hole Oceanographic Institution, Massachusetts Institute of Technology, Auburn University, University of Alabama, Texas A&M University, University of South Carolina, Old Dominion University, Tulane University and The Fertilizer Institute's annual management board meeting.

Contributed presentations I have given include those at national meetings of the American Geophysical Union, Earth System Processes joint meeting of the Geological Society of America and the Geological Society of London, Geological Society of America's Penrose Conference on Tectonics, Landscape Evolution and Climate Change, Geological Society of America, American Society for Microbiology, American Water Resources Association, American Society for Limnology and Oceanography, Joint Ocean Sciences Meetings of the American Geophysical Union and the

American Society for Limnology and Oceanography, and at the Second International Symposium on Microbial Ecology in Coventry, England.

Funding

Principal Investigator, *Collaborative Research: Landsliding, Land-use Change, and Carbon Dynamics in a Central American Mountainscape*, National Science Foundation DEB Ecosystem Studies, \$285,662, October 1, 2009–September 30, 2012.

Co-Principal Investigator, *ADVANCE Institutional Transformation: Comprehensive Equity at Ohio State (CEOS)*, National Science Foundation HRD, \$3,600,000, August 26, 2008–August 25, 2013.

Co-Principal Investigator, *Geosciences Awareness Programs-Bridging the Pathway-Track 1*, National Science Foundation GEO, \$199,495, July 1, 2009–June 30, 2012.

Co-Principal Investigator, *Acquisition of a liquid water isotope analyzer for hydrological, glaciological and geochemical research*, National Science Foundation Earth Sciences Instrumentation and Facilities, \$57,800, October 1, 2009–September 30, 2010.

Co-Principal Investigator, *Acquisition of an automated nutrient analyzer*, National Science Foundation Earth Sciences Instrumentation and Facilities, \$64,800, June 15, 2009–June 14, 2009.

Principal Investigator, *Factors Controlling Chemical Weathering in Regions of Very High Physical Weathering Rates*, National Science Foundation Earth Sciences, \$301,693. August 1, 2003 to July 31, 2008.

Co-Principal Investigator, *SGER: Field Sampling Coordination and Mathematical Modeling of a Hydrocarbon Spill on the Ice cover of Lake Fryxell, Antarctica*, National Science Foundation Earth Sciences, \$31,370. January 1, 2004 to December 31, 2005.

Co-Principal Investigator, *Acquisition of an X-Ray Fluorescence Spectrometer for Geological and Environmental Analysis*, National Science Foundation Earth Sciences, \$131,200. February 15, 2002 to May 14, 2004.

Principal Investigator, *The Effect of Metropolitan Columbus on Water Quality in the Scioto River and Its Tributaries*, Ohio State University Committee on Urban Affairs. \$19,872. July 1, 2000 to June 30, 2001.

Principal Investigator, *Organic Carbon and Nutrient Fluxes in an Ohio Stream*, Ohio State University Seed Grant. \$11,754. January 1, 2000 to June 30, 2002.

Co-Principal Investigator, *Acquisition of a Gas-Source Mass Spectrometer Facility for Geological, Hydrological and Ecological Research at The University of Alabama*, National Science Foundation Earth Sciences, \$318,510. August 15, 1999 to August 14, 2002.

Principal Investigator, *Establishment of an Input Database and Modeling Framework for the Northern Gulf of Mexico at the Watershed Level*. Mississippi-Alabama Sea Grant Consortium, \$24,957. February 1, 1999 to December 31, 2000.

Principal Investigator, *Greenhouse Warming and the Impact of Sea Level Rise on Water Resources on the Coastal Plain of the Gulf Coast, USA*, Southeast Regional Center, National Institute for Global Environmental Change, \$278,890, July 1, 1998 to June 30, 2002.

Principal Investigator, *Quantifying Groundwater Fluxes into Issyk Kul Lake, Kyrgyzstan*, North Atlantic Treaty Organization. \$6000. April 1999 to October 2003.

Principal Investigator, *Preparation of Final Report for The Fertilizer Institute*, The Fertilizer Institute. \$9,211. April 26, 1999 to June 30, 1999.

Principal Investigator, *The Role of Mississippi River Solutes in Gulf of Mexico Hypoxia*, The Fertilizer Institute. \$120,593. October 1, 1997 to December 6, 1998.

Co-Principal Investigator, *Estimating Tributary Nutrient Loads to Alabama Reservoirs*, Alabama Department of Environmental Management. \$104,522. October 1, 1998 to September 30, 1999.

Co-Principal Investigator, *A Water Quality Information System Integrating the Spatio-Temporal Dynamics of the Water Quality Characteristics of Mobile Bay and its Tributary Watersheds*, Mississippi-Alabama Sea Grant Consortium. \$85,147. March 1, 1997 to February 28, 1998.

Principal Investigator, *Project Development for Submarine Fresh Groundwater Fluxes to the Alabama Gulf Coast*, Mississippi-Alabama Sea Grant Consortium. \$9,676. August 1, 1996 to July 31, 1997.

Principal Investigator, *Passive Margin Fresh Water Fluxes to the Oceans*, National Science Foundation Hydrologic Sciences. \$21,000. October 1, 1996 to December 31, 1997.

Co-Principal Investigator, *Instrumentation of Two Watersheds in the Tuscaloosa Vicinity*, U.S. Geological Survey. \$68,100. 1996.

Co-Principal Investigator, *Modeling Salt Water Intrusion: Physical-Chemical Approaches*. National Science Foundation Hydrologic Sciences. \$154,000. 1993-1995.

Principal Investigator, *Salt Water Intrusion: Numerical Modeling of the Sharp Interface Problem*. Geological Society of America Student Research Grant. \$1,500. 1992.

Reviewing activities

Panels

National Science Foundation IGERT pre-proposal review panel, June 15–16, 2006. I was the lead or secondary reviewer for 9 proposals and scribe for 2 proposals.

National Science Foundation Hydrologic Sciences review panel, March 8–9, 2000. During that panel, 75 proposals were reviewed and ranked for funding. I was the lead reviewer for 12 proposals and secondary reviewer for 25 proposals.

Proposals

Since 1999, I have reviewed numerous proposals for 15 different National Science Foundation Programs. Panels for which I reviewed proposals include Hydrologic Sciences, Geobiology and Low

Temperature Geochemistry, CLEANER, Chemical Oceanography, Marine Geology, Biocomplexity in the Environment, Coupled Hydrologic Sciences, Biogeochemical Cycles, Major Research Instrumentation, Earth Sciences Instrumentation, Polar Programs, Geology and Paleontology, Integrated Carbon Cycle Research, Geomorphology and Landuse Change, Carbon and Water Cycle Research, and ADVANCE.

Journals

Reviewing activities for journals have included manuscript reviews for the following journals: *Geochimica et Cosmochimica Acta*, *Water Resources Research*, *Environmental Science & Technology*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Wetlands*, *Mathematical Geology*, *Applied Geochemistry*, *Journal of Environmental Quality*, *Environmental & Engineering Geoscience*, *Journal of the American Water Resources Association*, *Ground Water*, *Hydrogeology Journal*, *Aquatic Geochemistry*, *Estuarine, Coastal and Shelf Science* and *Journal of Cleaner Production* and a book review of *Modeling Density-Driven Flow in Porous Media* for the journal *Ground Water*.

Students Advised

Annette M. Trierweiler, 2010, "Interaction of Landslides and Land Use Changes on Fluvial Carbon Transport," M.S. in Geological Sciences (expected), The Ohio State University.

Matthew R. H. Dugan, 2010, "An Improved and Expanded Classification System for Igneous Rocks," B.S. with Honors Research Distinction in Geological Sciences (expected), The Ohio State University.

Claire A. Mondro, 2010, "Stable Isotopic Study of Organic Matter Transported in Rio Jones Watershed, Sierra de las Mines, Guatemala," B.S. with Honors Research Distinction in Geological Sciences (expected), The Ohio State University.

Justin M. Von Bargen, 2010, "Organic Carbon Storage and CO₂ Sequestration by Mineral Weathering in Taiwan Soils," B.S. in Geological Sciences with Research Distinction (expected), The Ohio State University.

Steven T. Goldsmith, 2009, "Weathering and CO₂ Consumption in Volcanic Terrains on High Standing Islands," Ph.D. in Geological Sciences, The Ohio State University.

Brent M. Johnson, 2008, "Stream Hydrology and Major Element Fluxes, Dominica, Lesser Antilles" B. S. in Geological Sciences, The Ohio State University. Currently in graduate school at California State University at San Jose.

Kelly P. Carroll, 2008, "Hydrogeologic Investigation of Lake Ice, Taylor Valley Lakes, Antarctica," M.S. in Geological Sciences, The Ohio State University. Currently employed as a Research Scientist, The Ohio State University School of Earth Sciences.

Christopher P. Gordon, 2006, "Major, Minor and Trace Element Geochemistry in Taiwan Bedrock," B. S. in Geological Sciences, The Ohio State University. Currently employed as a geologist, Ohio Department of National Resources.

Steven T. Goldsmith, 2005, "Geochemical Fluxes and Weathering on High Standing Islands: Taranaki and Manawatu-Wanganui Regions New Zealand," M.S. in Geological Sciences, The Ohio State University. Steven T. Goldsmith was twice awarded a competitive National Science Foundation Fellowship to participate in the East Asia and Pacific Summer Institute for U.S. Graduate Students (EAPSI) in Taiwan, for 2004 and for 2005.

Zdravka Karanovic, 2005, "Application of Fallout Radionuclides Beryllium-7, Cesium-137 and Lead-210 in New Zealand Watersheds as Tracers in Sediment Budget Investigations," M.S. in Geological Sciences, The Ohio State University. Currently employed as a hydrogeologist, S. S. Papadopoulos Associates, Bethesda, Maryland.

Christopher B. Gardner, 2003, "Urban Highway Sewersheds as Geochemical Contributors to Natural Waters: Major Ions and Selected Trace Metals," M.S. in Geological Sciences, The Ohio State University. Currently employed as Research Scientist, Battelle Memorial Institute, Columbus, Ohio.

Samantha Haught, 2003, "Significance Of the Hyporheic Zone And Runoff on the Water Chemistry of the Stream Water in a Small Tributary of the Olentangy River" M.S. in Environmental Sciences, The Ohio State University. Currently employed as Research Associate, Battelle Memorial Institute, Columbus, Ohio.

Shelly A. Munson, 2003, "Sources and Transport of Organic Matter in the Upper Scioto River," M.S. in Environmental Sciences, The Ohio State University. Currently employed as Quality Assurance Officer, Battelle Memorial Institute, Columbus, Ohio.

Eric Albery, 2002, Personalized Study Program, B.S. in Geology and Biology, The Ohio State University

Peter I. Rakowsky, 2000, "The Role of Bedrock Geology on Central Ohio Stream Water Chemistry," B.S. in Geological Sciences, The Ohio State University. Currently a commissioned officer in the U.S. Army.

Dahlia N. El-Kaddah, 2000, "Water Quality Modeling of the Cahaba River Watershed, Alabama," M.S. in Civil Engineering, The University of Alabama. Currently employed as Environmental Engineer, Stanley Consultants, Chicago, Illinois.

Graduate Student Committees Served

Rebecca Witherow	Ph.D. 2009	Geological Sciences	The Ohio State University
Roxana Hernandez	Ph.D. expected 2009	Environmental Sciences	The Ohio State University
Brandon M. Bartkowiak	M.S. 2009	Geological Sciences	The Ohio State University
Beth Burns	M.S. expected 2009	Geological Sciences	The Ohio State University
Sarah T. Fortner	Ph.D. 2008	Geological Sciences	The Ohio State University
Ryan P. Moyer	Ph.D. 2008	Geological Sciences	The Ohio State University
Kyle Hermann	Ph.D. 2007	Environmental Sciences	The Ohio State University
Katherine Johnson	Ph.D. 2008	Geological Sciences	The Ohio State University
Jing Tao	Ph.D. 2008	Environmental Sciences	The Ohio State University
David Schmidt	Ph.D. 2005	Geological Sciences	The Ohio State University
Marinko Karanovic	M.S. 2005	Geological Sciences	The Ohio State University
Martin van Oort	M.S. 2005	Geological Sciences	The Ohio State University
Gerald Allen	M.S. 2004	Geological Sciences	The Ohio State University
Roxanna Hernandez	M.S. 2005	Environmental Sciences	The Ohio State University
Maura Metheny	Ph.D. 2004	Geological Sciences	The Ohio State University
Philip Borkow	M.S. 2004	Geological Sciences	The Ohio State University
Jill Gudding	M.S. 2003	Geological Sciences	The Ohio State University
Katherine Johnson	M.S. 2003	Geological Sciences	The Ohio State University
Daniel Button	M.S. 2003	Environmental Sciences	The Ohio State University
Sara Schwede-Thomas	M.S. 2002	Geological Sciences	The Ohio State University
Lawrence Feinson	M.S. 2001	Hydrogeology	University of Nevada, Reno
Kristin Riker-Coleman	M.S. 2000	Geological Sciences	The Ohio State University
Matthew Cesarz	M.S. 1997	Environmental Eng.	University of Alabama
Greg Hindman	M.S. 1998	Environmental Eng..	University of Alabama

Blake Snodsmith	M.S. 1998	Hydrogeology	University of Alabama
Trey Taylor	M.S. 1997	Environmental Eng.	University of Alabama
Samuel Truax	M.S. 1998	Environmental Eng.	University of Alabama