EMILY M. ELLIOTT

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EDUCATION

Johns Hopkins University, Baltimore, Maryland

Ph.D., Geography & Environmental Engineering, May 2003.

Dissertation: Organic Nitrogen Isotope Stratigraphy, Palynology, and Sediment History of Freshwater Wetlands in the Chesapeake Bay Basin: Comparison with Land Use History. Advisor: Grace S. Brush

M.S., Geography & Environmental Engineering, May 1999.

University of Virginia, Charlottesville, Virginia

B.A., Environmental Science, May 1995.

RESEARCH INTERESTS

- Tracing fluxes of reactive nitrogen through atmospheric-biospheric-hydrologic systems using isotope geochemistry,
- Mapping spatial distributions of reactive nitrogen emissions and deposition to landscapes in relation to agricultural activities and energy consumption,
- Assessing nitrogen retention, export, and saturation in watersheds,
- Evaluating how infrastructure influences nutrient delivery to urban streams and contributes to eutrophication of rivers and coastal ecosystems.

APPOINTMENTS

Associate Professor, Department of Geology and Environmental Science, University of Pittsburgh, September 2014 - present.

Assistant Professor, Department of Geology and Planetary Science, University of Pittsburgh, January 2007- August 2014.

Adjunct Professor, Department of Civil and Environmental Engineering, University of Pittsburgh, 2010-present.

Postdoctoral Associate, U.S. Geological Survey, Water Resources Division, Menlo Park, California. Hydrology and stable isotope geochemistry, September 2003-October 2006. Advisor: Carol Kendall

Graduate Research Assistant: Department of Geography & Environmental Engineering, Johns Hopkins University, Baltimore, MD. January 1997 to May 2003. Research advisor: Grace S. Brush.

Research Assistant: Department of Geography & Environmental Engineering, Johns Hopkins University, August 1997 to August 1998.

Awards and Fellowships

- Sustainability Faculty Fellow, University of Pittsburgh, January-December 2017, $25,000
- Science and Engineering Ambassador, National Academy of Sciences and National Academy of Engineering. September 2015.
- Blativnik Award for Young Scientists, University of Pittsburgh nominee, 2013.
- National Science Foundation CAREER award, 2013-2018. NSF's "most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research".
- Carnegie Science Award, Environment Award Honorable Mention, 2013. "The Environmental Award recognizes outstanding achievements in the fields of environmental protection and restoration that benefit the economy, health, and quality of life in our region."
- Achievement Rewards for College Scientists (ARCS) Foundation Scholar, 2002-2003, $15,000.
- Achievement Rewards for College Scientists (ARCS) Foundation Scholar, 2001-2002, $15,000
- Geological Society of America (GSA) Graduate Student Research Award. "A Dual Isotope Approach for Reconstructing Nitrogen Sources and Fluxes to Wetlands." May 2002, $2,500.
- American Association of University Women (AAUW) Alternate Engineering Dissertation Fellow, May 2002
- Keenan Technology Fellow, 1999
- National Science Scholar, 1991-1995

Advisee Honors and Awards

National recognition of Elliott Advisees:

- *Honorable Mention, Best Student Oral Presentation*, American Meteorological Society, Third Conference on Atmospheric Biogeosciences (June 2016, Zhongjie Yu).
- *Nominee, CGS/ProQuest Distinguished Dissertation Award*. Selected to represent the University of Pittsburgh in the Mathematics, Physical Sciences, and Engineering category for this national competition (June 2016, Lucy Rose).
- *Graduate Research Fellowship (First Tier)*, Geological Society of America (April 2014, Zhongjie Yu).
- *Outstanding Student Presentation Award*, American Meteorological Society, Second Conference on Atmospheric Biogeosciences (May 2014, Lucy Rose).
- *Outstanding Student Paper Award,* American Geophysical Union- Biogeosciences Section (December 2012, Lucy Rose).
- *Pre-doctoral Fellow, USDA National Institute of Food & Agriculture (2012-2013, $73,940, Lucy Rose)*
- *Marie Curie Fellow,* Initial Training network in Mass-independent Isotope Fractionation), (August 2010, Lucy Rose)
- *Outstanding Merit Award, Graduate Research Fellowship,* Geological Society of America (April 2008, Katherine Redling).

- *Outstanding Student Paper Award,* American Geophysical Union- Hydrology Section (December 2008, Marion Divers).

PUBLICATIONS

All publications are available electronically at http://www.pitt.edu/~eelliott/publications.html. Links to Google Scholar and ResearcherID provide up-to-date citation information: http://www.pitt.edu/~eelliott/contact.html.

*University of Pittsburgh graduate student advised by EM Elliott.

Peer-Reviewed Publications:

2016

*Coughlin, JG, Yu, Z, Elliott, EM. The Determination of Efficacy for Passive NO_2 Sampler Collection of δ^{15}N-NO_2 under Varying Simulated Environmental Conditions. In revision, *Rapid Communications in Mass Spectrometry*.

*Coughlin, JG, Rose, LA, Bain, DJ, Elliott, EM. The Influence of Marcellus Shale Extraction Emissions on Regionally Monitored Dry Reactive Nitrogen Deposition. In review, *Environmental Science & Technology*.

*Felix, JD, Elliott, EM, Gay, DA. Spatial and temporal patterns of nitrogen isotopic composition of ammonia at U.S. ammonia monitoring network sites. Available online, Nov. 15, 2016. *Atmospheric Environment*. http://dx.doi.org/10.1016/j.atmosenv.2016.11.039

Rossi, RJ, Bain, DJ, Elliott, EM, *Divers, M, O'Neill, B. 2016. Hillslope soil water flowpaths and the dynamics of roadside soil cation pools influenced by road deicers. *Hydrological Processes*. Published online 10.10.16. DOI: 10.1002/hyp.10989

*Yu, Z and Ellliott EM. A novel method for nitrogen isotopic analysis of soil-emitted nitric oxide (NO). In review, *Environmental Science & Technology*.

2015

*Rose L, Elliott, EM, Adams, MB. 2015. Triple nitrate isotopes indicate differing nitrate source contributions to streams across a nitrogen saturate gradient. *Ecosystems*. 18(7)1209-1223. DOI: 10.1007/s10021-015-9891-8.

*Rose, L, Sebestyen, S, Elliott EM, Koba, K. 2015. Drivers of Atmospheric Nitrate Processing in Forested Catchments. Review Article. *Water Resources Research*. 51(2):1333-1352.

*Felix, JD, Elliott, EM, Avery, GB., Kieber, R, Mead, R, Willey J, Mullaugh, K. 2015. Isotopic composition of nitrate in sequential Hurricane Irene precipitation samples: Implications for changing NOx sources. Short Communication. *Atmospheric Environment*. 106: 191-195.

2014

*Divers MT, Elliott, EM, Bain, DJ. 2014. Quantification of Nitrate Sources to an Urban Stream Using Dual Nitrate Isotopes. *Environmental Science & Technology*. 48(18): 10,580-10,587.

Bain DJ, Copeland EM, *Divers MT, Hecht M, Hopkins KG, Hynicka J, Koryak M, Kostalos M, Brown L, Elliott EM, Fedor J, Gregorich M, Porter B, Smith B, Tracey C, Zak M. 2014. Characterizing a Major Urban Stream Restoration Project: Nine Mile Run (Pittsburgh, PA, USA). *Journal of the American Water Resources Association (JAWRA)*. 50(6): 1608-1621.

*Felix JD, Elliott EM, Gish T, Magrihang R, Clougherty J, Cambal, L. 2014. Examining the transport of ammonia emissions across landscapes using nitrogen isotope ratios. *Atmospheric Environment*. 95:563-570.

*Felix, JD and Elliott, EM. 2014. The isotopic composition of passively collected nitrogen dioxide emissions: Vehicle, soil and livestock source signatures. *Atmospheric Environment*. 92:359-366.

McGuire, KJ, Sebestyen, SD, Ohte, N, Elliott, EM, Gomi, T, Green, MG, McGlynn, ML, Tokuchim, N. 2014. Merging perspectives in the catchment sciences: the US-Japan Joint Seminar on catchment hydrology and forest biogeochemistry. Hydrological Processes. 28(5):2878-2880.

2013

*Divers MT, Elliott, EM, Bain, DJ. 2013. Constraining nitrogen inputs to urban streams from leaking sewer infrastructure using inverse modeling: Implications for DIN retention in urban environments. *Environmental Science & Technology*. 47 (4): 1816–1823.

*Divers MT, Elliott, EM, Bain, DJ. 2013. Response to Comment on "Constraining Nitrogen Inputs to Urban Streams from Leaking Sewers Using Inverse Modeling: Implications for DIN Retention in Urban Environments". *Environmental Science & Technology*. 47(12): 6721-6721.

*Felix, JD and Elliott, EM. 2013. The agricultural history of human-nitrogen interactions as recorded in ice core δ^{15}N-NO_3. *Geophysical Research Letters*. 40, 1–5, doi:10.1002/grl.50209, 2013.

*Felix, JD, Elliott, EM, Gish, T, McConnell, L, Shaw, S. 2013. Characterizing the isotopic composition of atmospheric ammonia emission sources using passive samplers and a combined oxidation-bacterial denitrifier isotope ratio mass spectrometry method. *Rapid Communications in Mass Spectrometry*. 27 (20), 2239-2246.

Hastings, MG, Casciotti KL, Elliott, EM. 2013. Stable isotopes as tracers of anthropogenic nitrogen sources, deposition, and impacts. *Elements: An International Magazine of Mineralogy, Geochemistry, and Petrology*. 9 (5), 339-344. (Invited review for a special volume "Nitrogen and its (biogeocosmo)chemical cycling" edited by Gray Bebout, Marilyn Fogel, and Pierre Cartigny.)

*Redling, KM, Elliott, EM, Bain, DJ, Sherwell, J. 2013. Highway contributions to reactive nitrogen deposition: Tracing the fate of vehicular NOx using stable isotopes and plant biomonitors. *Biogeochemistry*. 116(1-3): 261-274.

2012

*Felix, JD, Elliott, EM, Shaw, SL. 2012. Nitrogen isotopic composition of coal-fired power plant NOx: Influence of emission controls and implications for global emission inventories. *Environmental Science & Technology*. 46(6): 3528-3535.

Bain, DJ, Green, MB, Campbell, J, Chamblee, J, Chaoka, S, Fraterrigo, J, Kaushal, S, Martin, S, Jordon, T, Parolari, T, Sobczak, B, Weller, D, Wollheim, WM, Boose, E, Duncan, J, Gettel, G, Hall, B, Kumar, P, Thompson, J, Vose, J, Elliott, EM, Leigh, D. 2012. Legacies in Material Flux: Structural Changes before Long-term Studies. *BioScience*. 62(6): *575*:584.

2011

Kaushal, SS, Groffman, PM, Band, LE, Elliott, EM, Shields, CA, Kendall, C. 2011. Tracking nonpoint source nitrogen pollution in human-impacted watersheds. *Environmental Science & Technology*. 45(9): 8225-8232.

2009

Elliott, EM, Kendall, C, Boyer, EW, Burns, DA, Lear, GG, Golden, HE, Harlin, K, Bytnerowicz, A, Butler, TJ, Glatz R. 2009. Dual nitrate isotopes in dry deposition: Utility for partitioning NOx source contributions to landscape nitrogen deposition. *Journal of Geophysical Research: Biogeosciences*. 114, G04020, doi:10.1029/2008JG000889.

Burns, DA, Boyer, EW, Elliott, EM, Kendall, C. 2009. Sources and transformations of nitrate from streams draining varying land uses: Evidence from dual isotope analysis. *Journal of Environmental Quality*. 38: 1149-1159.

Goodale CL, Thomas SA, Fredriksen G, Elliott, EM. 2009. Unusual seasonal patterns and inferred processes of nitrogen retention in forested headwaters of the Upper Susquehanna River. *Biogeochemistry*. 93:197-218.

Chang, CCY, McCormick PV, Newman S, Elliott, EM. 2009. Isotopic indicators of environmental change in a subtropical wetland. *Ecological Indicators*. 9: 825-836.

2008

Golden, HE, Boyer, EW, Brown, MG, Elliott, EM, Lee DK. 2008. Simple approaches for measuring dry atmospheric nitrogen deposition to watersheds. *Water Resources Research*. 44:1-8. W00D02.

Nanus, L, Williams, MW, Campbell, DH, Elliott, EM, Kendall, C. 2008. Evaluating regional patterns in nitrate sources to watersheds in National Parks of the Rocky Mountains using nitrate isotopes. *Environmental Science & Technology*. 42: 6487-6493.

2007

Elliott, EM, Kendall, C, Wankel, SD, Burns, D.A., Boyer, E.W., Harlin, K., Bain, D.J., Butler, T.J. 2007. Nitrogen isotopes as indicators of NOx source contributions to atmospheric nitrate deposition across the Midwestern and Northeastern United States. *Environmental Science & Technology*. 41: 7661-7667.

2006

Elliott, EM, Brush, GS. 2006. Organic Nitrogen Isotopes Record Long-term Changes in Watershed Nitrogen Sources and Land Use. *Environmental Science & Technology*. 40(9): 2910-2916.

2001

Bell ML, Hobbs BF, Elliott EM, Ellis H, Robinson Z. 2001. An evaluation of multi-criteria methods in integrated assessment in climate policy. *Journal of Multi-Criteria Decision Analysis*. 10:229–256.

Bell ML, Hobbs BF, Elliott EM, et al. 2000. An evaluation of multi-criteria decision-making methods in integrated assessment of climate policy. *Research and Practice in Multiple Criteria Decision Making*. 487: 228-237.

Book Contributions and Chapters:

**Kendall, C, Elliott EM, and Wankel, SD. 2007. Tracing Anthropogenic Inputs of Nitrogen to Ecosystems. In Stable Isotopes in Ecology and Environmental Science (2nd edition). Lajtha, K and Michener, RH (eds.) Blackwell Scientific Publications.

***Heavily cited, 181 cites since 2007.*

GRANT ACTIVITY

$2,480,553 awarded to PI Elliott from external funding sources since January 2007

$2,748,548 total external funding since January 2007

Research Grants- Active

National Science Foundation- Hydrologic Sciences
CAREER: Air-ecosystem-water interactions of reactive nitrogen in urban systems
Role: Principal Investigator
Dates: 2/1/2013 through 1/31/2018
Award amount: $550,000

Department of Energy- National Energy Technology Laboratory
Characterizing reactive nitrogen emissions and deposition associated with Marcellus Shale development activity
Role: Principal Investigator
Dates: 1/1/2014 through 12/31/2016
Award amount: $228,000

Research Grants- Completed

National Science Foundation- Geoscience Education
Energy, Environment and Society Learning Network (ENERGY NET): Enhancing opportunities for learning using an Earth systems science framework
A collaborative proposal with the Carnegie Museum of Natural History (CMNH) and the UPitt Learning Research Development Center (LRDC).
Role: Principal Investigator
Co-Investigators: DJ Bain (UPitt G&PS), K Crowley (UPitt LRDC), MA Steiner (CMNH)
Dates: 9/1/2012 through 8/31/2016
Award Amount: $500,000 total; $299,000 to University of Pittsburgh

Mascaro Center for Sustainable Innovation.
Quantifying Reductions in Diesel-Related Air Pollution Exposures across Downtown Pittsburgh
Role: Co-Investigator
Dates: 11/1/15 through 6/30/16.
Award Amount: $50,000.

National Science Foundation- Hydrologic Sciences
EMERGING TOPICS IN BIOGEOCHEMICAL CYCLES: A new tool for assessing nitrogen saturation status in forests— Mass-independent $\Delta^{17}O$ of nitrate
Role: Principal Investigator
Dates: 8/2009 through 7/2014
Award Amount: $515,033.

National Science Foundation- Hydrologic Sciences
US-Japan Joint Seminar on Responses of Catchment Hydrology and Forest Biogeochemistry to Climatic and Environmental Change
Role: Co-Investigator
PI: Kevin McGuire, Other Co-Is: B McGlynn (Duke U.), M Green (Plymouths State U.), S Sebestyen (USFS)
Dates: 2/1/2013 through 1/31/2014
Award Amount: $51,526

National Science Foundation- Earth Sciences, Instrumentation and Facilities
Early Career Investigator Support: Development of a Regional Stable Isotope Laboratory For Earth & Environmental Science Research
Role: Principal Investigator
Co-Is: DJ Bain (UPitt GPS), MB Abbott (UPitt GPS), M Rosenmeier (formerly of UPitt G&PS)
Dates: 8/2009 through 7/2012, no cost extension to 8/2013
Award Amounts: $185,000

National Science Foundation- Hydrologic Sciences
Early Career: Acquisition of an Inductively Coupled Plasma - Mass Spectrometer (ICP-MS) for Research in Geochemical, Environmental, and Paleoenvironmental Geoscience.
Role: Co-Investigator
PI: DJ Bain (UPitt GPS); Other Co-Is: MB Abbott (UPitt GPS), B Stewart (UPitt GPS), MF Rosenmeier (UPitt GPS)
Dates: 6/2010 through 5/2012
Award Amount: $166,469.

Pennsylvania Water Resources Research Institute
Assessing the influence of nutrient sources to urban streams through the use of triple nitrate isotopes
Role: Principal Investigator
Dates: 3/2011 through 2/2012
Award Amount: $20,000.

Electric Power Research Institute
The Stable Nitrogen Isotope Composition of Coal-Fired Power Plant NOx: Phase 2
Role: Principal Investigator
Dates: 01/2010 through 12/2010
Award Amount: $40,012.

Maryland Department of Natural Resources, Power Plant Research Program
An assessment of near-highway nitrogen deposition using stable isotope tracers and passive sampling techniques
Role: Principal investigator

Dates: 5/2009 through 4/2010
Award Amount: $14,508.

Electric Power Research Institute
The Stable Nitrogen Isotopic Composition of NO_x in Coal-Fired Power Plant Stacks
Role: Principal investigator
Dates: 12/2008 through 11/2009
Amounts: $63,000.

U.S. Department of Agricultural, CSREES, National Research Initiative, Air Quality Program
Stable Isotopes of Reactive Nitrogen and Particulate Matter: Improved Tools for Characterizing the Transport and Fate of Agricultural Emissions
Role: Principal investigator
Dates: 1/2008 through 12/2010
Award Amount: $400,000.

U.S. Forest Service, Northern Global Change Research Program
Isotopic investigation of anthropogenic sources of atmospheric nitrogen and carbon to vegetation along an urban to rural gradient
Role: Principal investigator
Dates: 5/2007 through 4/2010
Award Amount: $40,000.

PROFESSIONAL AFFILIATIONS

American Geophysical Union; Ecological Society of America; Geological Society of America; American Chemical Society; Association of Women in Science; Earth Science Women's Network

INVITED PRESENTATIONS, COLLOQUIA, AND SEMINARS

***University of Pittsburgh graduate student advised by EM Elliott.**

2016

Elliott, EM. 2016. How is the air up there? Presented at *The* Air *We Breathe: The State of Pollution Research in Pittsburgh.* Sponsored and hosted by The Science & Engineering Ambassadors Program and Western Pennsylvania Regional Data Center. Pittsburgh, PA. June 2, 2016. *Invited.*

Elliott, EM. 2016. When science isn't enough: finding interdisciplinary solutions to global nitrogen problems. Green Speakeasy. University of Pittsburgh. April 11, 2016. Pittsburgh, PA. *Invited.*

Elliott, EM. 2016. What goes up, must come down: An isotopic perspective on reactive nitrogen emissions and deposition. Water-Energy Nexus Seminar. Syracuse University. March 9, 2016. Syracuse, NY. *Invited.*

2015

Elliott, EM. 2015. Emissions, Deposition, and Environmental Cycling of Atmospheric Nitrogen: An Isotope Perspective. 9th International Conference on Acid Deposition. October 21, 2015. Rochester, New York. *Invited Keynote Address.*

Elliott, EM. 2015. Nutrient Contamination Sources in a Changing Climate. The Third Annual Kent State University Water Symposium. October 15, 2015. Kent, Ohio. *Invited Symposium Speaker and Panelist.*

Elliott, EM. 2015. Reactive Nitrogen Emission Characterization from Unconventional Shale Extraction Activities. Pennsylvania Department of Conservation and Natural Resources (PA DCNR). Febuary 11, 2015. Harrisburg, PA. *Invited.*

2014

Elliott, EM. 2014. Urban atmospheric chemistry and reactive nitrogen deposition. Global Connection of Air and Water, Annual Technical Meeting of the National Atmospheric Deposition Program. October 21-24, 2014. Indianapolis, IN. *Invited.*

Elliott, EM. 2014. Using Isotopes to Help Understand Deposition Sources and Processes. Global Connection of Air and Water, Annual Technical Meeting of the National Atmospheric Deposition Program. October 21-24, 2014. Indianapolis, IN. *Invited.*

Elliott.EM. 2014. Too Much Green: Excess Nitrogen in Urban Environments. Science 2014: Sustain It. University of Pittsburgh. October 2, 2014. Pittsburgh, PA. *Invited.*

Elliott.EM. 2014. Atomic number 7. Sloan Foundation Science and Technology symposium. Carnegie Mellon University. September 23, 2014. Pittsburgh, PA. *Invited.*

Elliott. EM. 2014. Investigating atmospheric-terrestrial-hydrologic interactions of reactive nitrogen using stable isotope geochemistry. February 7, 2104. University of Maryland-Baltimore County. Baltimore, MD. *Invited.*

Elliott, EM. 2014. Investigating atmospheric-terrestrial-hydrologic interactions of reactive nitrogen using stable isotope geochemistry. LandScales Workshop, Institute for Landscape Biogeochemistry. November 16, 2014. Müncheberg, Germany. *Invited.*

2013

Elliott, EM. Reflections on the Department of Geography and Environmental Engineering (DoGEE): Collegiality, Humanity, and Interdisciplinarity. *75th* Anniversary Celebration of Sanitation Engineering at Johns Hopkins University. April 20, 2013. *Invited.*

Elliott, EM. Investigating Atmospheric-Terrestrial-Hydrologic interactions of reactive nitrogen using stable isotope geochemistry. University of New Hampshire. April 2, 2013. *Invited.*

Elliott, EM. Investigating Atmospheric-Terrestrial-Hydrologic interactions of reactive nitrogen using stable isotope geochemistry. Department of Civil, Environmental, and Geodetic Engineering, Ohio State University. February 26, 2013. *Invited.*

2012

Elliott, EM. Investigating Atmospheric-Terrestrial-Hydrologic interactions of reactive nitrogen using stable isotope geochemistry. Department of Chemistry and Biochemistry, University of North Carolina- Wilmington. November 16, 2012. *Invited.*

Elliott, EM. Investigating Atmospheric-Terrestrial-Hydrologic interactions of reactive nitrogen using stable isotope geochemistry. University of Maryland, Appalachian Laboratory. September 20, 2012. *Invited.*

*Felix, J.D., Elliott, E.M. Examining the sources and transport of agricultural reactive N emissions using stable isotope techniques 244th American Chemical Society (ACS) National Meeting, August 19-23, 2012, Philadelphia, PA. *Invited.*

2011

Elliott, EM. From the landscape to the continent: Gaining insight into the sources and fate of atmospheric reactive nitrogen emissions using stable isotopes. Abstract #B41I-03. American Geophysical Union Fall Meeting, December 5 - 9, 2011 San Francisco, CA. *Invited*

*Felix, J.D., Elliott, E.M. Using stable isotopes of reactive N in dry and wet deposition to investigate the source, transport, and fate of NOx and NH3, American Geophysical Union Fall Meeting, December 5 - 9, 2011 San Francisco, CA. *Invited.*

Elliott, EM. Investigating Atmospheric-Terrestrial-Hydrologic interactions of reactive nitrogen using stable isotope geochemistry. Department of Geography & Environmental Engineering, Johns Hopkins University. November 15, 2011. *Invited.*

Elliott, EM and *JD Felix. New insights about reactive nitrogen and agricultural ecosystem processes. National Atmospheric Deposition Program, Annual Meeting and Scientific Symposium. Providence, RI. October 26, 2011. *Invited.*

Elliott. EM. Investigating atmospheric-terrestrial-hydrologic interactions of reactive nitrogen using stable isotope geochemistry. School of the Environment and Natural Resources. Ohio State University, Columbus, OH. May 12, 2011. *Invited*

Elliott, EM. New frontiers in reactive nitrogen isotope geochemistry: Implications for water & air quality, ecosystem & human health. Department of Geology & Geography, West Virginia University, Morgantown, WV. April 1, 2011. *Invited*

Elliott, EM. Reactive nitrogen emissions, deposition, and impact on water quality and human health. Department of Civil and Environmental Engineering, University of Pittsburgh, April 8, 2011. *Invited*

2010

*Felix, JD and Elliott, EM. 2010. Apportionment of reactive N emissions using stable isotopes: Demonstrating proof of concept across spatial scales. American Geophysical Union, Fall Meeting, December 13-17, 2010, San Francisco, CA. *Invited.*

Elliott, EM. 2010. Stable isotopes in the ecological sciences: Traditional applications and new frontiers. Northeastern Ecosystem Research Cooperative. Saratoga Springs, NY. November 8-10, 2010. *Invited.*

2009

Elliott, EM, Brush GS. 2009. A window to the landscape of Chesapeake's past: Reconstructing nitrogen dynamics and hydrologic conditions using stable isotope geochemistry and

palynology. American Geophysical Union, Fall Meeting, December 14-18, 2009, San Francisco, CA. Abstract # H51J-04. *Invited.*

Elliott, EM. Understanding atmospheric nitrate sources to ecosystems and biogeochemical implications using stable isotopes. Pymatuning Laboratory of Ecology, University of Pittsburgh. June 24, 2009. *Invited.*

2008

Elliott, EM. Distinguishing NOx source contributions to wet and dry nitrate deposition using stable isotopes. Center for Atmospheric Particle Studies, Carnegie Mellon University. April 21, 2008. *Invited.*

Elliott, EM. Distinguishing NOx source contributions to wet and dry nitrate deposition using stable isotopes. Electric Power Research Institute (EPRI) Annual Technical Meeting, Scottsdale, Arizona, February 12, 2008. *Invited.*

2007

Elliott, E.M., Kendall, C., Boyer, E. W., Burns, D. A., Harlin, K., Lear, G., Wankel, S. D. Distinguishing NO_x Source Contributions to Wet and Dry Nitrate Deposition in the United States using Stable Isotopes. American Geophysical Union, Fall 2007. *Invited.*

Elliott, EM. Nitrogen isotopes as indicators of NOx source contributions to atmospheric nitrate deposition across the Midwestern and Northeastern United States. A Briefing to the Assistant Secretary for Water and Science, U.S. Geological Survey. October, 19 2007. *Invited.*

Elliott, EM. Nitrogen isotopes in dry deposition: Can CASTNET and passive samplers be used to partition contributions of NOx sources? National Atmospheric Deposition Program 30th Annual Technical Meeting. September 2007. Boulder, CO. *Invited.*

Elliott, EM. Stable isotope techniques for tracing NOx source contributions to nitrate deposition in the U.S. U.S. EPA, Clean Air Markets Division, Washington D.C., June 2007. *Invited.*

Elliott, EM. Insights into Sources and Fate of Nitrogenous Emissions Using Stable Isotope Techniques. Chesapeake Bay Scientific Advisory Committee, Workshop on Atmospheric Nitrogen Deposition, Binghamton University, New York, May 30, 2007. *Invited.*

Elliott, EM. Understanding atmospheric nitrate sources to ecosystems and biogeochemical implications using stable isotopes. University of Louisville, Department of Biology, April 2007. *Invited.*

2006

Elliott. NO x Sources, Source Areas, and Atmospheric Cycling In The United States. National Atmospheric Deposition Program 29th Annual Technical Meeting. October 2006. Norfolk, VA. *Invited.*

Elliott, EM. Using Nitrate Isotopes in Precipitation to Distinguish NOx Sources, Atmospheric Cycling, and Source Areas in the United States. USGS Water Resources Division Research Seminar. Menlo Park, CA. May 2006. *Invited.*

Elliott, EM. Innovative stable isotope tools for understanding human impacts to nitrogen biogeochemistry. University of Illinois at Urbana-Champaign, Department of Natural Resources and Environmental Sciences, April 2006. *Invited.*

Elliott, EM. Innovative stable isotope tools for understanding human impacts to nitrogen biogeochemistry. North Carolina State University, Department of Forestry and Environmental Resources, March 2006. *Invited.*

Elliott, EM. Innovative stable isotope tools for understanding human impacts to nitrogen biogeochemistry. Wright State University, Department of Geological Sciences, March 2006. Invited.

Elliott, EM. Innovative stable isotope tools for understanding human impacts to nitrogen biogeochemistry. University of Pittsburgh, Department of Geology and Planetary Science, February 2006. *Invited.*

2005

Elliott, EM; Kendall, C; Harlin, K; et al. A national survey of nitrate isotopes in precipitation: What can isotopes tell us about NO_x sources at multiple scales? National Atmospheric Deposition Program 28th Annual Technical Meeting: Science Supporting Resource Management. September 2005. Jackson, WY. *Invited.*

2004

Elliott, EM; Kendall, C; Harlin, K; Butler, T; Carlton, R; Wankel, SD. Mapping the Spatial and Temporal Distribution of N and O Isotopes in Precipitation Nitrate across the Northeastern and Mid-Atlantic United States. American Geophysical Union, Fall 2004. *Invited.*

2003

Elliott, EM; Brush, GS. Organic Nitrogen Isotope Stratigraphy, Palynology, and Sediment History of Freshwater Wetlands in the Chesapeake Bay Basin: Comparison with Land Use History. USGS Water Resources Division Research Seminar. Menlo Park, CA. November 2003. *Invited.*

MEETING ABSTRACTS AND PRESENTATIONS

*University of Pittsburgh graduate student advised by EM Elliott.
‡***Outstanding student presentation award winner.***

2016

*Yu, Z and Elliott EM. 2016. A novel method for collection of soil-emitted nitric oxide (NO) for natural abundance stable N isotope analysis . Abstract #B13F-0714. December 12-16, 2016. Fall Meeting of the American Geophysical Union. San Francisco, CA.

*Yu, Z and Elliott EM. 2016. A novel dynamic flux chamber system for collection of soil-emitted nitric oxide (NO) for natural abundance stable N isotope analysis. Third Conference on Atmospheric Biogeosciences, American Meteorological Society. Salt Lake City, Utah. June 20-24, 2016. ***Honorable Mention, Best Student Oral Presentation.***

*Coughlin JG, Rose L, Pekney N, Elliott EM. 2016. Reactive nitrogen emissions from Marcellus Shale natural gas activity and implications for regional deposition. 96th American Meteorological Society Annual Meeting. January 9-14, 2016. New Orleans, LA.

2015

*Coughlin JG, Rose L, Elliott EM. 2015. Reactive nitrogen emissions from unconventional natural gas well pads and implications for regional NOx emission inventories. 9th International Conference on Acid Deposition. October 19-23, 2015. Rochester, NY.

*Groszewski, KL and Elliott, EM. 2015. Stable Isotope Analysis of Aquatic Macroinvertebrates, Stream Water, and Algae in Nine Mile Run, Pittsburgh, PA; March 26, 2015. Nine Mile Run Monitoring Committee. Pittsburgh, PA.

*Groszewski, KL and Elliott, EM. 2015. Stable Isotope Analysis of Aquatic Macroinvertebrates, Stream Water, and Algae in Nine Mile Run, Pittsburgh, PA; March 19, 2015. Grad Expo, University of Pittsburgh. Pittsburgh, PA.

2014

Rossi R, Elliott EM, Bain DJ, Crowley KJ, Steiner MA, *Divers MT, Hopkins KG, Giarratani L, Gilmore ME. 2014. ENERGY-NET (Energy, Environment and Society Learning Network): Best Practices to Enhance Informal Geoscience Learning. Abstract #ED51B-3432. December 15-19, 2014. Fall Meeting of the American Geophysical Union. San Francisco, CA.

*Rose, L and Elliott EM. Atmospheric and microbial nitrate contributions to streams across a regional nitrogen deposition gradient. Abstract #B11L-06. December 15-19, 2014. Fall Meeting of the American Geophysical Union. San Francisco, CA.

*Redling, KM and Elliott, EM. Sourcing dry N deposition in urban areas and implications for national N inventories. Global Connection of Air and Water, Annual Technical Meeting of the National Atmospheric Deposition Program. October 21-24, 2014. Indianapolis, IN.

‡*__Rose, L__ and Elliott EM. Atmospheric Nitrate Processing in Forested Watersheds Along a Nitrogen Deposition Gradient. Abstract 1.5. May 11-15, 2014. American Meteorological Society, Second Conference on Atmospheric Biogeosciences. Portland, OR.

*Rose, L and Elliott EM. Extensive Microbial Processing of Atmospheric Nitrate Inputs Along a Nitrogen Deposition Gradient. Abstract #84560. March 06-09, 2014. Soil Science Society of America Ecosystem Services: Soil's Role in Restoring Ecosystem Services. Sacramento, CA.

2013

*Rose, L and Elliott EM. Temporal Trends in Stream Nitrate Sources Across a Nitrogen Saturation Gradient. Abstract #B42D-03. December 9-15, 2013. Fall Meeting of the American Geophysical Union. San Francisco, CA.

Elliott EM, *Felix JD, Rose LA, Kendall C, Boyer EW, Burns DA. Soil NOx Emissions: Not So Innocuous? Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology & Geochemistry. June 16-21, 2013. Proctor Academy, Andover New Hampshire.

*Rose L and Elliott EM. 2013. Examining storm flow dynamics using dual nitrate isotopes in an nitrogen saturated system. U.S.-Japan Joint Seminar on Responses of Catchment Hydrology and Forest Biogeochemistry to Climatic and Environmental Change. Honolulu, Hawaii, March 3-7, 2013.

2012

*Felix, JD and Elliott EM. 2012. Investigating the sources, transport, and oxidation pathways of nitrogen oxide using nitrogen and oxygen stable isotopes. Abstract #A53N-0362. December 3-7, 2012. Fall Meeting of the American Geophysical Union. San Francisco, CA.

*‡**Rose L** and Elliott EM. 2012. . Highly Variable $d^{15}N$ and $d^{18}O$ of Event-Based Precipitation Nitrate Indicate Dynamic Contributions from Biogenic and Anthropogenic NOx Sources. Abstract #B41H-04. December 3-7, 2012. Fall Meeting of the American Geophysical Union. San Francisco, CA.

Cambal LK, Elliott EM, *Felix JD, Tunno B, Howell J, Michanowicz D, Carr JL, Gillooly S, Shields KN, Clougherty JE. Developing Methods to Determine the Nitrogen Isotopic Composition ($d^{15}N$) in NO_2 for Source Apportionment in an Urban Area. October 28 - November 1, 2012. 22nd Annual Meeting of the International Society of Exposure Science. Seattle, Washington.

Elliott EM, Bain DJ, *Divers MT, Crowley KJ, Povis-Tison K, Scardina A and Steiner MA. 2012. ENERGY-NET (Energy, Environment and Society Learning Network): Enhancing opportunities for learning using an Earth systems science framework. Abstract # ED33B-0768. December 3-7, 2012. Fall Meeting of the American Geophysical Union. San Francisco, CA.

*Felix, JD and Elliott, EM. 2012. Examining the sources and transport of agricultural reactive N emissions using stable isotope techniques. American Chemical Society National Meeting and Exposition. August 22, 2012, Philadelphia, PA. Abstract #222.

*Felix, JD and Elliott, EM. 2012. Investigating ammonia emission sources and transport using stable nitrogen isotopes. American Chemical Society National Meeting and Exposition. August 20, 2012, Philadelphia, PA. Abstract #106.

*Felix, JD and Elliott, EM. 2011. Utilizing the nitrogen isotopic composition of ammonia to investigate regional transport of ammonia emissions: $\delta^{15}N\text{-}NH_3$ values at AMoN sites. National Atmospheric Deposition Program, 2012 Fall Meeting and Scientific Symposium. Portland, Maine, October 4, 2012.

2011

Bain, DJ, *Sikora, MT, Elliott, EM, Wozniak, EP, Fisher, KR. Urban stream restoration and water quality: the case of Nine Mile Run (Pittsburgh, PA). Northeastern and North-Central Joint Meeting of the Geological Society of America, March 22, 2011. Pittsburgh, PA.

Bain, DJ, *Sikora, MT, Wozniak, E, Fisher, KR, Carr, J, Elliott, EM. Quantifying Urban Water Subsidies with Hydrological Tracers of Domestic Water. Abstract# H53J-1542. AGU Fall Meeting, December 5 - 9, 2011 San Francisco, CA.

Elliott, EM and *Felix, JD. Stable Isotopes of Reactive Nitrogen and Particulate Matter: Improved Tools for Characterizing the Transport and Fate of Agricultural Emissions. NIFA AFRI Air Quality Project Directors Meeting. June 7, 2011, Washington, DC.

Elliott, EM, *Redling, KM, *Sikora, MT, *Felix, JD. Spatial heterogeneity in atmospheric reactive nitrogen deposition to urbanizing landscapes: Implications for water quality, ecosystem, and human health. Northeastern and North-Central Joint Meeting of the Geological Society of America, March 22, 2011. Pittsburgh, PA.

Elliott, EM. From the landscape to the continent: Gaining insight into the sources and fate of atmospheric reactive nitrogen emissions using stable isotopes. Abstract #B41I-03. AGU Fall Meeting, December 5 - 9, 2011 San Francisco, CA.

*Felix, J.D., Elliott, E.M. Using stable isotopes of reactive N in dry and wet deposition to investigate the source, transport, and fate of NOx and NH3, AGU Fall Meeting, December 5 - 9, 2011 San Francisco, CA.

*Felix, J.D., Elliott, E.M., Maghirang, R., Briggs, J., McConnell, L., Gish, T., Hastings, M., Gay, D., 2012. Source apportionment and tracing of agricultural and fossil fuel reactive N emissions using stable isotopic composition. 242nd ACS National Meeting, August 28 to September 1, 2011, Denver, CO

*Felix, JD and Elliott, EM. 2011. Investigating the Source, Transport, and Fate of Ammonia Emissions Using Stable Isotopes. Isoscapes 2011. September 26 to 27, 2011, West Lafayette, IN.

*Felix, JD, Elliott, EM. Source apportionment of urban and rural reactive nitrogen emissions. Northeastern and North-Central Joint Meeting of the Geological Society of America, March 22, 2011. Pittsburgh, PA.

*Redling, KM and Elliott, EM. 2011. Isoscapes of dry nitrogen deposition across local and regional scales. Isoscapes 2011. September 26 to 27, 2011, West Lafayette, IN.

*Redling, KM, Elliott, EM, Hom, J. Isotopic investigation of dry nitrogen deposition along two urban to rural gradients. Northeastern and North-Central Joint Meeting of the Geological Society of America, March 22, 2011. Pittsburgh, PA.

*Redling, KM, Elliott, EM, Hom, JH. Sourcing dry N deposition in urban areas and implications for national N inventories. Abstract # B51F-0453. AGU Fall Meeting, December 5 - 9, 2011 San Francisco, CA.

*‡**Rose, L**; Elliott, EM. Using Stable Isotopes of Nitrate to Gauge Forest Nitrogen Saturation. University of Pittsburgh Graduate Student Expo March 25, 2011, Pittsburgh, PA.

*Sikora, M.T., Elliott, E.M., Bain, D.J. 2012. Constraining nitrogen inputs to urban streams from leaking sewer infrastructure using inverse modeling: Implications for urban water quality. Abstract #H51P-06 presented at 2011 Fall Meeting, AGU, San Francisco, Calif. 5-9 Dec.

*Sikora, MT, Elliott, E.M., Bain, D.J. Contributions of nutrient pollution from sewage and atmospheric deposition in urban watersheds determined through the use of stable isotopes. Northeastern and North-Central Joint Meeting of the Geological Society of America, March 22, 2011. Pittsburgh, PA.

*Sikora, MT, Elliott, EM, Bain, DJ. Contributions of nutrient pollution from sewage and atmospheric deposition in urban watersheds determined through the use of stable isotopes. Oral presentation at the Graduate Student Expo, University of Pittsburgh, March 24, 2011.

Whitlow, T, Elliott, EM, Pouyat, R, Yesilonsis, I. Are street trees being subsidized by human waste? Northeastern and North-Central Joint Meeting of the Geological Society of America, March 22, 2011. Pittsburgh, PA.

2010

Bain, DJ, *Sikora, MT, Wozniak, EP, Fisher, KR, Elliott, EM. 2010. Adaptive management in urban stream restoration: Balancing water quality and channel structure. 95th Meeting of the Ecological Society of America. Pittsburgh, PA. Paper 6 in OOS 24.

*Brudnak, LA, Elliott EM. Using Mass-Independent $\Delta 17O$ of Nitrate to Assess Forest N Saturation. Fernow Experimental Forest Cooperator's Meeting. January 6, 2010. Parsons, WV.

Elliott, EM and *Felix, JD. 2010. Stable Isotopes of Reactive Nitrogen & Particulate Matter: Improved Tools for Characterizing the Transport and Fate of Agricultural Emissions. USDA National Research Initiative, Air Quality Project Director's Meeting. August 23-26, 2010. Amarillo, TX.

Elliott, EM, *Middlecamp, KM, *Sikora MT. 2010. Spatial heterogeneity in atmospheric deposition and human engineering: Delivery of automobile emissions to aquatic systems. 95th Meeting of the Ecological Society of America. Pittsburgh, PA. August 2010. Paper 5 in SYMP20.

*Felix, JD and Elliott, EM. 2010. Apportionment of reactive N emissions using stable isotopes: Demonstrating proof of concept across spatial scales. EOS Trans. AGU, 91(52), Fall Meet. Suppl., Abstract #B42E-06.

*Felix, JD and Elliott, EM. 2010. Utilizing stable isotopes to characterize reactive nitrogen emissions and deposition. 95th Meeting of the Ecological Society of America. Pittsburgh, PA. Paper 173 in PS 47.

*Felix, JD, Elliott, EM, Shaw S. 2010. Stable nitrogen isotopes of NO_x at two coal-fired power plants. Air and Waste Management Association (AWMA), Symposium on Air Quality Measurement Methods and Technology, November 2-4, 2010, Los Angeles, CA. Control No.: 2010-A-86-ME-AWMA

Kaushal, S., Groffman, PM, Band, LE, Elliott, EM, Shields, CA, Kendall, C. 2010. Tracking nonpoint nitrogen pollution from urbanizing watersheds. EOS Trans. AGU, 91(52), Fall Meet. Suppl., Abstract #B41J-03.

Kaushal, SS, Groffman, PM, Band, LE, Elliott, EM, Shields, CA, Kendall, C, Mayer, P, Newcomer, TA . 2010. Tracking stream nitrogen sources using isotopes: implications for managing coastal eutrophication and urban sustainability. 95th Meeting of the Ecological Society of America. Pittsburgh, PA. Paper 4 in COS 26.

*Middlecamp, KM and Elliott, EM. 2010. Isotopic investigation of nitrogen deposition along a highway road gradient. 95th Meeting of the Ecological Society of America. Pittsburgh, PA. Paper 9 in COS 91.

*Rose, LA and Elliott, EM. 2010. $\Delta^{17}O\text{-}NO_3^-$: Application of a stable isotopic tracer to forest nitrogen saturation. 95th Meeting of the Ecological Society of America. Pittsburgh, PA. Paper 171 in PS 47.

*Sikora, MT, Elliott, E.M., Bain D.J. (2010) Understanding urban pollution sources to the Monongahela River through the use of stable isotopes. Oral Presentation at the State of the Monongahela River Research Symposium, Thursday September 16, 2010.

*Sikora, MT, Elliott, EM, Bain, DJ. 2010. Understanding nitrogen dynamics in urban riparian systems through the use of stable isotopes. 95th Meeting of the Ecological Society of America. Pittsburgh, PA. Paper 6 in COS 112.

2009

‡Outstanding student presentation award winner.

Elliott, EM, Brush GS. 2009. A window to the landscape of Chesapeake's past: Reconstructing nitrogen dynamics and hydrologic conditions using stable isotope geochemistry and palynology. EOS Trans. AGU, 90(52), Fall Meet. Suppl., Abstract # H51J-04.

*Felix, JD and Elliott, EM. Assessing the use of NH3 isotopic composition collected by passive samplers to indicate regional NH3 emission sources. NADP Annual Meeting and Scientific Symposium. October 6 – 8, 2009. Saratoga Springs, NY.

*Felix, JD and Elliott, EM. Stable Isotopes of Reactive Nitrogen and Particulate Matter: Improved Tools for Characterizing the Transport and Fate of Agricultural Emissions. USDA National Research Initiative, Air Quality Project Director's Meeting. June 2-4, 2009. Kansas City, MO.

*Felix, JD, Elliott, EM., Ham, J., Gish, T., Adams, M., and McConnell, L. Distinguishing sources and fate of atmospheric reactive nitrogen and particulate matter using stable isotopes. 238th ACS National Meeting. August 16-20, 2009. Washington, DC.

*Middlecamp, KM and Elliott, EM. Isotopic Investigation of Reactive Nitrogen Deposition Along a Highway Road Gradient. NADP Annual Meeting and Scientific Symposium. October 6 – 8, 2009. Saratoga Springs, NY.

*Middlecamp, KM, Elliott, E.M. 2009. Isotopic Investigation of Reactive Nitrogen Deposition Along a Highway Road Gradient. Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract #B11F-04

*Middlecamp, KM, Elliott, EM, Hom, J. Isotopic Investigation of N Deposition and Vegetation on a Road Gradient. University of Pittsburgh Graduate Student Expo March 16, 2009, Pittsburgh, PA.

Nanus, L, Campbell, DH, Ingersoll, G, Lehmann, C, Kendall C, Elliott, EM, Bohlke, JK. 2009. Determining Spatial and Temporal Variation in Sources of Nitrogen Deposition in the Rocky Mountains using Nitrogen Isotopes. EOS Trans. AGU, 90(52), Fall Meet. Suppl., Abstract # H53D-0961.

*Sikora, MT, Elliott, E.M., Bain, D.J. 2009. Assessing the Role of Sewers and Atmospheric Deposition as Nitrate Contamination Sources to Urban Surface Waters using Stable Nitrate Isotopes. EOS Trans. AGU, 90(52), Fall Meet. Suppl., Abstract # H42D-04.

‡*__Sikora__, MT, Elliott, EM, Bain, DJ. Nutrient Input and Dynamics during Baseflow and a Storm Event in Nine Mile Run, a Restored Urban Stream. University of Pittsburgh Graduate Student Expo March 16, 2009, Pittsburgh, PA.

2008

‡Outstanding student presentation award winner.

Burns, DA, Boyer, EW, Elliott, EM, Kendall, C. 2008. Sources and transformations of nitrate from streams draining varying land uses: Evidence from dual isotope analysis. *EOS Trans.* AGU, 89(53), Fall Meet. Suppl., Abstract #H23J-07.

Elliott, EM, Kendall C, Tate C, Sprague L, Giddings E, Gregory MB, Falcone J. 2008. Nutrient sources to urban streams in three metropolitan areas of the United States using dual nitrate isotopes. *EOS Trans.* AGU, 89(53), Fall Meet. Suppl., Abstract #H21H-0934.

Elliott, EM, *Middlecamp, KM, Sikora, MT, Kendall, C, Boyer, EW, Burns, DA. Atmospheric nitrogen deposition and impacts to urban water quality. Ohio River Basin Consortium for Research and Education (ORBCRE) Annual Symposium, Oct 29-31, 2008, Carnegie Mellon University, Pittsburgh PA.

Goodale, CL, Thomas, SA, Fredriksen, G, Elliott, EM, Flinn, KM, Butler, TJ. 2008. Unusual seasonal patterns and inferred processes of nitrogen retention in forested headwater catchments of the Upper Susquehanna basin. *EOS Trans.* AGU, 89(53), Fall Meet. Suppl., Abstract #H11B-0749.

*Middlecamp, KM, Elliott, EM, Hom, J. "Isotopic investigation of anthropogenic sources of atmospheric nitrogen and carbon to vegetation along an urban to rural gradient." University of Pittsburgh Grad Expo, March 2008, Pittsburgh, PA.

*Middlecamp, KM, Elliott, EM, Hom, J. Isotopic Investigation of Anthropogenic Sources of Carbon and Nitrogen to Vegetation along a Road Gradient. Baltimore Ecosystem Study (BES) Annual Meeting October 15-16, 2008, Baltimore, MD.

*Middlecamp, KM, Elliott, EM, Hom, J. Isotopic Investigation of Anthropogenic Sources of Carbon and Nitrogen to Vegetation along a Road Gradient. Ohio River Basin Consortium for Research and Education (ORBCRE) Annual Symposium, Oct 29-31, 2008, Carnegie Mellon University, Pittsburgh PA.

*Sikora, MT, Elliott, E.M., Bain, D.J. Nine Mile Run - Water quality in a restored urban stream, Pittsburgh, PA. University of Pittsburgh Grad Expo, March 2008, Pittsburgh, PA.

*Sikora, MT, Elliott, EM, Bain, DJ. Nutrient Input and Dynamics in a Restored Urban Stream Impacted by Mixed Sewer Systems. Baltimore Ecosystem Study (BES) Annual Meeting October 15-16, 2008, Baltimore, MD.

*Sikora, MT, Elliott, EM, Bain, DJ. Nutrient input and dynamics in Nine Mile Run, a restored urban stream. Ohio River Basin Consortium for Research and Education (ORBCRE) Annual Symposium, Oct 29-31, 2008, Carnegie Mellon University, Pittsburgh PA.

‡*__Sikora, MT__, Elliott, EM, Bain, DJ. 2008. Nutrient input and dynamics in a restored urban stream impacted by mixed sewer systems. *EOS Trans.* AGU, 89(53), Fall Meet. Suppl., Abstract #H21H-0935.

2007

Burns, DA, Boyer, EW, Elliott, EM, Kendall, C. Nitrate Isotopes as Tracers of Nitrogen Cycling Processes in Watershed of Varying Land Use in New York. Environmental Monitoring, Evaluation, and Protection Conference, New York State Energy Research and Development Authority (NYSERDA), Albany, New York, November 15-16, 2007.

Elliott, EM, Kendall, C, Boyer, EW, Burns, DA, Harlin, K, Lear, G, Wankel, SD. 2007. Distinguishing NO_x Source Contributions to Wet and Dry Nitrate Deposition in the United States using Stable Isotopes. *EOS Trans.* AGU, 88(52), Fall Meet. Suppl., Abstract B24A-03, Invited.

Elliott, EM, Kendall, C., Boyer, E. W., Burns, D. A. Tracing atmospheric sources of nitrogen to watersheds: Nitrate isotopes in precipitation in the Northeastern U.S. Environmental Monitoring, Evaluation, and Protection Conference, New York State Energy Research and Development Authority (NYSERDA), Albany, New York, November 15-16, 2007.

Elliott, EM. Testing hypotheses regarding nitrate deposition patterns and NOx sources to landscapes using stable isotope techniques. Ninth Annual Scientific Meeting. Baltimore Ecosystem Study. October 17-18, 2007, Baltimore, MD.

Kendall, C, Elliott, EM, Wankel, SW, Boyer, EW, Burns, DA. 2007. Why do different anthropogenic sources of atmospheric nitrate have distinctive isotopic signatures? *EOS Trans.* AGU, 88(52), Fall Meet. Suppl., Abstract B31A-0059.

Kendall, C, Elliott, EM, Boyer, EW, Burns, DA. Quantifying Atmospheric Nitrogen Sources with New Stable Isotope Techniques: What Have We Learned? Environmental Monitoring, Evaluation, and Protection Conference, New York State Energy Research and Development Authority (NYSERDA), Albany, New York, November 15-16, 2007.

Kendall, C, Elliott, EM, Wankel, SD, Boyer, EW, Burns, DA. Why do Different Anthropogenic Sources of Atmospheric Nitrate Have Distinctive Isotopic Signatures? Environmental Monitoring, Evaluation, and Protection Conference, New York State Energy Research and Development Authority (NYSERDA), Albany, New York, November 15-16, 2007.

*Middlecamp, KM, Elliott, EM, Hom, J. "Isotopic investigation of anthropogenic sources of atmospheric nitrogen and carbon to vegetation along an urban to rural gradient." Baltimore Ecosystem Study Annual Meeting, October 2007, Baltimore, MD.

*Sikora, MT, Elliott, E.M., Bain, D.J. (2007) Nine Mile Run -Monitoring Water Quality After the Restoration. State of the Watershed Meeting of the Nine Mile Run Watershed Association, Pittsburgh PA, September 2007.

*Sikora, MT, Elliott, E.M., Bain, D.J. (2007) Nine Mile Run - Water quality in a restored urban stream, Pittsburgh, PA. Baltimore Ecosystem Study Annual Meeting, October 2007, Baltimore, MD.

2006

Elliott, E.M., Kendall, C., Burns, D. A., Boyer, E. W., Harlin, K., Wankel, S. D., Butler, T. J., Carlton, R. 2006. Nitrate Isotopes in Precipitation to Distinguish NOx Sources, Atmospheric

Processes, and Source Areas in the United States, *EOS Trans.* AGU, 87(36), Jt. Assem. Suppl., Abstract H52B-01

Elliott, E.M.; Burns, D.A.; Boyer, E.W.; Kendall, C. 2006. Sources of Nitrogen to Streams of Varying Land Use as Determined Through Dual Isotope Analysis of Nitrate. *EOS Trans.* AGU, 87(52), Fall Meet. Suppl., Abstract H12C-07.

2005

Elliott, E.M.; Kendall, C, Harlin, K, Butler, TJ, Carlton, R, Wankel, SD, Boyer, EW, Burns, DA. 2005. What can nitrate isotopes in precipitation tell us about NOx sources, atmospheric cycling, and source areas? Results from the first National survey in the United States. *EOS Trans.* AGU, 86(52), Fall Meet. Suppl., Abstract B54A-02.

Elliott, EM; Kendall, C; Harlin, K et al. Tracing atmospheric sources of nitrogen to watersheds: Nitrate isotopes in precipitation in the Northeastern and continental U.S. Environmental Monitoring, Evaluation, and Protection in New York: Linking Science and Policy. October 2005. Albany, NY.

Elliott, EM; Kendall, C; Harlin, K; Butler, T; Carlton, R; Wankel, SD. 2005. Nitrate isotopes in precipitation across the United States: A new tool for distinguishing NO_x sources?. 7th International Conference on Acid Deposition. June 2005. Prague, Czech Republic.

Elliott, EM; Kendall, C; Harlin, K; Butler, T; Carlton, R; Wankel, SD. 2005. Isotopic Tracers Of Stationary Source NO_x Emissions In The Northeastern And Mid-Atlantic United States. UC-Riverside Symposium on Nitrogen Eutrophication in Xeric Wildlands. Jan 19-20, 2005, Riverside, CA.

Elliott, EM; Kendall, C; Harlin, K; Carlton, R; Butler, T; Wankel, SD; Glatz, R. Deciphering Atmospheric Sources of Nitrate to Watersheds: A National Survey of Nitrate Isotopes in Precipitation. Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology, and Geochemistry. July 2005. Waterville, ME.

Golden, HE, Boyer, EQ, Burns, DA, Elliott, EM, Kendall, C, Butler, TJ. 2005. Elucidating sources and factors affecting delivery of nitrogen to surface waters of New York state. *EOS Trans.* AGU, 86(52), Fall Meet. Suppl., Abstract B51A-0187.

2004

Elliott, EM; Kendall, C; Harlin, K; Butler, T; Carlton, R; Wankel, SD. 2004. Mapping the Spatial and Temporal Distribution of N and O Isotopes in Precipitation Nitrate across the Northeastern and Mid-Atlantic United States. *EOS Trans.* AGU, 85(47), Fall Meet. Suppl., Abstract H52B-02, Invited.

Golden, HE, Boyer, EW, Elliott, EM, Kendall, C, Burns, DA, Butler, TJ. 2004. Quantifying atmospheric N sources in major watersheds of New York state. *EOS Trans.* AGU, 85(47), Fall Meet. Suppl., Abstract B13B-0219.

2003

Elliott, EM, Brush, GS. 2003. Organic Nitrogen Isotope and Pollen Stratigraphies in Freshwater Wetlands: Indicators of Land Use Change and Environmental Conditions. Gordon

Conference on Catchment Science: Interactions of Hydrology, Biology, and Geochemistry. July 2003. New London, NH.

Elliott, EM, Brush, GS. 2003. Does δ15N of Sedimented Organic Nitrogen Record Historical Changes in Nitrogen Source to Wetlands? American Society of Limnology and Oceanography, Aquatic Sciences Meeting. Abstract # SS2.04, Nitrogen Paleo-biogeochemistry.

2002

Elliott, EM, Brush, GS. 2002. Inorganic Nitrogen and Sulfur Assimilation by Wetland Biota: A Paleoecological Perspective. USGS Isotope Tracers Nitrate Methods Workshop. February 2002. Menlo Park, California.

Elliott, EM, Brush, GS. 2002. Extending the Record: Using Isotopes to Infer Changing Nitrogen Sources to Wetlands. The 3rd International Conference on the Applications of Stable Isotope Techniques to Ecological Studies. Flagstaff, Arizona.

Elliott, EM, Brush, GS. 2002. Extending the Record: Using Isotopes to Infer Changing Nitrogen Sources to Wetlands. *EOS Trans*. AGU, 83(19), Spring Meet. Suppl., Abstract #H31B-06.

2001

Elliott, EM, Brush, GS. 2001. Isotopes And Pollen: What Can They Tell Us About Land Use History And Nitrogen Source To Wetland Biota? Baltimore Ecosystem Study Annual Meeting. October, 2001. Baltimore, Maryland.

Elliott, EM, Brush GS. 2001. Historical Variations in Nitrogen Source to Wetlands. Gordon Research Conference on Forested Catchments. Andover, New Hampshire.

Elliott, EM, Brush, GS. 2001. Historical Variations in Nitrogen Source to Wetlands. Ecological Society of America Annual Symposium. August, 2001. Madison, Wisconsin. Abstract #35, Session #19.

2000

Bell, ML, Hobbs, BF, Elliott, EM, et al. 2000. An Evaluation of Multi-criteria Decision-Making Methods in Integrated Assessment of Climate Policy. Proceedings of the 14th International Conference on Multiple Criteria Decision Making. in: Haimes, Y.Y., Steuer, R.E. (Eds.), *Proceedings of the 14th International Conference of Multi Criteria Decision Making, Research and Practice in Multiple Criteria Decision Making*, Springer-Verlag.

STUDENT RESEARCH

Current Graduate Student Advisees and Awards

Zhongjie Yu, **Ph.D. Candidate**, August 2013-present

- M.S. Rutgers University
- Graduate Research Fellowship (First Tier), Geological Society of America, April 2014
- *Honorable Mention, Best Student Oral Presentation*, American Meteorological Society, Third Conference on Atmospheric Biogeosciences, June 2016.

- Andrew Mellon Fellowship, University of Pittsburgh. 2016. Characterizing sources and microbial pathways of soil-emitted nitric oxide (NO) using stable nitrogen isotopes.
- Henry Leighton Memorial Scholarship, University of Pittsburgh.

Angela Chung, Ph.D. student, August 2016-present

- M.S. Penn State University

Rebecca Forgrave, Ph.D. student, August 2016-present

Kassia Groszewski, M.S. student, August 2013-present

- M.S. Indiana University
- Fellowship recipient, participation in NSF-sponsored SPATIAL short course at the University of Utah. June 2014.

Former Postdoctoral Advisees

Dr. Lucy Rose, September 2014-August 2015

- Current position: Postdoctoral research associate, University of Minnesota. Department of Forestry.

Former Graduate Student Advisees and Awards

Justin Coughlin, M.S., August 2014-July 2016

- Fellowship recipient, participation in NSF-sponsored SPATIAL short course at the University of Utah. June 2015.
- Thesis: "Reactive Nitrogen Emissions and Deposition From Unconventional Natural Gas Extraction in the Marcellus Shale Basin". Defended July 22, 2016.
- Science Communication Fellowship, Phipps' Conservatory and Botanical Gardens. September 2015.
- Fellowship recipient, participation in NSF-sponsored SPATIAL short course at the University of Utah. June 2015.
- Current position: US EPA Region 5, Air Quality Research Specialist

Lucy Rose (née Brudnak), Ph.D., Fall 2009-August 2014

- *Nominee, CGS/ProQuest Distinguished Dissertation Award.* Selected to represent the University of Pittsburgh in the Mathematics, Physical Sciences, and Engineering category for this national competition (June 2016, Lucy Rose).
- Dissertation: "Application of Triple Nitrate Isotope Analysis to Nitrogen Saturated Appalachian Forests". Defended July 16, 2014.
- *Outstanding Student Presentation,* American Meteorological Society, May 2014
- *Outstanding Student Paper Award,* AGU, Biogeosciences Section, December 2012
- *Pre-doctoral Fellowship,* "Determination of Forest Nitrogen Saturation Status Using a Stable Isotope Tracer of Atmospheric Nitrate." *USDA National Institute of Food & Agriculture, Agriculture & Food Research Initiative, 2012-2013, $73,940*
- *Outstanding Paper Award,* University of Pittsburgh Annual Graduate Student Expo, March 25, 2011, Pittsburgh, PA.

- *Andrew Mellon Pre-doctoral Fellowship,* University of Pittsburgh, $18,165, Fall 2011-Spring 2012.
- *Graduate Research Fellowship,* Geological Society of America, April 2010
- *Fellowship Recipient,* INTRAMIF (INitial TRAining network in Mass Independent Isotope Fractionation, Marie Curie Initial Training Network), August 2010
- Current position: Postdoctoral research associate, University of Minnesota. Department of Forestry.

Marion Divers (née Sikora), Ph.D., September 2007-December 2013

- Dissertation: "Sources and Dynamics of Reactive Nitrogen to an Urban Watershed". Defended November 21, 2013.
- *Outstanding Student Paper Award,* AGU, Hydrology Section, December 2008
- *Outstanding Paper Award,* University of Pittsburgh Annual Graduate Student Expo, March 16, 2009, Pittsburgh, PA.
- *Graduate Research Fellowship,* Geological Society of America, April 2010
- *Andrew Mellon Pre-doctoral Fellowship,* University of Pittsburgh, $17,500, Fall 2010-Spring 2011.

J. David Felix, Ph.D., September 2008-December 2012

- Dissertation: "Examining the Sources and Transport of Reactive Nitrogen Emissions using Stable Isotope Techniques". Defended November 20, 2012.
- *Graduate Research Fellowship,* Geological Society of America, April 2010
- Current position: Assistant Professor, Texas A&M University- Corpus Christi, Department of Physical and Environmental Sciences. September 2015-present.

Katherine Redling (née Middlecamp), M.S., September 2007-December 2010

- Thesis: "Isotopic Investigation of Anthropogenic Sources of Atmospheric Nitrogen and Carbon Along Spatial Gradients"
- *Outstanding Merit Award, Graduate Research Fellowship,* Geological Society of America, April 2008.
- Current position: Stable Isotope Laboratory Technician and Manager, *Regional Laboratory for Earth and Environmental Science Research*, University of Pittsburgh

Undergraduate Student Researchers and Awards

Madeline Grey. Brackenridge Fellow, Summer 2016. Madeline started as a laboratory assistant in our Group in spring 2015. She is a chemistry major and was recently awarded a Brackenridge Fellowship to conduct an independent research project on the role of dissolved organic nitrogen in nutrient export dynamics in Nine Mile Run.

Former Undergraduate Student Researchers and Awards

Troy Ferland, May 2014- July 2015. Troy conducted an independent research project that examines baseline rates of atmospheric nitrogen deposition in a region with a high likelihood of future Marcellus shale extraction.

- Dietrich School Undergraduate Research Award, Summer 2014
- Dietrich School Undergraduate Research Award, Fall 2014
- Dietrich School Undergraduate Research Award, Spring 2015

Katherine Colwell, May 2014-2015. Katherine's research examined spatial and temporal variability in groundwater nitrogen concentrations below a conventionally managed cornfield.

Mollie Kish, January 2012-2014. Mollie's research is an independent project that examines the use of resin exchange collectors to assess urban reactive nitrogen deposition.

- Dietrich School Undergraduate Research Award, Spring 2014
- Brackenridge Research Fellowship, Summer 2013
- Brackenridge Research Fellowship, Spring 2013
- University Honors Research Assistantship, Fall 2012
- Undergraduate thesis defended July 2014: "Atmospheric Deposition of Nitrogen Compounds in an Urban Watershed"

Graham Gelzhiser, May 2013-2014. Graham's research examines spatial and temporal variability in groundwater nitrogen concentrations below a conventionally managed cornfield.

Kathleen Tuite, May 2009-December 2010. Katie's research is an independent project that examines the use of resin exchange collectors to assess urban reactive nitrogen deposition.

- Independent research project report: "Determination of Atmospheric Nitrogen Deposition Within an Urban Watershed Using Ion Exchange Resins"
- Awards: University Honors Research Assistantship (Spring 2010, Fall 2010)
- Current position: PhD student, UCLA, Atmospheric Chemistry

John Calas, Summer 2010-Spring 2011

Jim Tucker, First Experiences in Research, Spring 2010

Andrew McCarty, First Experiences in Research, Spring 2009

Talia Brinson, First Experiences in Research, Spring 2009

Undergraduate Employees

Luke Fidler, Shannon Stauffer, Jessie Bobrynski, Maria Proto, Melissa Sullivan, Troy Ferland, Ian Abrahamsen, Katherine Colwell

Graduate Committee Member, Doctor of Philosophy

- Dervla Kumar, Ph.D. student, Department of Geology & Environmental Science, ongoing
- Molly O'Beirne, Ph.D. Candidate, Department of Geology & Environmental Science, ongoing
- Robert Rossi, Ph.D. Candidate, Department of Geology & Environmental Science, ongoing

- Erin Pfeil-McCullough, Ph.D. Candidate, Department of Geology & Environmental Science, ongoing
- Xiaobo Xue, Ph.D., 2011, Department of Civil and Environmental Engineering
- Broxton Bird Ph.D., 2009, Department of Geology & Planetary Science
- Liz Chapman Ph.D., 2011, Department of Geology & Planetary Science
- Tamara Misner, Ph.D., 2014, Department of Geology & Planetary Science
- Kristina Hopkins, Ph.D., 2014, Department of Geology & Planetary Science
- Aubrey Hillman, Ph.D. 2015, Department of Geology & Planetary Science
- Leah Cambal, Doctor of Public Health (Dr. P.H.), 2015. Department of Environmental and Occupational Health, Graduate School of Public Health
- Fernando Plaza, Department of Civil and Environmental Engineering (current)

Graduate Committee Member, Master of Science

- Kaitlin Clark, M.S. 2012, Department of Geology & Planetary Science

Undergraduate Committee Member, Bachelor of Philosophy

- Justin Hynicka (2008)
- Sarah Strano (2008)
- Marion Sikora (2007)
- Lindsey Whithaus (2007)

TEACHING

Teaching Experience

Graduate courses (University of Pittsburgh):

- Stable Isotope Geochemistry (GEOL 2525)
    - An intermediate- to advanced-level, 3-credit graduate course that provides an introduction to the stable isotope systematics of light elements (hydrogen, carbon, nitrogen, oxygen, and sulfur) and their application to geological, biological, and environmental systems. Taught in alternate years.
- Watershed Hydrology and Biogeochemistry (GEOL 3853)
    - An intermediate- to advanced-level, 3-credit graduate course that examines surface water hydrology, biogeochemistry, and management of watersheds with a particular focus on how varying land uses influence the dynamics of hydrology and biogeochemistry. Taught in alternate years.
- Topics in Nitrogen Biogeochemistry (GEOL 3956).
    - A 2-credit, graduate seminar class offered every semester for students interested in nitrogen dynamics, fluxes, and issues across a range of Earth systems. Content for this course is dynamic and changes with student needs. General content includes development of grant- and manuscript-writing skills, critical reading and

discussion of journal articles, presentation of laboratory and field results, and learning new software applications. Offered every semester.

- Topics in Catchment Science (GEOL 3951)
    - A 2-credit, co-taught graduate seminar class offered every semester for students interested in catchment science, hydrology, and biogeochemistry. Content for this course is dynamic and changes with student needs. General content includes development of grant- and manuscript-writing skills, critical reading and discussion of journal articles, presentation of laboratory and field results, and learning new software applications. Offered every semester.
- Topics in Hydrological Modeling (GEOL 3954)
    - A co-taught intermediate- to advanced-level 3-credit graduate course aimed at helping students develop a thorough understanding of hydrologic processes via various hydrologic modeling tools.

Undergraduate courses:

- Ecosystem Ecology (GEOL1904), University of Pittsburgh
    - A 3-credit undergraduate course. This course provides students with an introduction to the principles of ecosystem ecology and associated applications to environmental change. Broad course themes include descriptions of the physical environment, community ecology, ecosystem ecology, ecological biogeography, and human ecology. This is a core, required course for the new major in Environmental Science B.S., and an elective for the Environmental Studies B.A. and Geology B.S. degrees. Taught every year.
- Environmental Geochemistry (GEOL1515/2515), University of Pittsburgh
    - A 3-credit undergraduate course that explores the complex interactions of Earth's rock, water, air, and life systems that determine the chemical characteristics of the environment. This is a core, required course for the Environmental Studies B.A., and an elective for the Geology Bachelor of Science and Environmental Geology Bachelor of Science degrees. This course is also cross-listed as GEOL2515 for enrollment by graduate students with an interest in environmental geochemistry. Taught every year.

Informal learning environments (Carnegie Museum of Natural History (CMNH))

- Managing "Energy-Net" team of geoscientists, learning researchers, under-represented teens, CMNH staff, and undergraduate environmental studies majors in **developing hands-on exhibits and experiential learning activities** for CMNH visitors that focus on the energy, environment, and society nexus.
- Leading effort to **mentor teens from under-represented populations** by providing rich learning experiences in earth systems science, life skills, and networking opportunities with geoscientists.
- First in series of public exhibits, titled "**Make Choices Market: What Energy Goes into Your Food**" opened at the CMNH on April 25, 2013 and was conceived, developed, and crafted by the Energy-NET team.

- Second in series of public exhibits, titled "**The Energy Water Nexus: Watt About It?**" opened at the CMNH on August 30, 2013 and was conceived, developed, and crafted by the Energy-NET team.
- Third in series of public exhibits, titled "**Pollution Solutions**" opened at the CMNH on December 7, 2013 and was conceived, developed, and crafted by the Energy-NET team to explore issues surrounding urban water and energy sustainability.

Teaching Accomplishments

- Aided in the design of a new major, "Environmental Science", 2015-2016
- Helped spearhead an effort to change Department name from "Geology & Planetary Science" to "Geology & Environmental Science", 2014-2016.
- Lead effort to develop a new undergraduate certificate at the University of Pittsburgh in Sustainability, 2014-2016.
- Chair, G&PS Departmental Colloquium series, Spring 2008
- Executive Committee, Environmental Studies, Department of Geology & Planetary Science
- Member, University of Pittsburgh, Graduate Faculty (2009-present)
- Developed new course, GEOL 3853, Watershed Hydrology and Biogeochemistry
- Developed new course, GEOL 2525, Stable Isotope Geochemistry
- Developed new course, GEOL1904, Ecosystem Ecology

SERVICE

National/international:

- Host, Annual Board meeting of the Earth Science Women's Network. University of Pittsburgh, November 17-19, 2016.
- Advisory Board Member, Atmospheric Biogeosciences, American Meteorological Society, October 2015.
- Chair, Executive Committee, National Atmospheric Deposition Program, October 2015 - October 2016.
- Vice-Chair, Executive Committee, National Atmospheric Deposition Program, October 2014 - October 2015.
- Review Editor. *Frontiers in Ecology and Evolution*: Urban Ecology. 2015-present.
- Secretary, Executive Committee, National Atmospheric Deposition Program, October 2013-October 2014.
- External reviewer for the LandScales project. LandScales is a collaborative project between the Leibniz center for Agricultural Landscape Research (ZALF) and the Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Germany. http://www.landscales.de/. The review involved assessment of publications, presentations, and proposals by the group and culminated with a multi-day workshop in Wrechen, Germany in November 2014.

- Co-convener, American Geophysical Union, Fall 2014 Annual Meeting, "Bio-atmospheric N cycle: N Emissions, Transformations, Deposition, and Terrestrial and Aquatic Ecosystem Impacts" (Fall 2014)
- Organizing Committee, 9th International Acid Rain Conference, 2015
- Executive Committee Secretary, National Atmospheric Deposition Program, October 9, 2013 to present.
- Co-convener, American Geophysical Union, Fall 2013 Annual Meeting, "Bio-atmospheric N cycle: N Emissions, Transformations, Deposition, and Terrestrial and Aquatic Ecosystem Impacts" (Fall 2013)
- Co-convener and co-organizer, U.S.-Japan Joint Seminar on Responses of Catchment Hydrology and Forest Biogeochemistry to Climatic and Environmental Change. Honolulu, Hawaii, March 3-7. 2013.
- Co-convener, American Geophysical Union, Fall 2012 Annual Meeting, "Bio-atmospheric N cycle: N Emissions, Transformations, Deposition, and Terrestrial and Aquatic Ecosystem Impacts" (Fall 2012)
- Co-chair, Subcommittee on Urban Atmospheric Monitoring, National Atmospheric Deposition Program (NADP). October 2012-present.
- Co-convener, American Geophysical Union, Fall 2011 Annual Meeting, "Bio-atmospheric N cycle: N Emissions, Transformations, Deposition, and Terrestrial and Aquatic Ecosystem Impacts" (Fall 2011)
- Co-convener, 46th Annual Meeting, Northeastern and North-Central Joint Meeting of the Geological Society of America. Pittsburgh, PA. "Urban Geochemistry", March 22-23, 2011.
- Water Quality Technical Committee member, Hydrology Section, American Geophysical Union, 2009-present.
- Co-convener, American Geophysical Union, Fall 2010 Annual Meeting, "Bio-atmospheric N cycle: N Emissions, Transformations, Deposition, and Terrestrial and Aquatic Ecosystem Impacts" (Fall 2010)
- Co-convener, American Geophysical Union, Fall 2009 Annual Meeting, "Bio-atmospheric N cycle: N Emissions, Transformations, Deposition, and Terrestrial and Aquatic Ecosystem Impacts" (Fall 2009)
- Co-convener, American Geophysical Union, Fall 2009 Annual Meeting, "Sources, Cycling, and Effects of Nutrients in Aquatic Systems" (Fall 2009)
- Panel Reviewer, U.S. Department of Agriculture, CRSEES National Research Initiative, Air Quality Program (Fall 2009)
- Invited reviewer for the NRSP3 support of the National Atmospheric Deposition Program, April 2008
- Scientific Advisory Board Member, "Indicators of Ecological Effects of Air Quality", Heinz Center, Washington DC, August 2007
- NSF Panel reviewer: Division of Environmental Biology, Ecosystems Studies Cluster, April 2012

- Ad hoc NSF proposal reviewer: Earth Sciences: Instrumentation and Facilities, Geobiology and Low Temperature Geochemistry, Atmospheric Chemistry, Ecosystem Science, and Hydrological Sciences.
- Manuscript reviewer: *Ecosystems, Global Biogeochemical Cycles, Environmental Research Letters, Geophysical Research Letters, Atmospheric Environment, Ecological Applications, Biogeochemistry, Environmental Monitoring and Assessment, Science of the Total Environment, Hydrological Processes, Chemosphere, Journal of Geophysical Research-Atmospheres, Environmental Science and Technology, Water, Air, & Soil Pollution.*

University:

- Hosted a two-day event, "Finding your sense of place in the geosciences". This series of events coincided with the annual board meeting of the Earth Science Women's Network at the University of Pittsburgh, November 17-19, 2016 and was designed to help junior faculty, graduate and undergraduate students recognize the importance of diversity in the geoscience disciplines.
- Search committee member, Chair of Environmental and Occupational Health, 2016-2017, University of Pittsburgh Graduate School of Public Health.
- Developed new undergraduate certificate in Sustainability in coordination with the Sustainability Task Force, 2013-2015.
- Search committee member, G&ES faculty search, 2015-16, Hydrology & Water Resources Sustainability
- Search committee member, G&ES lecturer/advisor search, 2016, Environmental Science
- Chair, G&ES Faculty search committee, 2014-2015, Geomorphology, Earth Surface Processes, & Sustainability
- University of Pittsburgh, Sustainability Task Force, September 2013-present
- Environmental Studies, Bachelor of Arts, Executive Committee, 2009-present
- Chair, G&ES Development committee, 2015-present
- Member, G&ES Nominations committee, 2014-present
- Member, G&ES Graduate committee, 2007-2012
- Member, G&ES Scholarship committee, 2012-present
- Member, G&ES Undergraduate curriculum committee, 2012-present
- Member, G&ES Faculty Search Committee, 2011-2012, 2013-2014
- Research results (Divers et al., 2013, ES&T) featured in:
    - The Academic Minute podcast from Northeast Public Radio, June 26, 2013. "Environmental Risk from Aging Sewers." http://www.wamc.org/post/dr-emily-elliott-university-pittsburgh-environmental-risk-aging-sewers
    - University of Pittsburgh Press Release, March 6, 2013. "Pittsburgh's Leaky Faucet: How Aging Sewers Are Impacting Urban Watersheds." http://www.news.pitt.edu/sewer_watersheds

- The Atlantic Cities, March 18, 2013. "It's Not Just Overflow—Everyday Leaks From Sewer Systems Lead to Alarming Amounts of Sewage in Our Waterways." http://www.theatlanticcities.com/technology/2013/03/its-not-just-overfloweveryday-leaks-sewer-systems-lead-alarming-amounts-sewage-our-waterways/5001/
- Pittsburgh City Paper, March 20, 2013. "Just Plain Crap: A new study reminds us just how far Nine Mile Run has to go." http://www.pghcitypaper.com/pittsburgh/just-plain-crap/Content?oid=1630347

- Research results (Felix et al., 2012, ES&T) featured in:
  - University of Pittsburgh Press Release, April 19, 2012. "University of Pittsburgh and Electric Power Research Institute Researchers Develop Method to Fingerprint Air Pollution: This is first U.S. study to directly measure the isotopic fingerprint of power plant emissions." http://www.news.pitt.edu/FngrprntArPlltn
  - Power Engineering Magazine. "Researchers find method of identifying sources of NO_x emissions". April 19, 2012. http://www.power-eng.com/articles/2012/04/researchers-find-method-of-identifying-sources-on-nox-emissions.html
  - Interview, Essential Public Radio, Pittsburgh (90.5). "Getting the Fingerprint of Pollution. April 20, 2012. http://www.essentialpublicradio.org/story/2012-04-20/getting-fingerprint-pollution-10874

- Research results (Elliott et al., 2007, ES&T) featured in:
  - USGS Press Release, October 19, 2007. "USGS Study Identifies Major Source of Nitrate in Precipitation" http://www.usgs.gov/newsroom/article.asp?ID=1809
  - University of Pittsburgh Press Release, April 19, 2012. "Harmful Byproducts of Fossil Fuels Could Be Higher in Urban Areas Than Previously Thought, Pitt Professor's Research Suggests" http://www.news.pitt.edu/news/harmful-byproducts-fossil-fuels-could-be-higher-urban-areas-previously-thought-pitt-professors-
  - Subsequent coverage in the Pitt News, the University Times, Pitt Chronicle, Research Review, the CMU Tartan, the Pitt Alumni magazine, and in an interview on the Allegheny Front radio show: http://www.alleghenyfront.org/story.html?storyid=200710301114560.413092.

Community Service:

- PI for an NSF-funded, interdisciplinary effort, "Energy-NET" (http://www.pitt.edu/~eelliott/energy-net.html), designed to:
  1. **Enhance public knowledge about the complex dynamics between energy, environment, and society** through the creation of public exhibits focusing on the energy-environment-society nexus. Exhibits are conceived, created, and produced by Energy-NET (comprised of teens under-represented in STEM fields, undergraduate

Environmental Studies majors, geoscientists, and learning science researchers) and displayed at the Carnegie Museum of Natural History.

2. **Expand diversity in the geosciences workforce** by mentoring teens from under-represented populations, providing rich learning experiences in earth systems science and life skills, and providing networking opportunities with geoscientists.
3. **Institutionalize Energy-NET collaborations between geosciences expertise, learning researchers, and museum staff** to yield long-term improvements in public geoscience education and geoscience workforce recruiting in the Pittsburgh region.

- Nine Mile Run Watershed Association, Monitoring Committee Member, Fall 2007-present
- Pittsburgh Urban Ecological Collaborative Steering Committee Member

PROFESSIONAL DEVELOPMENT

- **Science and Engineering Ambassador**, *National Academies of Science and Engineering*. 2015-2016. A year-long program that focusing on training leaders in science and engineering to be more effective communicators. Specific workshops have included media training, effective oral presentations, and facilitating discussions.
- "*Building Career Success and Satisfaction*", workshop participant. March 22-23, 2012. Women in Medicine and Science 2012 Forum sponsored by the University of Pittsburgh, Health Sciences.
- "*Basic Negotiations, Problem Solving, and Conflict Resolution*", workshop participant. October 1, 2011. A COACh workshop sponsored by the University of Pittsburgh, Department of Chemistry.
- "*FORWARD to Professorship*" workshop participant. May 23-25, 2011, Washington DC. A joint program of the George Washington and Gallaudet Universities funded by a National Science Foundation ADVANCE leadership award.
- "*Building Leadership Skills for Success in Scientific Organizations*", workshop participant. December 12-14, 2008, San Francisco, CA. Sponsored by the Earth Science Women's Network.
- University of Pittsburgh, Survival Skills Workshop, Effective Grant writing, Spring 2008.