

Sarrah M. Dunham-Cheatham

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EDUCATION

- 2013 Ph.D. Geochemistry U. of Notre Dame Jeremy Fein
Dissertation Title: *Biomining and biosorption involving bacteria: Metal phosphate precipitation and mercury adsorption experiments*
- 2007 B.S. Natural Resources & Environmental Science Purdue University John Graveel
(foci: soil science, hydrology)

PROFESSIONAL EXPERIENCE

- 9/2020 – present Director, Nevada Agricultural Experiment Station / USDA Agricultural Research Service Core Analytical Laboratory, University of Nevada, Reno
- 9/2020 – present Research Assistant Professor, College of Agriculture, Biotechnology & Natural Resources, University of Nevada, Reno
- 5/2016 – 8/2020 Postdoctoral Scholar, Department of Natural Resources and Environmental Science, University of Nevada, Reno (mentors: Mae S. Gustin, Benjamin Sullivan, Yu Yang, Elizabeth Leger)
- 8/2014 – 5/2016 Lecturer, Department of Earth and Planetary Sciences, Washington University in St. Louis (supervisor: Jeff Catalano)
- 8/2012 – 5/2014 Instructor of Environmental Science and Chemistry, Department of Physical & Environmental Sciences, Colorado Mesa University (supervisor: Russ Walker)
- 8/2011 – 12/2011 Life Science Research Assistant & Field Site Manager, Stanford Synchrotron Radiation Lightsource, Stanford Linear Accelerator Center National Laboratory (advisor: John Bargar)
- Fall 2010 Instructor, Department of Civil & Environmental Engineering & Earth Sciences, University of Notre Dame
- 6/2007 – 7/2012 Graduate Research Assistant, Department of Civil & Environmental Engineering & Earth Sciences, University of Notre Dame (advisor: Jeremy Fein)
- 8/2007 – 8/2011 Graduate Teaching Assistant, Department of Civil & Environmental Engineering & Earth Sciences, University of Notre Dame (supervisors: Jeremy Fein, Jeffrey Talley, Patricia Maurice, Clive Neal)

CURRENT PROJECTS

- Refining and testing methods for identifying and quantifying gaseous oxidized mercury in air (NSF)
Collaborators: M.S. Gustin, S. Lyman
- Verification of atmospheric mercury redox reaction rates
Collaborators: C. Jones, S. Lyman, M.S. Gustin
- Investigating sorption, desorption behavior of mercury to microplastics in aquatic ecosystems and simulated guts (NURA, NSF EPSCoR UROP)
Collaborators: N. Choma, M. Yeager, M. Arienzo
- Hydrology and erosion dynamics following compost applications on annual grasslands (NRCS, ARS)
Collaborators: B. Newingham, J. Williams, K. Spaeth
- Investigating tree rings as archives for atmospheric Hg concentrations using Hg, carbon isotopes, and comparison to other proxies (NSF)
Collaborators: A. Csank, P. Weisberg, M.S. Gustin, M. Arienzo, H. Haines

PEER-REVIEWED PUBLICATIONS & BOOK CHAPTERS

- N. Janot, S.M. Dunham-Cheatham, J.S. Lezama Pacheco, J.M. Cerrato, D.S. Alessi, V. Noël, E. Lee, D.Q. Pham, E. Suvorova, R. Bernier-Latmani, D.E. Giammar, K.H. Williams, P.E. Long, J.R. Bargar. 2024. Reducing conditions influence U(IV) accumulation in sediments during in-situ bioremediation. *ACS Earth and Space Chemistry*, Special Issue on Environmental Redox Processes and Contaminant and Nutrient Dynamics, *In press*.
- N. Allen, J. Gacnik, S.M. Dunham-Cheatham, M.S. Gustin. 2024. Interaction of reactive mercury with surfaces and implications for atmospheric mercury speciation measurements. *Atmospheric Environment*, doi: 10.1016/j.atmosenv.2023.120240.
- M.S. Gustin, S.M. Dunham-Cheatham, S. Osterwalder, O. Magand, A. Dommergue. 2024. What is the utility of measuring gaseous Hg^{II} dry deposition using Aerohead samplers?: A review. *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2023.167895.
- M.S. Gustin, S.M. Dunham-Cheatham, N. Allan, N. Choma, W. Johnson, S. Lopez, A. Russell, E. Mei, O. Magand, A. Dommergue, T. Elgiar. 2023. Observations of the chemistry and concentrations of reactive Hg at locations with different ambient air chemistry. *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2023.166184.
- M.S. Gustin, S.M. Dunham-Cheatham, N. Choma, K. Shoemaker, N. Allen. 2023. Determining sources of reactive mercury compounds in Reno, Nevada, United States. *Frontiers in Environmental Chemistry*, doi: 10.3389/fenvc.2023.1202957.
- C. Reed, S.M. Dunham-Cheatham, S.C. Castle, D.C. Vuono, B.W. Sullivan. 2023. The contribution of Fe(III) reduction to soil carbon mineralization in montane meadows depends on soil chemistry, not parent material or microbial community. *JGR Biogeosciences*, doi: 10.1029/2022JG007325.
- L. Lown, J.E. Vernaz, S.M. Dunham-Cheatham, M.S. Gustin, S.R. Hiibel. 2023. Phase partitioning of mercury, arsenic, selenium, and cadmium in *Chlamydomonas reinhardtii* and *Arthrospira maxima* microcosms. *Environmental Pollution*, doi: 10.1016/j.envpol.2023.121679.
- S.M. Dunham-Cheatham, S. Lyman, M.S. Gustin. 2023. Comparison and calibration of methods for ambient reactive mercury quantification. *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2022.159219.
- M.S. Gustin, S.M. Dunham-Cheatham, J. Harper, W-G. Choi, J.D. Blum, M.W. Johnson. 2022. Investigation of the biochemical controls on mercury uptake and mobility in trees. *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2022.158101.
- S. Lyman, T. Elgiar, M.S. Gustin, S.M. Dunham-Cheatham, L.M. David, L. Zhang. 2022. Evidence against rapid mercury oxidation in photochemical smog. *Environmental Science & Technology*, doi: 10.1021/acs.est.2c02224.
- M.S. Gustin, B. Ingle, S.M. Dunham-Cheatham. 2022. Further investigations into the use of tree rings as archives of atmospheric mercury concentrations. *Biogeochemistry*, doi: 10.1007/s10533-022-00892-1.
- S.M. Dunham-Cheatham, K.B. Klingler, M. Vargas Estrada, M.S. Gustin. 2021. Using a next-generation sequencing approach to DNA metabarcoding for identification of adulteration and potential sources of mercury in commercial cat and dog foods. *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2021.146102.
- M.S. Gustin, S.M. Dunham-Cheatham, L. Zhang, S. Lyman, N. Choma, M. Castro. 2021. Use of membranes and detailed HYSPLIT analyses to understand atmospheric particulate, gaseous oxidized, and reactive mercury chemistry. *Environmental Science & Technology*, doi: 10.1021/acs.est.0c07876.

- M.S. Gustin, S.M. Dunham-Cheatham, J. Huang, S. Lindberg, S. Lyman. 2021. Development of an understanding of reactive mercury in ambient air: A review. *Atmosphere*, doi: 10.3390/atmos12010073.
- S. Osterwalder, S.M. Dunham-Cheatham, B. Ferreira Araujo, O. Magand, J.L. Thomas, F. Baladima, K.A. Pfaffhuber, T. Berg, L. Zhang, J. Huang, A. Dommergue, J.E. Sonke, M.S. Gustin. 2021. Fate of springtime atmospheric reactive mercury: Concentrations and deposition at Zeppelin, Svalbard. *ACS Earth and Space Chemistry*, doi: 10.1021/acsearthspacechem.1c00299.
- S.M. Dunham-Cheatham, S. Lyman, M.S. Gustin. 2020. Evaluation of sorption surface materials for reactive mercury compounds. *Atmospheric Environment*, 242:1, doi: 10.1016/j.atmosenv.2020.117836.
- S. Lyman, L. Gratz, S.M. Dunham-Cheatham, M.S. Gustin, A. Luippold. 2020. Improvements to the accuracy of atmospheric oxidized mercury measurements. *Environmental Science & Technology*, doi: 10.1021/acs.est.0c02747.
- S.M. Dunham-Cheatham, Q. Zhao, D. Obrist, Y. Yang. 2020. Unexpected mechanism for glucose-primed soil organic carbon mineralization under an anaerobic-aerobic transition. *Geoderma*, doi: <https://doi.org/10.1016/j.geoderma.2020.114535>.
- A. Luippold, M.S. Gustin, S.M. Dunham-Cheatham, M. Castro, W. Luke, S. Lyman, L. Zhang. 2020. Use of multiple lines of evidence to understand reactive mercury concentrations and chemistry in Hawaii, Nevada, Maryland, and Utah, USA. *Environmental Science & Technology*, doi: <https://doi.org/10.1021/acs.est.0c02283>.
- A. Luippold, M.S. Gustin, S.M. Dunham-Cheatham, L. Zhang. 2020. Improvement of quantification and identification of atmospheric reactive mercury. *Atmospheric Environment*, doi: <https://doi.org/10.1016/j.atmosenv.2020.117307>.
- S.M. Dunham-Cheatham, S. Freund, S. Uselman, E. Leger, B. Sullivan. 2020. Persistent agricultural legacy in soil influences plant restoration success in a Great Basin salt desert ecosystem. *Ecological Restoration*, 38:1.
- Q. Zhao, S.M. Dunham-Cheatham, D. Adhikari, C. Chen, A. Patel, S. Poulson, P. Verburg, X. Wang, E. Roden, A. Thompson, Y. Yang. 2020. Oxidation of soil organic carbon during an anoxic-oxic transition. *Geoderma*, doi: doi.org/10.1016/j.geoderma.2020.114584.
- M.S. Gustin, S.M. Dunham-Cheatham, L. Zhang. 2019. Comparison of 4 methods for measurement of reactive, gaseous oxidized, and particulate bound mercury. *Environmental Science & Technology*, doi: doi.org/10.1021/acs.est.9b04648.
- S.M. Dunham-Cheatham, K. Klingler, M. Peacock, M. Teglas, M.S. Gustin. 2019. What is in commercial cat and dog food? The case for mercury and ingredient testing. *Science of the Total Environment*, 684, 276-280.
- M. Miller, S. Dunham-Cheatham, M. Gustin, G. Edwards. 2019. Evaluation of cation exchange membrane performance under exposure to high Hg^0 and HgBr_2 concentrations. *Atmospheric Measurement Techniques* 12: 1207-1217.
- D. Wordofa, D. Adhikari, S. Dunham-Cheatham, Q. Zhao, S. Poulson, Y. Tang, Y. Yang. 2019. Biogeochemical fate of ferrihydrite-model organic compound complexes during anaerobic microbial reduction. *Science of the Total Environment*, 668: 216-223.
- S. Dunham-Cheatham, Y. You. 2019. General Techniques in Geochemistry and Microbiology, In: *Analytical Geomicrobiology: A Handbook of Instrumental Techniques*. Ed. J.P.L. Kenney, H. Veeramani, D.S. Alessi. Cambridge University Press, Cambridge.

- D. Adhikari, S. Dunham-Cheatham, D. Wordofa, P. Verburg, S. Poulson, Y. Yang. 2019. Aerobic respiration of mineral-bound organic carbon in a soil. *Science of the Total Environment* 651: 1253-1260.
- S. Dunham-Cheatham, B. Mishra, S. Myneni, J. Fein. 2015. The effect of natural organic matter on the adsorption of mercury to bacterial cells. *Geochimica et Cosmochimica Acta* 150: 1-10.
- S. Dunham-Cheatham, B. Farrell, B. Mishra, S. Myneni, J. Fein. 2014. The effect of chloride on the adsorption of Hg onto three bacterial species. *Chemical Geology* 373: 106-114.
- X. Rui, M.J. Kwon, E. O'Loughlin, S. Dunham-Cheatham, J. Fein, B. Bunker, K. Kemner, M. Boyanov. 2013. Bioreduction of hydrogen uranyl phosphate: mechanisms and U(IV) products. *Environmental Science & Technology* 47: 5668-5678.
- S. Dunham-Cheatham, X. Rui, B. Bunker, N. Menguy, R. Hellmann, J. Fein. 2011. The effects of non-metabolizing bacterial cells on the precipitation of U, Pb and Ca phosphates. *Geochimica et Cosmochimica Acta* 75: 2828-2847.

PUBLICATIONS IN REVIEW & IN PREPARATION

- S.M. Dunham-Cheatham, M.S. Gustin, S. Lyman. Comparison of GOM behavior under different permeation system configurations. In preparation.
- M.S. Gustin, S.M. Dunham-Cheatham, W. Choi, J. Harper. Biochemical mechanisms of mercury translocation in rice. In preparation.

CURRENT & PAST GRANTS

- Exploring the behavior of mercury-sorbed microplastics in simulated gastric fluid. NSF EPSCoR UROP, 2023-2024.
- Hydrology and erosion dynamics following compost applications on annual grassland. USDA Agricultural Research Service, 2022-2025.
- Collaborative Research: Verification of atmospheric mercury redox. NSF, 2023-2026.
- Collaborative Research: Development of a better understanding of ambient RM chemistry, reactions forming, and methods for measurement. National Science Foundation, 2021-2024.
- Conference: Measurement of Atmospheric Mercury: Assessment of new measurement and calibration methods and development of a path forward. NSF, 2023.
- Investigating sorption and desorption behavior of mercury to microplastics in aquatic ecosystems: Parts I and II. UNR NURA, 2021-2022.
- Testing the viability of low-cost technologies developed at UNR for monitoring atmospheric mercury at a remote Southern Hemisphere site, Amsterdam Island. Ozmen Institute for Global Studies, 2021-2022.

PROFESSIONAL & INVITED PRESENTATIONS

- Guest Lecturer – NRES 790 Natural Resources & Environmental Science Seminar, University of Nevada, Reno (2023)
- Guest Lecturer – CHEM 430/630 Advanced Analytical Chemistry, University of Nevada, Reno (2023)
- Guest Lecturer – NRES 765 Biogeochemical Cycles, University of Nevada, Reno (2018, 2020, 2021, 2022, 2023)
- Co-Presenter – Keep Truckee Meadows Beautiful's Microplastics-themed River Walk event (2022)
- Co-Presenter – Reno forum, "Microplastics 101: Microplastics in our community, current research, citizen science, and local action" (2022)
- Co-Presenter – United Nations Minamata Online webinar, "Reactive Mercury in Air" (2022)

Presenter – Desert Research Institute Colloquium. “Biogeochemistry & Soils: Lab and Field Studies.” (2017)

Presenter – Department of Civil & Environmental Engineering Seminar Series. “Biotic controls on geochemistry: C, Hg, & U case studies.” (2017)

Presenter – American Chemical Society National Conference. “Glucose-Primed Respiration of organic carbon during anaerobic-aerobic transitions.” (2017)

Participant – iTeach Faculty Symposium, Teaching Center, Washington University in St. Louis. (2016)

Panelist – Sustainability Council Faculty Discussion, Colorado Mesa University. (2013)

Presenter – Toward Regulation of Nanomaterials Conference: Conversations between academia, industry, law, and government. John J. Reilly Center for Science, Technology, and Values, University of Notre Dame. (2010)

Presenter – Brownfields Annual Convention. (2006)

Presenter – Undergraduate Research & Poster Symposium. Purdue University. (2006)

CONFERENCE PRESENTATIONS, POSTERS (first author is presenter unless otherwise noted by *)

H.A. Haines, A.Z. Csank, S.M. Dunham-Cheatham, M. Arienzo, P. Weisberg, M.S. Gustin. 2024.

Variability in atmospheric mercury uptake in *Sequoiadendron giganteum* tree rings from 1300 AD to the present as related to climatic events. American Association of Geographers Annual Meeting.

S.M. Dunham-Cheatham, M.S. Gustin, N. Allen, N. Choma, W. Johnson, S. Lopez, A. Russell, E. Mei, O. Magand, A. Dommergue, T. Elgiar. 2023. Observations of the chemistry and concentrations of reactive mercury at locations with different ambient air chemistry. AGU Fall Meeting. (poster)

L. Lown, S.M. Dunham-Cheatham, M.S. Gustin. 2023. Alternate materials for the capture and quantification of gaseous oxidized mercury in the atmosphere for use in active sampling methods. AGU Fall Meeting.

J. Gacnik, N. Allen, S.M. Dunham-Cheatham, M.S. Gustin. 2023. Current Challenges of Atmospheric Mercury Measurements. AGU Fall Meeting. (poster)

M.S. Gustin. 2023. Results of the workshop: Measurement of Atmospheric Mercury-Assessment of new measurement and calibration methods and development of a path forward. AGU Fall Meeting. (poster)

H.A. Haines, A. Garcia, A.Z. Csank, S.M. Dunham-Cheatham, M. Arienzo, P. Weisberg, M.S. Gustin. 2023. Accounting for climatic effects in atmospheric mercury uptake in *Sequoiadendron giganteum* tree rings through industrialization, 1850-1992. AGU Fall Meeting. (poster)

M.S. Gustin, S.M. Dunham-Cheatham, S. Osterwalder, O. Magand, A. Dommergue. 2023. What is the utility of measuring gaseous Hg^{II} dry deposition using Aerohead samplers?: A review. National Atmospheric Deposition Program Fall Meeting.

S.M. Dunham-Cheatham, S. Lyman, M.S. Gustin. 2023. Comparison & calibration of methods for ambient air Hg(II) quantification. UNR Atmospheric Mercury Workshop.

J. Gacnik, S.M. Dunham-Cheatham, S. Lyman, M.S. Gustin. 2023. Gold sampling for atmospheric mercury analysis: Total or gaseous elemental mercury? UNR Atmospheric Mercury Workshop.

J. Gacnik, N. Allen, S.M. Dunham-Cheatham, M.S. Gustin. 2023. Alternative membrane materials for sampling atmospheric reactive mercury. UNR Atmospheric Mercury Workshop.

J. Gacnik, N. Allen, S.M. Dunham-Cheatham, S. Lyman, M.S. Gustin. 2023. Adsorption of gaseous oxidized mercury by PBM membranes and particulate matter. UNR Atmospheric Mercury Workshop.

L. Lown, S.M. Dunham-Cheatham, S. Lyman, M. Gustin. 2023. Improved surfaces for gaseous oxidized mercury capture. UNR Atmospheric Mercury Workshop.

- S. Lyman, T. O'Neil, T. Elgiar, I. Zivkovic, S. Nair, T. Andron, S.M. Dunham-Cheatham, J. Gacnik, C. Jones, M.S. Gustin, M. Horvat. 2023. NIST-traceable, automated, field-ready, permeation tube-based calibration of Hg⁰ and Hg^{II}. UNR Atmospheric Mercury Workshop.
- M.S. Gustin, S.M. Dunham-Cheatham. 2023. What have we learned about using nylon membranes for determining RM chemistry: Utility and limitations. UNR Atmospheric Mercury Workshop.
- S. Lyman, T. O'Neil, S.M. Dunham-Cheatham, J. Gacnik, C. Jones, M. Gustin. 2023. Using GC/MS for oxidized Hg detection. UNR Atmospheric Mercury Workshop.
- S.M. Dunham-Cheatham. 2023. Biogeochemical constraints on contaminant fate & transport, and Core Analytical Laboratory. Meet Future Collaborators Event, hosted by University of Nevada, Reno's Faculty Senate Early Career Academic Faculty Committee Lightning Talks.
- N. Allen, S.M. Dunham-Cheatham, M.S. Gustin. 2022. Improvements to the RMAS used to measure and identify concentrations of reactive mercury. Siebenz-Binz Tahoe Forum. (poster)
- S.M. Dunham-Cheatham, M.S. Gustin, S. Lyman. 2022. New methods for measuring reactive, particulate-bound, and gaseous oxidized mercury. EPA National Ambient Air Monitoring Conference.
- S.M. Dunham-Cheatham, M.S. Gustin, S. Lyman. 2022. Direct membrane sampling and dual channel systems for reactive mercury measurements. International Conference on Mercury as a Global Pollutant, in "Introduction to New Methods for Measuring Reactive, Particulate, and Gaseous Oxidized Mercury Chemistry and Concentrations" workshop.
- S.M. Dunham-Cheatham, S. Lyman, M.S. Gustin. 2022. Comparison and calibration of methods for ambient reactive mercury quantification. International Conference on Mercury as a Global Pollutant.
- M.S. Gustin, S.M. Dunham-Cheatham, N. Allen, S. Lyman, W. Johnson, S. Lopez, A. Russell, K. Evans. 2022. Insights derived from observations of the chemistry and concentrations of reactive Hg, gaseous oxidized Hg, and particulate bound Hg at multiple locations with different climate in the United States. International Conference on Mercury as a Global Pollutant.
- S. Lyman, T. Elgiar, M.S. Gustin, S.M. Dunham-Cheatham, J.M. David, L. Zhang. 2022. Evidence Against Rapid Mercury Oxidation in Photochemical Smog. International Conference on Mercury as a Global Pollutant.
- L.E. Gratz, S. Lyman, T. Elgiar, M.S. Gustin, S.M. Dunham-Cheatham, A.G. Hallar, N.S. Hirshorn, R. Volkamer, J. Romero. 2022. Ambient mercury observations in wildfire plumes at two Western U.S. sites using an improved dual-channel measurement system. International Conference on Mercury as a Global Pollutant.
- N. Allen, L. Lown, S.M. Dunham-Cheatham, M.S. Gustin. 2022. Improvements to the RMAS used to measure and identify concentrations and chemistry of reactive mercury. International Conference on Mercury as a Global Pollutant.
- L. Lown, J. Vernaz, S.M. Dunham-Cheatham, S. Hiibel, M.S. Gustin. 2022. Fate of mercury, cadmium, selenium and arsenic in a simulated industrial aquaculture setting. International Conference on Mercury as a Global Pollutant.
- S.M. Dunham-Cheatham, M.S. Gustin, S. Lyman. 2021. Comparison of methods for the measurement of gaseous oxidized mercury. American Geophysical Union Fall Meeting.
- L.E. Gratz, S. Lyman, T. Elgiar, Z.L. Zwecker, B. Chan, M.S. Gustin, S.M. Dunham-Cheatham, A.G. Hallar, N.S. Hirshorn, R. Volkamer, J. Romero-Alvarez. 2021. Ambient mercury observations in wildfire plumes at two Western U.S. sites using an improved dual-channel measurement system. American Geophysical Union Fall Meeting. (poster)

- S.M. Dunham-Cheatham. 2021. M&M: Microplastics as a transport mechanism for mercury. 2nd International Fein Alumni Research Topics Conference.
- N. Choma, S.M. Dunham-Cheatham, M. Arienzo, M.S. Gustin. 2021. Investigating sorption and desorption behavior of mercury to microplastics in aquatic ecosystems. Wolf Pack Discoveries Fall Symposium, University of Nevada, Reno. (poster)
- S. Lyman, T. Elgiar, T. O'Neil, M.S. Gustin, S.M. Dunham-Cheatham, L. Gratz. 2021. Accurate measurements show high atmospheric oxidized mercury in the western United States. Goldschmidt Conference.
- M.S. Gustin, S.M. Dunham-Cheatham, S. Lyman. 2020. A first glance at what four measurement systems tell us about atmospheric Hg downwind of large fires. National Atmospheric Deposition Program Fall Meeting, Mercury in the Environment and Links to Deposition Committee.
- M.S. Gustin, S.M. Dunham-Cheatham, S. Lyman, S. Osterwalder, J. Huang, L. Zhang. 2020. Active and passive systems for measurement of gaseous oxidized, particulate bound, and reactive mercury. National Atmospheric Deposition Program Fall Meeting.
- S.M. Dunham-Cheatham, S. Lyman, M.S. Gustin. 2020. Comparison of reactive mercury measurements from multiple co-located active systems. Society of Environmental Toxicology and Chemistry SciCon2, 41st Annual North America Meeting.
- B. Ingle, S.M. Dunham-Cheatham, M.S. Gustin. 2020. Assessment of the variation in tree ring mercury concentrations between co-located tree species. Society of Environmental Toxicology and Chemistry SciCon2, 41st Annual North America Meeting.
- S.M. Dunham-Cheatham. 2020. The World of Mercury. 1st International Fein Alumni Research Topics Conference.
- S.M. Dunham-Cheatham, S. Osterwalder, O. Magand, A. Dommergue, M.S. Gustin. 2019. Applying new technologies to Arctic mercury monitoring. National Atmospheric Deposition Program Fall Meeting.
- S. Lyman, T. Elgiar, T. O'Neil, M.S. Gustin, A. Luippold, S.M. Dunham-Cheatham, L. Gratz. 2019. A quantitative system for measurement of oxidized mercury. National Atmospheric Deposition Program Fall Meeting.
- S.M. Dunham-Cheatham, M.S. Gustin. 2019. Testing methods for quantification and identification of reactive mercury compounds. International Conference on Mercury as a Global Pollutant.
- S.M. Dunham-Cheatham, M. Vargas Estrada, A. Luippold, M.S. Gustin. 2019. Mercury is a global contaminant in commercial cat and dog foods. International Conference on Mercury as a Global Pollutant. (poster)
- M.S. Gustin, S.M. Dunham-Cheatham, A. Luippold. 2019. Development of an automated method for measurement of gaseous oxidized mercury. International Conference on Mercury as a Global Pollutant.
- A. Luippold, M.S. Gustin, S.M. Dunham-Cheatham. 2019. Measurement and understanding GOM concentrations and chemistry from sites in Utah, Hawaii, Maryland, and Nevada, USA. International Conference on Mercury as a Global Pollutant.
- A. Luippold, M.S. Gustin, S.M. Dunham-Cheatham. 2019. Introducing UNR-RMAS 2.0: Improvements for quantification and identification of atmospheric reactive mercury. International Conference on Mercury as a Global Pollutant. (poster)
- S. Lyman, T. Elgiar, T. O'Neil, M.S. Gustin, A. Luippold, S.M. Dunham-Cheatham. 2019. An integrated system for accurate, independently verified measurements of oxidized mercury. International Conference on Mercury as a Global Pollutant.

- T. Elgiar, S. Lyman, M.S. Gustin, A. Luippold, S.M. Dunham-Cheatham. 2019. Ozone may not be an important oxidant of atmospheric mercury. International Conference on Mercury as a Global Pollutant. (poster)
- S. Osterwalder, S.M. Dunham-Cheatham, B. Ferrera, O. Magand, J. Thomas, J. Sonke, A. Dommergue, M.S. Gustin. 2019. Reactive mercury speciation and dry deposition during AMDEs in the Arctic. International Conference on Mercury as a Global Pollutant.
- B. Sullivan, C. Reed, S. Dunham-Cheatham, S. Castle, D. Vuono. 2018. Of iron and microbes: Linking Fe-reduction to C mineralization under changing redox conditions in Sierra Nevada montane meadows. American Geophysical Union Fall Meeting. (poster)
- D. Adhikari, Q. Zhao, S. Dunham-Cheatham, K. Das, C. Chen, M. Tfaily, R. Kukkadapu, A. Thompson, D. Obrist, N. Hess, E. Roden, Y. Yang*. 2018. Anaerobic-aerobic transition sequesters organic carbon. Gordon Research Conference – Environmental Sciences: Water Session. (poster)
- D. Adhikari, D. Wordofa, S. Dunham-Cheatham, S. Poulson, E. Roden, Y. Yang. 2018. Aerobic microbial respiration of mineral-bound organic carbon. American Chemical Society Annual Meeting; U.S. Department of Energy Environmental System Science PI Meeting. (poster)
- D. Adhikari, Q. Zhao, S. Dunham-Cheatham, K. Das, J. Mejia, R. Huang, X. Wang, S. Poulson, Y. Tang, D. Obrist, R. Roden, Y. Yang. 2017. Biogeochemical stability and reactions of iron-organic carbon complexes. American Geophysical Union Meeting. (poster)
- D. Adhikari, D. Wordofa, Q. Zhao, S. Dunham-Cheatham, K. Das, R. Huang, J. Mejia, S. Poulson, X. Wang, Y. Tang, E. Roden, Y. Yang. 2017. Biogeochemical fate and stability of iron oxide-organic carbon complexes. Soil Science Society of America Annual Meeting. (poster)
- S. Freund, S. Dunham-Cheatham, S. Uselman, E. Leger, B. Sullivan. 2017. Comparison of plant-soil relationships between native salt desert shrub communities and a restored agricultural field. Ecological Society of America Meeting.
- S. Dunham-Cheatham, Q. Zhao, S. Poulson, Y. Yang*. 2017. Glucose-primed anaerobic respiration of organic carbon. U.S. Department of Energy Environmental System Science PI Meeting. (poster)
- D. Adhikari, D. Wordofa, S. Dunham-Cheatham, S. Poulson, Y. Tang, Y. Yang*. 2017. Biogeochemical reactions for ferrihydrite-model organic carbon complexes during microbial reduction. U.S. Department of Energy Environmental System Science PI Meeting.
- Q. Zhao, D. Adhikari, S. Dunham-Cheatham, D. Wordofa, J. Mejia, C. Chen, A. Patel, S. Poulson, M. Tfaily, Y. Tang, A. Thompson, X. Wang, A. Kerting, B. Gu, D. Obrist, E. Roden, Y. Yang*. 2017. Processes for iron-bound organic carbon in redox reactions: natural soils and model complexes. U.S. Department of Energy Environmental System Science PI Meeting. (poster)
- S. Dunham-Cheatham, Q. Zhao, D. Obrist, Y. Yang. 2017. Biogeochemical controls on the stability of iron-bound soil organic carbon. American Chemical Society National Meeting.
- N. Janot, J. Lezama-Pacheco, S. Dunham-Cheatham, D. Pham, K. Williams, P. Long, D. Alessi, R. Bernier-Latmani, L. Yang, J. Davis. 2013. Biogeochemical cycling of uranium in a reduced aquifer. American Chemical Society Meeting.
- S. Dunham-Cheatham, J. Fein. 2010. Passive cell wall biomineralization: A universal phenomenon? *Geochimica et Cosmochimica Acta* 74:12. A251. (poster)
- S. Dunham-Cheatham, X. Rui, B. Bunker, R. Hellmann, N. Menguy, J. Fein. 2009. The effects of bacterial cell walls on precipitation of uranyl phosphates. *Geochimica et Cosmochimica Acta*, (2009) 73:13. A313. (poster)
- X. Rui, B. Bunker, S. Dunham-Cheatham, J. Fein. 2009. X-ray absorption fine structure investigation of uranyl-phosphate biomineralization. *Geochimica et Cosmochimica Acta*, (2009) 73:13. A1131. (poster)

FEATURED RESEARCH

- T. Burke, Interview and news broadcast: Milestone made in measurement of airborne mercury. Fox News 4 Today, Reno, January 30, 2023.
- J. Seelmeyer. Researchers reach milestone in measurement of airborne mercury. Nevada Today, January 18, 2023. (Copy reprinted by UNR CABNR Facebook, Reno Channel 2 News, Geochemical News, Phys.org, Eurekalert, American Elements, Bioengineer, Local Today (Utah), Flipboard)
- S.M. Dunham-Cheatham, M. Arienzo. The not-so-micro problem of plastic pollution, and how you can help. Nevada Today NSights, October 20, 2022.
- B. Wright. Environmental science student-researcher wins Regents' award for notable accomplishments. Nevada Today, June 22, 2022.
- J. Cizdziel. 2021. Special Issue of *Atmosphere*, "Atmospheric Mercury Monitoring, Analysis, and Chemistry: New Insights and Progress toward Minamata Convention Goals".
- Varied: Mercury in pet food research story shared by multiple outlets
- T. Hotchner. 2021. "What is a dog? Love, of course." NPR, Dog Talk (and Kitties Too!), episode #737.
 - M. Wolterbeek. 2021. Mercury levels in pet food cause for concern, fish-based foods main culprit. Nevada Today.
 - Reshared on technology.org, CarsonNow.org, yubanet.com, petfoodindustry.com
 - S. Thixton. 2021. Two new studies emphasize pet food regulation failures. Truth About Pet Food (truthaboutpetfood.com).
 - Revealing adulterated pet food. Hemopet (hemopet.org).
 - E. Pearce. 2018. Pet food: Researchers finding unexpected dangers. KOLO TV, Reno, Nevada.
 - S.M. Dunham-Cheatham. 2018. Mercury in your pet food. Animal Radio, episode 988.
 - S.M. Dunham-Cheatham, A. Luippold. 2018. How much mercury is in popular dog and cat foods? The numbers are surprising. NSights at the University of Nevada, Reno.
- D. Venton. 2016. Natural organic matter fails to make more mercury cling to bacteria. *Advanced Photon Source Science 2015*, ISSN 1931-5007.

COURSES OFFERED

- Spring 2020, University of Nevada, Reno, College of Agriculture, Biotechnology & Natural Resources
NRES 322 Soils (offered as a 2-week intensive to BLM)
- AY 2014 – 2016, Washington University in St. Louis, Department of Earth and Planetary Sciences
EnSt 110 Environmental Issues
EPSc 219 Energy & the Environment
EPSc 323/590 Biogeochemistry
EPSc 409(L) Surface Processes (lecture, lab)
EPSc 413 Soil Science
EPSc 422(L) Sedimentary Geology (lecture, lab)
EPSc 429 Environmental Hydrogeology
- AY 2012 – 2014, Colorado Mesa University, Departments of Chemistry and Physical & Environmental Sciences
CHEM 121(L) Principles of Chemistry (lecture, lab)
CHEM 131L General Chemistry (lab)
ENVS 101 Introduction to Environmental Sciences
ENVS 105 Readings in Environmental Sciences

ENVS 204L	Introduction to Ecosystem Management (lab)
ENVS 312(L)	Soil Science & Sustainability (lecture, lab)
ENVS 396	Soil Chemistry
ENVS 413	Contaminant Fate & Transport

Fall 2010, University of Notre Dame, Department of Civil & Environmental Engineering & Earth Sciences (course instructor)

ENVG 30320 Introduction to Soil Science

AY 2007 – 2011, University of Notre Dame, Department of Civil & Environmental Engineering & Earth Sciences (teaching assistant)

CE 20500 Engineering Geology

CE 30300 Introduction to Environmental Engineering & Science

CE 30320 Water Chemistry & Treatment

CE 40300 Environmental Geochemistry

MENTORING

2023 – present Committee member, Hannah Lukasik, master's thesis committee

2023 – 2024 Project supervisor, Morgan Yeager, NSF EPSCoR UROP, "Exploring the behavior of mercury-sorbed microplastics in simulated gastric fluid"

2020 – 2024 Committee member, Livia Lown, doctoral dissertation committee

2021 – 2023 Committee member, Natalie Allen, master's thesis committee

2021 – 2023 Project supervisor, Nicole Choma, Nevada Undergraduate Research Award, University of Nevada, Reno, "Investigating sorption and desorption behavior of mercury to microplastics in aquatic ecosystems: Phases I and II"

2019 – 2022 Committee member, Josh Vernaz, master's thesis committee

2019 – 2020 Project mentor, Ben Ingle, Nevada Nexus NSF EPSCoR and Nevada Undergraduate Research Award, University of Nevada, Reno, "Assessment of the variation in tree ring mercury concentrations between co-located tree species"

2019 – 2020 Project mentor, Margarita Vargas Estrada, Nevada Undergraduate Research Award, University of Nevada, Reno, "Using molecular genetic techniques to assess adulteration of commercial pet foods"

2015 – 2016 Committee Member, Molly Chaney, Honors Senior Thesis, Washington University in St. Louis

2015 Faculty Advisor, Reed Kalash, U.S. Public Interest Research Group, Washington University in St. Louis

2014 Faculty Advisor, Sustainability Council, Colorado Mesa University

2014 Board of Directors, CMU/WCCC Composting Facility, Colorado Mesa University

PROFESSIONAL SERVICES

Co-Chair – AGU 2023 Fall Meeting, "Mercury Atmospheric Deposition, Global Environmental Change, and Impacts on Ecosystems" poster session

Co-Chair – AGU 2023 Fall Meeting, "Mercury Atmospheric Deposition, Global Environmental Change, and Impacts on Ecosystems" oral session

Liaison – AGU 2023 Fall Meeting, Outstanding Student Presentation Awards for poster session

Co-Host, Organizer – “Measurement of Atmospheric Mercury: Assessment of new measurement and calibration methods and development of a path forward” Conference, University of Nevada, Reno, October 11-13, 2023

Volunteer – Northern Nevada Diversity Summit 2023, session moderator

Reviewer – *ACS Earth and Space Chemistry; Animal Feed Science and Technology; Atmosphere; Atmospheric Environment; Biogeosciences; Environmental Science: Processes & Impacts; Environmental Science & Technology Letters; Geochimica et Cosmochimica Acta; Geoderma; Geomicrobiology J.; J. of Environmental Chemical Engineering; J. of Environmental Quality; J. of Environmental Radioactivity; J. of Hazardous Materials; PeerJ Life & Environment; Science of the Total Environment; Toxics; Veterinary Medicine and Science*

Reviewer – UNR Nevada Undergraduate Research Award review panel (2020)

Judge – UNR Graduate Student Association Poster Symposium (2018, 2021, 2023)

Judge – Academy of Science St. Louis Science Fair – Honors Division (2016)

Judge – Academy of Science St. Louis Science Fair (2015)

Judge – Colorado Science Fair (2013, 2014)

Judge – Indiana Science Fair – Environmental Sciences (2009, 2010)

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science, American Chemical Society, American Geophysical Union, Earth Science Women’s Network, International Association of Geochemistry, National Postdoctoral Association, National Center for Faculty Development & Diversity

TRAININGS & CERTIFICATES

2016 Associate Certificate, Center for the Integration of Research, Teaching, and Learning (CIRTL), Teaching Center, Washington University in St. Louis

2006 – present Trainings: Environmental health and safety; Biological safety; HAZWOPER Technician (OSHA); Cryogenic and oxygen deficiency safety; Radiological worker I & II; X-ray safety; Hazardous waste management; HIPAA; Defensive driving; Introduction to FEMA; Introduction to NIMS; Fire safety; Basic first aid; Bloodborne pathogens

RELEVANT ADDITIONAL EXPERIENCE

2014 – 2016 Science educator, St. Louis Science Center

2012 Web content manger, Colorado Parks & Wildlife

2008 – 2011 Chair, Publicity and Procedures, Graduate Student Union, University of Notre Dame

2006 – 2007 Mentor, Science Honors Learning & Leadership Community, Purdue University

2006 – 2007 Intern, Curriculum design of the EPA’s “Our Town” Project for 4-H Extension Outreach, Purdue University (advisor: Daniel Somerville)

2006 Intern, Environmental leaching properties of Class F coal fly ash-based geopolymer concrete, Purdue University (advisors: Linda Lee, Tom Seager, Jennifer Siehling)

2005 Intern, Marine geophysics – Tectonic dynamics of the English Channel, Purdue University (advisor: Eric Calais)

2005 Experimental chemistry assistant, Gifted Education Research Institute, Purdue University

2004, 2005 ScienceScape camp counselor, Science Diversity Programs, Purdue University

2004 Intern, Effects of urban sprawl on historic streamflow, Purdue University (advisors: Jon Harbor, Carrie Davis)

2003 Mentee, Women in Science Learning Community, Purdue University

AWARDS & HONORS

2006 – 2007 Outstanding Senior, Department of Natural Resources & Environmental Sciences, Purdue University

2006 Summer Undergraduate Research Fellowship Recipient, Purdue University

2006 First Place for “Design of Social Science”, College of Science Research Symposium, Purdue University

PROFESSIONAL DEVELOPMENT

2017 Course: Graduate Environmental Statistics (audit), University of Nevada, Reno

2015 Course: The Age of Sustainable Development (MOOC), Columbia University

2015 Course: Emerging Trends & Technologies in the Virtual Classroom (MOOC), University of California, Irvine

2015 Course: Introduction to GIS (audit), Washington University in St. Louis