

Michael S. Diamond

Curriculum Vitae

Assistant Professor
Florida State University
Earth, Ocean, & Atmospheric Science
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Statement of Research Interests

Clouds confound our understanding of climate change. Questions about how clouds interact with small airborne particles (aerosols) are the largest source of uncertainty in how much human activities have already affected Earth's energy balance and questions about how clouds will respond to a warming world are the largest source of uncertainty in Earth's future climate sensitivity. Clouds influence and are influenced by processes occurring on scales ranging from nanometers and seconds to hundreds of kilometers and years, making **causal interpretation of cloud changes** extremely challenging. I am particularly interested in identifying cases of (presumably) clear causality, or "natural experiments," and learning both what they can teach us and the limits of applying those lessons more broadly. I am also interested in addressing urgent policy-relevant questions related to proposals for deliberate marine cloud brightening to offset some effects of global warming. To address these issues, **my group utilizes a diverse set of tools ranging from in situ aircraft observations to geostatistical analyses of satellite retrievals to numerical modeling at the cloud, regional, and global climate scales.**

Education

- 2018–2020 **Doctor of Philosophy, Atmospheric Sciences**, University of Washington
 - Dissertation: On the role of natural laboratories and natural experiments in elucidating cloud-aerosol-climate interactions: A story of ships, smoke, and shutdowns
- 2018–2019 **Graduate Certificate in Climate Science, UW Program on Climate Change**
 - Capstone: Geoengineering as a means of teaching the fundamentals of climate change through problem-based learning
- 2015–2018 **Master of Science, Atmospheric Sciences**, University of Washington
 - Thesis: N_d or not N_d ? To what extent are biomass burning aerosols modulating cloud microphysics in the southeast Atlantic?
- 2011–2015 **Bachelor of Arts, Earth & Environmental Sciences**, Vanderbilt University
 - Senior Thesis: Rethinking the "canonical" El Niño

Professional Experience

- 2023– **Assistant Professor, Meteorology**, Department of Earth, Ocean and Atmospheric Science, Florida State University
- 2021–2022 **CIRES Postdoctoral Visiting Fellow**, Advisors: *Graham Feingold & Jennifer Kay*, Cooperative Institute for Research in Environmental Sciences, NOAA Chemical Sciences Laboratory & CU Boulder Department of Atmospheric and Oceanic Sciences
- 2015–2020 **Graduate Research Fellow**, Advisor: *Robert Wood*, Department of Atmospheric Sciences, University of Washington
- 2012–2015 **Undergraduate Research Assistant**, Advisors: *Ralf Bennartz, Steven Goodbred, & Daniel Morgan*, Department of Earth & Environmental Sciences, Vanderbilt University

Field Experience

- 2016–2018 **ORACLES (ObseRvations of Aerosols above CLouds and their intEractionS)**, NASA Earth Venture Suborbital-2, Swakopmund and Walvis Bay, Namibia (Sept. 2016), & São Tomé, São Tomé e Príncipe (Aug. 2017, Oct. 2018)
- Served in forecasting, flight planning, and ground and assistant flight scientist roles.
- 2014 **BanglaPIRE: Life on a Tectonically-Active Delta**, NSF Partnerships for International Research and Education, Dhaka, Khulna, & Polder 32, Bangladesh
- Participated in field work in rural Bangladesh studying salt water intrusion and differential subsidence between inhabited areas and the Sundarbans mangrove forest.

Sponsored Research

- 2023–2027 **Principal Investigator**, *Generalizability of ship tracks to historical aerosol-cloud interactions and marine cloud brightening: Are there differences between sulfur, soot, and salt tracks?*, NOAA Climate Program Office Earth's Radiation Budget (ERB), Atmospheric Chemistry, Carbon Cycle, & Climate (AC4), and Climate Variability & Predictability (CVP) Programs, Grant NA23OAR4310297
Co-Investigators: T. Yuan (UMBC/NASA), H. Song (SSAI/NASA)
- \$736,494 (\$447,224 to FSU)
- 2026 **Principal Investigator**, *Is localized marine sky brightening a plausible tool for heatwave management?*, Parasol Labs
- \$39,892
- 2025–2026 **Principal Investigator**, *Polar Bear Fasting Season Length as an Ecologically Relevant Metric for Evaluating High-Latitude/Low-Altitude SAI Deployment Outcomes*, Reflective
- \$47,170
- Summer 2024 **Principal Investigator**, *Demystifying the role of smoke in delaying drizzle-driven cloud transitions*, FSU Council on Research and Creativity First-Year Assistant Professor Program
- \$20,000
- 2026–2029 **Co-Principal Investigator**, *Advancing Marine Cloud Brightening Simulations with Enhanced Credibility by Challenging CESM2 with Observed “Natural Experiments”*, NOAA Climate Program Office ERB Program
Lead PI: C.-C. Chen (NCAR), Co-Investigator: W. Lee (NCAR)
- \$898,821 (\$297,505 to FSU)
- 2026–2027 **Co-Principal Investigator**, *Leveraging next-generation satellite and suborbital observations to guide mixed-phase cloud thinning research for Arctic sea-ice preservation*, Ocean Visions
Lead PI: I. Tan (CU), Co-Investigators: S. Schmidt (CU), C. Peterson (UMBC/NASA)
- \$493,065 (\$112,797 to FSU)
- 2026–2027 **Co-Principal Investigator**, *Attributing aerosol-induced crop yield changes: Disentangling light partitioning effects from climate cooling using observations and crop models*, Environmental Defense Fund
Lead PI: L. Xia (Rutgers), Co-PI: J. Jägermeyr (Columbia)
- \$234,341 (\$53,717 to FSU)

Teaching Experience

- Spring 2026 **Guest Lecturer**, *Climate Intervention: Where Science Meets Ethics*, Rutgers University
- Fall 2025– **Instructor of Record**, *MET 6155: Navigating Climate Overshoot*, Department of Earth, Ocean & Atmospheric Science, Florida State University
- Spring 2025 **Guest Lecturer**, *Environmental Policy*, Department of Political Science, Emmanuel College
- Spring 2024– **Instructor of Record**, *MET 4400C: Meteorological Instrumentation & Observations*, Department of Earth, Ocean & Atmospheric Science, Florida State University
- Fall 2023– **Instructor of Record**, *MET 5455: Cloud Physics*, Department of Earth, Ocean & Atmospheric Science, Florida State University
- Fall 2021 **Guest Lecturer**, *Climate Change and the Global Response: A Multidisciplinary Perspective*, Department of Earth & Environmental Sciences, Vanderbilt University
- Spring 2021 **Guest Lecturer**, *AP Environmental Sciences*, Sammamish High School, Bellevue, WA
- Fall 2020 **Seminar Organizer**, *Justice and Equity in Academia and Beyond*, Department of Atmospheric Sciences, University of Washington
- 2020 **Guest Lecturer**, *Exploring the Atmospheric Sciences*, Department of Atmospheric Sciences, University of Washington
- Summer 2019 **Instructor of Record**, *Climate & Climate Change*, Department of Atmospheric Sciences, University of Washington
- 2018–2019 **Guest Lecturer**, *Frontiers of Science & AP Environmental Science*, Sammamish High School, Bellevue, WA
- Spring 2017 **Teaching Assistant**, *Climate & Climate Change*, Department of Atmospheric Sciences, University of Washington
- Fall 2013 & 2014 **Teaching Assistant**, *Global Climate Change*, Department of Earth & Environmental Sciences, Vanderbilt University

Mentorship

Research Scientists

- *Dr. Xia Li*, FSU EOAS, Far-infrared remote sensing of Arctic mixed-phase clouds, 2026–

Postdoctoral Scholars

- *Dr. Cansu Düzgün*, FSU EOAS & JANUS Research Group, Marine sky brightening to mitigate heatwaves, 2026–
- *Dr. Givo Alsepan*, FSU EOAS, Regional ocean modeling of effects from changing ship fuel composition, 2025–2026
- *Dr. Prasanth Prabhakaran*, FSU EOAS, Large eddy simulations of sulfur, soot, and salt tracks, 2025–2026

PhD Students

- *Lili Boss*, FSU EOAS, Cloud adjustments from shipping aerosol, 2025–

Master's Students

- *Elizabeth O'Meara*, FSU EOAS, Aerosol influence on mesoscale cellular convection, 2026–

- *Mitchell Voelker*, FSU EOAS, Aerosol effects on radiative feedbacks in tropical cyclones, 2026–
- *Tony Freveletti*, FSU EOAS, Aerosol forcing of Atlantic Multidecadal Variability, 2024–2025
- *Lili Boss*, Remote sensing of cloud droplet number concentration, 2023–2025

Postbaccalaureate Researchers

- *Priscilla Villalta*, FSU EOAS, Polar bear extirpation risk under stratospheric aerosol injection, 2026
- *David Johnson*, FSU EOAS & University of South Florida AI MS program, Aerosol effects on axisymmetric tropical cyclones, 2025–

Undergraduate Students: Honors in the Major

- *Elizabeth O'Meara*, FSU EOAS, Pattern effect and marine cloud brightening, 2024–2026
- *Jay Brunelli*, FSU Undergraduate Research Opportunity Program (UROP) & EOAS, Climate zone shifts under stratospheric aerosol injection, 2023–2026

Undergraduate Students: Directed Study

- *Bryce Lovelace*, FSU EOAS, Atlantic hurricanes and Atlantic Multidecadal Variability, 2025
- *Jake Chisholm*, FSU EOAS, Ship compliance with anti-pollution regulations, 2024–2025
- *Miranda Coffey*, FSU EOAS, Web-scraping algorithms for geophysical data, 2024 (Co-advised with Lisa Herbert)
- *David Johnson*, FSU EOAS, Aircraft observations of smoke-cloud interactions, 2024; Aerosol influence on tropical cyclones, 2024–2025 (Co-advised with Chelsea Nam)
- *Matthew McTamney*, FSU EOAS, Equivalent potential temperature changes under stratospheric aerosol injection, 2024
- *Caroline Seidman*, FSU EOAS, Ship compliance with anti-pollution regulations, 2024
- *Mark Irby-Gill*, Significant Opportunities in Atmospheric Research and Science (SOARS), University Corporation for Atmospheric Research, Cloud radiative effect-cloud fraction relationships by cloud type, 2022
- *Christine Neumaier*, Department of Atmospheric Sciences, University of Washington, Aerosol enhancement of lightning, 2020 (Advisor: Joel Thornton)

Dissertation & Thesis Committees

- **FSU PhD in Meteorology**: *Jacob Hair*, 2025–; *Michael Kopelman*, 2026–; *Haiden Mersiovsky*, 2025–; *Graham O'Donnell*, 2024–; *Branson Starr*, 2025–
- **FSU Masters in Meteorology**: *Aachal Bhakta*, 2023–2024; *Shiv Bhakta*, 2024; *Sophie Bignault*, 2024; *Alice Brennan*, 2023–2024; *Marc Castells*, 2025–2026; *Randy Gaynor*, 2025; *Melody Geiger*, 2025–2026; *Justin Gonzalez*, 2024–2025; *Ian Mutschler*, 2026; *Jarrett Starr*, 2023–2024; *Abraham Tekoe*, 2025–2026
- **FSU Masters in Geology**: *Ariana Lovings*, 2024–2026
- **FSU Honors in the Major in Meteorology**: *Anna Walker*, 2024–2025

Awards, Fellowships, & Honors

2024 **ACP Paul Crutzen Publication Award for 2023**, *Atmospheric Chemistry and Physics*, European Geosciences Union

- 2021–2022 **CIRES Postdoctoral Visiting Fellowship**, *Cooperative Institute for Research in Environmental Sciences*, University of Colorado Boulder and the NOAA Earth System Research Laboratories
- 2020 **Best Student Oral Presentation**, *22nd Conference on Planned and Inadvertent Weather Modification*, 100th American Meteorological Society Annual Meeting, Boston, MA
- 2019 **NASA Group Achievement Award**, *ORACLES (ObseRvations of Aerosols above CLouds and their intEractionS) Team*
- 2018–2020 **Duck Family Graduate Fellow in Environmental Politics & Governance**, *University of Washington Center for Environmental Politics*
- 2018 **Best Student Poster Presentation**, *15th AMS Conference on Atmospheric Radiation*, Vancouver, BC
- 2018 **Husky 100 Honoree**, *University of Washington*
- 2017–2020 **NASA Earth & Space Sciences Fellowship**, *Earth Science Division*
- 2017 **Best Student Oral Presentation**, *Ninth Symposium on Aerosol-Cloud-Climate Interactions*, 97th AMS Annual Meeting, Seattle, WA
- 2016–2017 **PCC Graduate Fellowship**, *University of Washington Program on Climate Change*
- 2015–2016 **AMS Graduate Fellowship**, *sponsored by NASA Earth Science*
- 2015 **Astrobiology Fellowship**, *University of Washington Astrobiology Program*
- 2015 **College of Arts & Science Banner Bearer**, *Vanderbilt University Commencement*
- 2014 **Udall Scholarship**, *Morris K. Udall and Stewart L. Udall Foundation*
- 2014 **Phi Beta Kappa**, *Alpha Chapter of Tennessee*
- 2011–2015 **Cornelius Vanderbilt Scholarship**, *Vanderbilt University*

Peer-Reviewed Publications

- 32 Stewart, Emily*, **Diamond, Michael*** & L. Allman (2026). Metamorphic sulfur release may drive sustained cooling and mass extinction. *Science Advances*, 12(28), eaee2277. doi:10.1126/sciadv.aee2277
 - *E. Stewart & M. Diamond contributed equally
- 31 **Freveletti, Anthony, M. Diamond** & R. Jnglin Wills (2026). Multidecadal SST variability assessed as primarily forced in the Atlantic and internal in the Pacific using Rotated Low-Frequency Component Analysis. *Geophysical Research Letters*, 53(7), e2025GL121516. doi:10.1029/2025GL121516
- 30 Doherty, Sarah*, **Diamond, Michael***, R. Wood & H. Hirasawa (2026). Defining scales of field studies and experiments to assess marine cloud brightening. *AGU Advances*, 7(2), e2025AV001939. doi:10.1029/2025av001939
 - *S. Doherty & M. Diamond co-corresponding authors
 - Selected as an Editor's Highlight
- 29 Roberts, Kelsey, T. Rohr, M. Raven, **M. Diamond**, D. Visioni, B. Kravitz, et al. (2026). Potential impacts of climate interventions on marine ecosystems. *Reviews of Geophysics*, 64, e2024RG000876. doi:10.1029/2024RG000876
- 28 **Diamond, Michael, & L. Boss** (2025). Conflict-induced ship traffic disruptions constrain cloud sensitivity to stricter marine pollution regulations. *Atmospheric Chemistry and Physics*, 25, 16401–16409. doi:10.5194/acp-25-16401-2025

◦ Selected as an ACP Letter/Editor's Highlight

- 27 Yuan, Tianle, H. Song, **L. Boss**, & **M. Diamond** (2025). Detectable ship-tracks are tips of the iceberg in the aerosol indirect forcing of ship emissions. *Communications Earth & Environment*, 6, 899. doi:10.1038/s43247-025-02825-w
- 26 Eastham, Sebastian, and others including **M. Diamond** (2025). Key gaps in models' physical representation of climate intervention and its impacts. *Journal of Advances in Modeling the Earth System*, 17(6), e2024MS004872. doi:10.1029/2024ms004872
- 25 Lee, Walker, **M. Diamond**, P. Irvine, J. Reynolds, & D. Vioni (2024). What causes a risk? Informative analyses of radiative forcing geoengineering require proper counterfactuals. *Communications Earth & Environment*, 5, 748. doi:10.1038/s43247-024-01881-y
- 24 **Diamond, Michael**, J. Gristey, & G. Feingold (2024). Testing cloud adjustment hypotheses for the maintenance of Earth's hemispheric albedo symmetry with natural experiments. *Geophysical Research Letters*, 51(20), e2024GL111733. doi:10.1029/2024GL111733
- 23 Gettelman, Andrew, M. Christensen, **M. Diamond**, E. Gryspeerdt, P. Manshausen, P. Stier, D. Watson-Parris, M. Yang, M. Yoshioka, & T. Yuan. (2024). Has reducing ship emissions brought forward global warming? *Geophysical Research Letters*, 51(15), e2024GL109077. doi:10.1029/2024GL109077
- 22 Tilmes, Simone, D. Vioni, E. Bednarz, T. Felgenhauer, W. Smith, C. Lennard, **M. Diamond**, M. Henry, C. Harrison, & C. Thompson. (2024). Research criteria towards an interdisciplinary Stratospheric Aerosol Intervention assessment. *Oxford Open Climate Change*, 4(1), kgae010. doi:10.1093/oxfclm/kgae010
- 21 Baró-Pérez, Alejandro, **M. Diamond**, et al. (2024). Comparing the simulated influence of biomass burning plumes on low-level clouds over the southeastern Atlantic under varying smoke conditions. *Atmospheric Chemistry and Physics*, 24(8), 4591–4610. doi:10.5194/acp-24-4591-2024
- 20 Feingold, Graham, V. Ghatge, L. Russell and others including **M. Diamond** (2024). Physical science research needed to evaluate the viability and risks of marine cloud brightening. *Science Advances*, 10(12), eadi8594. doi:10.1126/sciadv.adi8594
- 19 **Diamond, Michael**. (2023). Detection of large-scale cloud microphysical changes within a major shipping corridor due to the International Maritime Organization 2020 marine fuel sulfur regulations. *Atmospheric Chemistry and Physics*, 23(14), 8259–8269. doi:10.5194/acp-23-8259-2023

◦ Recipient of 2023 ACP Paul Crutzen Publication Award

◦ Selected as an ACP Letter/Editor's Highlight and Nature Research Highlight

- 18 **Diamond, Michael**, K. Wanser, & O. Boucher. (2023). “Cooling credits” are not a viable climate solution. *Climatic Change*, 176, 96. doi:10.1007/s10584-023-03561-w
- 17 Chang, Ian, and others including **M. Diamond** (2023). On the differences in the vertical apportionment of modeled aerosol optical depth over the southeastern Atlantic. *Atmospheric Chemistry and Physics*, 23(7), 4283–4309. doi:10.5194/acp-23-4283-2023
- 16 **Diamond, Michael**, P. Saide, P. Zuidema, A. Ackerman, S. Doherty, A. Fridlind, H. Gordon, C. Howes, J. Kazil, T. Yamaguchi, J. Zhang, G. Feingold, & R. Wood (2022). Cloud adjustments from large-scale smoke-circulation interactions strongly modulate the southeast Atlantic stratocumulus-to-cumulus transition. *Atmospheric Chemistry and Physics*, 22(18), 12113–12151 doi:10.5194/acp-22-12113-2022

◦ Editor's Highlight

- 15 **Diamond, Michael**, J. Gristey, J. Kay, & G. Feingold (2022). Anthropogenic aerosol and cryosphere changes drive Earth's strong but transient clear-sky hemispheric albedo asymmetry. *Communications Earth & Environment*, 3, 206, doi:10.1038/s43247-022-00546-y
- 14 **Diamond, Michael**, A. Gettelman, M. Lebsock, A. McComiskey, L. Russell, R. Wood, & G. Feingold (2022). To assess marine cloud brightening's technical feasibility, we need to know what to study—and when to stop. *Proceedings of the National Academy of Sciences of the United States of America*, 119(4), e2118379119. doi:10.1073/pnas.2118379119
 ◦ Featured on the homepage of Climate.gov and NOAA Research
- 13 Christensen, Matthew, A. Gettelman, and others including **M. Diamond** (2022). Opportunistic experiments to constrain aerosol effective radiative forcing. *Atmospheric Chemistry and Physics* 22(1), 641–674. doi:10.5194/acp-22-641-2022
- 12 Bates, Amanda, and others including **M. Diamond** (2021). Global COVID-19 lockdown highlights humans as both threats and custodians of the environment. *Biological Conservation*, 263, 109175. doi:10.1016/j.biocon.2021.109175
- 11 Pistone, Kristina, R. Wood, P. Zuidema, **M. Diamond**, et al. (2021). Exploring the elevated water vapor signal associated with biomass burning aerosol over the southeast Atlantic Ocean. *Atmospheric Chemistry and Physics*, 21(12), 9643-9668. doi:10.5194/acp-21-9643-2021
- 10 Chang, Ian, and others including **M. Diamond** (2021). Spatiotemporal heterogeneity of aerosol and cloud properties over the southeast Atlantic: An observational analysis. *Geophysical Research Letters*, 48(7), e2020GL091469. doi:10.1029/2020GL091469
- 9 Redemann, Jens, R. Wood, P. Zuidema, S. Doherty, B. Luna, S. LeBlanc, **M. Diamond**, Y. Shinozuka, I. Chang, R. Ueyama, L. Pfister, J.-M. Ryoo, et al. (2021). An overview of the ORACLES (ObseRvations of Aerosols above CLouds and their intEractionS) project: Aerosol–cloud–radiation interactions in the southeast Atlantic basin. *Atmospheric Chemistry and Physics*, 21(3), 1507-1563. doi:10.5194/acp-21-1507-2021
- 8 **Diamond, Michael**, & R. Wood (2020). Limited regional aerosol and cloud microphysical changes despite unprecedented decline in nitrogen oxide pollution during the February 2020 COVID-19 shutdown in China. *Geophysical Research Letters*, 47(17), e2020GL088913. doi:10.1029/2020GL088913
 ◦ Within top 10% of most downloaded articles in all AGU journals for 2020
- 7 **Diamond, Michael**, H. Director, R. Eastman, A. Possner, & R. Wood (2020). Substantial cloud brightening from shipping in subtropical low clouds. *AGU Advances*, 1(1), e2019AV000111. doi:10.1029/2019AV000111
 ◦ Editor's Highlight
 ◦ Within top 10 most downloaded papers from *AGU Advances* (2019-2020)
- 6 Pennypacker, Samuel, **M. Diamond**, & R. Wood (2020). Ultra-clean and smoky marine boundary layers frequently occur in the same season over the southeast Atlantic. *Atmospheric Chemistry and Physics*, 20(4), 2341-2351. doi:10.5194/acp-20-2341-2020
 ◦ Editor's Highlight
- 5 LeBlanc, Samuel, and others including **M. Diamond** (2020). Above cloud aerosol optical depth from airborne observations in the southeast Atlantic. *Atmospheric Chemistry and Physics*, 20(3), 1565-1590. doi:10.5194/acp-20-1565-2020

- 4 **Diamond, Michael**, A. Dobracki, S. Freitag, J. Griswold, A. Heikkila, S. Howell, M. Kacarab, J. Podolske, P. Saide, & R. Wood (2018). Time-dependent entrainment of smoke presents an observational challenge for assessing aerosol–cloud interactions over the southeast Atlantic Ocean. *Atmospheric Chemistry and Physics*, 18(19), 14623-14636. doi:10.5194/acp-18-14623-2018
- 3 Pickering, Jennifer, **M. Diamond**, S. Goodbred, C. Grall, J. Martin, L. Palamenghi, C. Paola, T. Schwenk, R. Sincavage, & V. Spieß (2018). Impact of glacial-lake paleofloods on valley development since glacial termination II: A conundrum of hydrology and scale for the lowstand Brahmaputra-Jamuna paleovalley system. *The Geological Society of America Bulletin*, 131(1-2), 58-70. doi:10.1130/B31941.1
- 2 Grosvenor, Daniel, and others including **M. Diamond** (2018). Remote sensing of droplet number concentration in warm clouds: A review of the current state of knowledge and perspectives. *Reviews of Geophysics*, 56(2), 409-453. doi:10.1029/2017RG000593
- Editor's Highlight
- 1 **Diamond, Michael**, & R. Bennartz (2015). Occurrence and trends of eastern and central Pacific El Niño in different reconstructed SST data sets. *Geophysical Research Letters*, 42(23), 10375-10381, doi:10.1002/2015gl066469

Government Reports

November 2022 Feingold, Graham, V. Ghatge, L. Russell and others including **M. Diamond** (2022). DOE-NOAA Marine Cloud Brightening Workshop Report. *U.S. Department of Energy and U.S. Department of Commerce NOAA*; DOE/SC-0207; NOAA Technical Report OAR ESRL/CSL-1

Publications Under Review

Brunelli, Jaylynn, & **M. Diamond** (in revision). Reductions in climate zone changes under stratospheric aerosol injection compared to unabated warming. Under consideration at *Earth's Future*; pre-print at ESSOAr.

Invited Presentations, Panels, and Workshops

July 2026 *Degrees Modelling Fund Monthly Research Seminar*. Remote.

March 2026 *Climate Intervention Virtual Symposium*. Remote.

March 2026 *FSU EOAS Colloquium*, jointly with Emily Stewart. Tallahassee, FL.

December 2025 *AGU Annual Meeting Sessions A43K "Exploring Inadvertent and Deliberate Aerosol Perturbations on Clouds and the Climate" and GC14A "Advances in Climate Engineering Science: Benefits, Risks, and Uncertainties"*. New Orleans, LA.

November 2025 *ACER Mixed-Phase Cloud Thinning (MCT) Roadmapping Workshop*. Boulder, CO.

October 2025 *2025 Degrees Modelling Fund Research Planning Workshop*. Nairobi, Kenya.

September 2025 *FSU-FAMU College of Engineering Mechanical Engineering Seminar*. Tallahassee, FL.

July 2025 *Gordon Research Conference on Radiation & Climate*. Lewiston, ME.

April 2025 *Inaugural Marine Cloud Brightening Research Program Workshop*. Leavenworth, WA.

February 2025 *Environmental Defense Fund Workshop: Identifying and leveraging empirical datasets for solar radiation modification impact research*. Washington, DC.

December 2024 *Ocean Visions Sea Ice Convening*. Washington, DC.

- September 2024 *University of Washington Program on Climate Change Summer Institute: Science and Ethics of Climate Intervention Approaches*. Friday Harbor, WA.
- August 2024 *Telluride Science workshop on Aerosols and Clouds: Connections from the Laboratory to the Field to the Globe*. Telluride, CO.
- May 2024 *CERES Science Team Meeting*. NASA Langley Research Center, Hampton, VA.
- April 2024 *Sharing Sámi Experiences: Indigenous Voices on Climate Intervention Research*. Permanent Mission of Finland to the United Nations, New York, NY.
- January 2024 *AMS Presidential Session panel discussion on Climate Intervention: Strategies and Urgency*. Baltimore, MD.
- November 2023 *NASA Goddard Space Flight Center Climate and Radiation Laboratory Seminar*. Greenbelt, MD.
- October 2023 *Florida State University Dept. of Earth, Ocean & Atmospheric Science*. Tallahassee, FL.
- September 2023 *NCAR Climate & Global Dynamics Seminar*. Boulder, CO.
- September 2023 *University of Utah Department of Atmospheric Sciences*. Salt Lake City, UT.
- June 2023 *National Academies of Sciences, Engineering, & Medicine: Climate Intervention in an Earth Systems Science Framework Workshop*. Remote.
- March 2023 *AGU Atmospheric Sciences Early Career Seminar*. Remote.
- January 2023 *Colorado State University Dept. of Atmospheric Science & Cooperative Institute for Research in the Atmosphere*. Fort Collins, CO.
- December 2022 *AGU Fall Meeting Session A046 "Convection Processes and Their Environmental and Aerosol Interactions: Theory, Observation, and Modeling"*. Chicago, IL.
- November 2022 *Goethe University Institute for Atmos. and Environmental Sciences*. Frankfurt, Germany.
- November 2022 *Scripps Institution of Oceanography Climate Journal Club*. La Jolla, CA.
- August 2022 *MEERTALK: Learn the Science, Take Action*. Remote.
- July 2022 *Gordon Research Conference on Climate Engineering*. Newry, ME.
- April 2022 *Purdue University Dept. of Earth, Atmos., & Planetary Sciences*. West Lafayette, IN.
- March 2022 *University of Miami College of Engineering & Rosenstiel School of Marine and Atmospheric Science*. Miami, FL.
- February 2022 *Florida State University Dept. of Earth, Ocean & Atmospheric Science*. Tallahassee, FL.
- September 2021 *Vanderbilt University Dept. of Earth & Environmental Sciences*. Nashville, TN.
- May 2021 *NASA Ames Earth Science Division*. Mountain View, CA.
- December 2019 *Marine Cloud Brightening Scientific and Technical Research Meeting*. San Francisco, CA.
- June 2019 *NASA Goddard Institute for Space Studies*. New York, NY.
- May 2019 *Stanford Climate Dynamics Seminar*. Stanford, CA.

Contributed Oral Presentations

- October 2026 *2026 CFMIP Meeting on Clouds, Precipitation, and Circulation*. Taipei, Taiwan.
- March 2026 *GeoMIP 2026: 16th Annual Meeting*. Tokyo, Japan.
- January 2026 *106th Annual Meeting of the American Meteorological Society*. Houston, TX.
- October 2025 *AeroCom 2025*. Paris, France.
- May 2025 *Aerosols, Clouds, Precipitation and Climate (ACPC) Workshop*. Tokyo, Japan.
- May 2025 *Degrees Global Forum on Solar Radiation Modification*. Cape Town, South Africa.

January 2025 *105th Annual Meeting of the American Meteorological Society*. New Orleans, LA.
 May 2024 *Aerosols, Clouds, Precipitation and Climate (ACPC) Workshop*. London, UK.
 January 2024 *104th Annual Meeting of the American Meteorological Society*. Baltimore, MD.
 July 2023 *CFMIP-GASS Conf. on Clouds, Precip., Circulation & Climate Sensitivity*. Paris, France.
 July 2023 *13th GeoMIP Meeting*. Exeter, UK.
 May 2023 *TRacking Aerosol Convection interactions ExpeRiment/ACPC Workshop*. Houston, TX.
 January 2023 *103rd Annual Meeting of the American Meteorological Society*. Denver, CO.
 October 2022 *FishMIP Workshop*. St. John's, Newfoundland and Labrador, Canada.
 June 2022 *Gordon Research Seminar on Climate Engineering*. Newry, ME.
 January 2022 *102nd Annual Meeting of the American Meteorological Society*. Remote.
 December 2021 *American Geophysical Union Fall Meeting*. New Orleans, LA.
 May 2021 *Aerosols, Clouds, Precipitation and Climate (ACPC) Workshop*. Remote.
 June 2020 *DOE ARM/ASR Principal Investigators Meeting*. Remote.
 May 2020 *International SE Atlantic Workshop/ORACLES Science Team Meeting*. Remote.
 May 2020 *UW Program on Climate Change Spring Symposium Series*. Remote.
 April 2020 *Aerosols, Clouds, Precipitation and Climate (ACPC) Workshop*. Remote.
 January 2020 *100th Annual Meeting of the American Meteorological Society*. Boston, MA.
 December 2019 *American Geophysical Union Centennial Fall Meeting*. San Francisco, CA.
 June 2019 *UW Center for Environmental Politics Duck Family Retreat*. Whidbey Island, WA.
 May 2019 *ATM S 523 Seminar in Atmospheric Physics and Chemistry*. Seattle, WA.
 May 2019 *ORACLES Science Team Meeting 2019*. Miami, FL.
 April 2019 *Aerosols, Clouds, Precipitation and Climate (ACPC) Workshop*. Nanjing, China.
 April 2019 *AEROCLO-sA/CLARIFY/LASIC/ORACLES Joint Meeting*. Paris, France.
 June 2018 *ORACLES Science Team Meeting 2018*. NASA Ames Research Center, CA.
 April 2018 *European Geosciences Union General Assembly 2018*. Vienna, Austria.
 June 2017 *ORACLES Science Team Meeting 2017*. NASA Ames Research Center, CA.
 January 2017 *97th Annual Meeting of the American Meteorological Society*. Seattle, WA.
 July 2016 *XVII International Conference on Clouds and Precipitation*. Manchester, UK.

Selected Poster Presentations

August 2020 **Diamond, Michael**, & R. Wood. Limited Regional Aerosol and Cloud Microphysical Changes Despite Unprecedented Decline in Nitrogen Oxide Pollution During the February 2020 COVID-19 Shutdown in China. *World Meteorological Organization Symposium on Climatological, Meteorological and Environmental Factors in the COVID-19 Pandemic*. Remote.
 September 2019 **Diamond, Michael**. Did Eunice Newton Foote discover the greenhouse effect? *UW Program on Climate Change Summer Institute*. Friday Harbor Laboratories, San Juan Island, WA.

Selected Leadership Activities

2026– **Chair**, *Committee on Atmospheric Chemistry*, American Meteorological Society Scientific and Technological Activities Commission

- 2024–2026 **Co-Chair**, *Gordon Research Conference on Climate Engineering*
- 2026 **Science Panelist**, *NASA Earth Science Division Senior Review*
- 2025 **Vice-Chair**, *Committee on Atmospheric Chemistry*, American Meteorological Society Scientific and Technological Activities Commission
- 2024–2025 **Lead Program Chair**, *17th Symposium on Aerosol-Cloud-Climate Interactions*, American Meteorological Society Annual Meeting
- 2023–2024 **Program Chair**, *16th Symposium on Aerosol-Cloud-Climate Interactions*, American Meteorological Society Annual Meeting
- 2023–2024 **Scientific Advisory Board Member**, *Arctic Sea Ice Repair Roadmap*, Ocean Visions
- 2022–2024 **Vice-Chair**, *Gordon Research Conference on Climate Engineering*
- 2018–2020 **Executive Senator**, *UW Graduate and Professional Student Senate*
- 2018 **Co-Chair**, *Graduate Climate Conference*
- 2017–2019 **Graduate Student Representative**, *UW Program on Climate Change Governing Board*

Selected Service Activities

- 2026– **Member**, *Meteorology Seminar Organizing Committee*, FSU Department of Earth, Ocean, & Atmospheric Science, Meteorology Curricular Group
- 2025– **Research Collaborator**, *The Degrees Initiative*, Republic of the Congo team
- 2024– **Expert Contributor**, *SRM360*
- 2023– **Member**, *Graduate Admissions Committee*, FSU Department of Earth, Ocean, & Atmospheric Science, Meteorology Curricular Group
- 2023–2029 **Member**, *Committee on Atmospheric Chemistry*, American Meteorological Society Scientific and Technological Activities Commission
- 2022–2025, 2027 **Co-Convenor**, *"Mesoscale cloud organization: the role of meteorology and aerosols" session*, Symposium on Aerosol-Cloud-Climate Interactions, AMS Annual Meeting
- 2024 **Review Panelist**, *Advanced Research + Invention Agency*, United Kingdom
 - Exploring Climate Cooling Programme
- 2024–2025 **Faculty Advisor**, *North Florida Chapter of the American Meteorological Society and National Weather Association*
- 2024 **Review Panelist**, *Atmospheric System Research*, Department of Energy
- 2023–2025 **Co-Convenor**, *"Cloud and precipitation responses to aerosol pollution, weather modification, and climate intervention" session*, Conference on Planned and Inadvertent Weather Modification & Symposium on Aerosol-Cloud-Climate Interactions, AMS Annual Meeting
- 2024 **Co-Convenor**, *"Hemispheric (A)symmetries in Earth's Climate" session*, AGU
- 2023 **Science Advisor**, *Earth's Radiation Budget Science Meeting*, NOAA
- 2023 **Member**, *Marine Cloud Brightening Task Team*, Geoengineering Modelling Research Consortium
- 2022 **Review Panelist**, *Earth's Radiation Budget Inaugural External Grant Competition*, NOAA Climate Program Office
- 2021 **Co-Chair**, *"Large Ensemble Climate Model Simulations as Tools for Exploring Natural Variability, Change Signals, and Impacts" oral session*, AGU Fall Meeting

- 2021–2022 **Lead Convener**, "Smoke-Cloud-Radiation-Climate Interactions" oral and poster sessions, 13th and 14th Symposia on Aerosol-Cloud-Climate Interactions, AMS Annual Meeting
- 2020 **Lead Convener**, "Boundary Layer Clouds and Climate Change" oral, poster, and e-Lightning sessions, AGU Fall Meeting
- 2018– **Peer Reviewer**, Journals and grant-making agencies including *Advanced Research + Invention Agency (UK)*, *AGU Books*, *Alfred P. Sloan Foundation*, *Atmospheric Chemistry & Physics*, *Climate Policy*, *Climatic Change*, *Communications Earth & Environment*, *Dept. of Energy Atmospheric System Research*, *Earth's Future*, *Geophysical Research Letters*, *Geoscientific Model Development*, *Israel Science Foundation*, *Journal of Climate*, *Journal of Geophysical Research: Atmospheres*, *Journal of Geophysical Research: Machine Learning and Computation*, *National Science Foundation*, *Nature*, *Nature Geoscience*, *NOAA Climate Program Office*, *Scientific Reports*, and *Swiss National Science Foundation*

Public-facing Writing

- June 21, 2024 Amid deadly heat, why is critical climate research being halted?. *CNN*. Co-authored with Anna Bershteyn.
- September 27, 2022 Cloud adjustments from large-scale smoke–circulation interactions affect marine cloud transitions. *US Department of Energy ASR Research Highlights*.
- September 12, 2022 The rise and fall of Earth's strong clear-sky hemispheric albedo symmetry: What it is and why it matters. *Nature Portfolio Earth and Environment Community: Behind the Paper*.
- August 28, 2021 Bedrooms Are For People: A step toward less emissions. *Boulder Daily Camera*.
- February 7, 2020 Testimony in support of SHB 2311: Amending state greenhouse gas emission limits for consistency with the most recent assessment of climate change science. *Submitted to the WA House Appropriations Committee on behalf of the UW Graduate and Professional Student Senate Legislative Advisory Board*.
- July 15, 2019 How do you solve a problem like (teaching) climate change? Through problem-based learning! *UW Program on Climate Change News & Blog*.
- October 18, 2018 Chasing clouds and smoke over the southeast Atlantic. *NASA Earth Expeditions Blog*.
- October 15, 2018 Fires in Africa affect clouds and climate over the Atlantic Ocean. *UW Program on Climate Change Research Highlights*.
- March 21, 2018 Drizzle drives seasonal aerosol changes in the northeast Pacific. *UW Program on Climate Change Research Highlights*.
- March 2, 2018 Building Relationships to Promote Science-Based Decision Making. *Union of Concerned Scientists "The Equation" Blog*. Co-authored with Taryn Black & Emma Kahle.
- December 1, 2017 Experiencing the Antarctic through art: PCC grads go on a field trip. *UW Program on Climate Change News & Blog*.
- September 13, 2017 Up in Smoke (and Clouds) over the Southeast Atlantic. *NASA Earth Expeditions Blog*.
- September 7, 2016 ORACLES in Flight. *NASA Earth Observatory Notes from the Field Blog*.

Selected Media

- August 13, 2026 *FSU College of Arts & Sciences News*: "Student Spotlight: Lili Boss" by Bella Bozied
- June 24, 2026 *Miami Herald*: "What's warming (and cooling) the Atlantic? Study points to humans" by Alex Harris

May 14, 2026 *The New York Times*: "Can Some Very Tiny Particles Cool the Planet? One Tech Company Says Yes." by Eric Niiler

April 23, 2026 *FSU College of Arts & Sciences News*: "Student Spotlight: Jaylynn Brunelli" by Carolina Ortega

April 21, 2026 *Oceanography (Podcast)*: "A Natural Experiment in the Sky: Shipping, Clouds, and Climate" by Clark Marchese

August 18, 2025 *The Wall Street Journal*: "Is CO2 Truly a Pollutant? We Break Down the Debate" by Eric Niiler

July 25, 2025 *The New York Times Magazine*: "The Manmade Clouds That Could Help Save the Great Barrier Reef" by Ferris Jabr

July 18, 2025 *Tampa Bay Times*: "Tampa Bay airports working to comply with Florida's weather modification ban" by Michaela Mulligan & Jack Prator

June 12, 2025 *FSU College of Arts and Sciences News*: "Faculty Spotlight: Michael Diamond" by Bella Bozied

May 6, 2025 *Climate Reflections: The SRM360 Podcast*: "What Is Marine Cloud Brightening (MCB)?" by Peter Irvine

May 6, 2025 *Action News Jax (WJAX-TV CBS47)*: "Understanding contrails: First Alert Weather Chief Meteorologist Mike Buresh explains" by Mike Buresh

May 6, 2025 *Action News Jax (WJAX-TV CBS47)*: "Florida Gov. Ron DeSantis promises to sign bill banning 'weather modification' activities" by Jake Stofan

March 24, 2025 *SRM360*: "IPCC to Include SRM in Next Assessment Report" by Kimberly Samuels-Crow

November 14, 2024 *Mongabay*: "Shipping emissions reduction sheds light on marine cloud geoengineering" by Claire Asher

October 8, 2024 *Politifact*: "Politifact Truth-O-Meter Pants on Fire! rating for Instagram post "Video shows 'geoengineering happening' as Hurricane Milton approaches Florida."" by Loreben Tuquero

September 30, 2024 *Persuasion*: "The Next Climate Conversation Is About Marine Clouds" by Quico Toro

August 12, 2024 *Mongabay*: "Cloud brightening over oceans may stave off climate change, but with risk" by Sean Mowbray

July 18, 2024 *Grist*: "How cleaning up shipping cut pollution — and warmed the planet" by Syris Valentine

June 26, 2024 *Washington Post*: "We've been accidentally cooling the planet — and it's about to stop" by Shannon Osaka

June 3, 2024 *ClimateWire/E&E News by Politico*: "Shipping rules took aim at pollution. Did they backfire on climate?" by Chelsea Harvey

May 30, 2024 *New Scientist*: "Cleaner ship emissions may warm the planet far faster than expected" by James Dinneen

May 30, 2024 *elDiario.es*: "Sí, reducir el azufre emitido por los barcos aumentó el calentamiento, pero no basta para explicar las temperaturas récord" by Antonio Martínez Ron

February 14, 2024 *The Wall Street Journal*: "Scientists Resort to Once-Unthinkable Solutions to Cool the Planet" by Eric Niiler

January 26, 2024 *CNN*: "The world successfully tackled a dangerous pollutant. But did it accidentally warm the planet in the process?" by Laura Paddison

- January 17, 2024 *Florida State University News*: "Changing the sky: FSU researchers examine how aerosols from ships affect cloud formation, climate change" by Bill Wellock
- January 9, 2024 *Science*: "2023 was the hottest year on record—and even hotter than expected" by Paul Voosen doi:10.1126/science.ztj6019
- November 3, 2023 *CBC*: "Scientists warn Earth warming faster than expected — due to reduction in ship pollution" by Nicole Mortillaro
- November 2, 2023 *Reuters*: "Climate's 'Catch-22': Cutting pollution heats up the planet" by Jake Spring and David Stanway
- September 29, 2023 *Nature Reviews Earth & Environment*: "Darkening clouds after restrictions in maritime sulfur emissions" doi:10.1038/s43017-023-00490-1
- September 19, 2023 *The Associated Press*: "Climate change made storm that devastated Libya far more likely and intense, scientists say" by Tammy Webber
- September 16, 2023 *CBC Radio's Quirks & Quarks*: "Reduced pollution from ships led to a warmer climate" by Bob McDonald
- August 11, 2023 *The Daily Beast*: "We've Been Accidentally Geoengineering the Earth for Decades" by Tony Ho Tran
- August 10, 2023 *New Scientist*: "Cleaner shipping emissions may have warmed the planet – but only a bit" by James Dinneen
- August 10, 2023 *FOX Weather*: "'Strong' El Nino confidence increases through winter, meteorologists say" by Angeli Gabriel
- August 9, 2023 *The Associated Press*: "Scientists look beyond climate change and El Nino for other factors that heat up Earth" by Seth Borenstein
- August 8, 2023 *Noahpinion*: "At least five interesting things for the middle of your week (#9): Room temperature superconductors, Chinese economic gloom, geoengineering, consumer confidence, and YIMBY victories" by Noah Smith
- August 4, 2023 *vlogbrothers*: "The Biggest Science Story of the Week" by Hank Green
- August 3, 2023 *Nature*: "Research Highlight: Cutting ships' pollution has climate downside" doi:10.1038/d41586-023-02430-x
- August 2, 2023 *Science*: "Ship fuel rules have altered clouds and warmed waters: An unprecedented test of reverse geoengineering unfolds above the oceans" by Paul Voosen doi:10.1126/science.adk1022
- July 20, 2023 *Illuminem*: "Cooling credits: sold as a 'cool' solution to climate change, buyers (and everyone) should beware" by Kelly Wanser
- February 27, 2023 *US Department of Energy Atmospheric System Research (ASR) News*: "Paquita Zuidema: Inquisitor of Low Marine Clouds" by Corydon Ireland
- October 5, 2022 *Nature*: "Research Briefings: Finding the invisible traces of shipping in marine clouds" doi:10.1038/d41586-022-03026-7
- June 4, 2022 *Reviewer 2 Does Geoengineering podcast*: "When to quit researching MCB - Diamond" interview with Andrew Lockley
- January 20, 2022 *NOAA Research*: "Scientists recommend a system of checkpoints to help guide climate engineering research" by Theo Stein
- July 21, 2021 *US Department of Energy Atmospheric Radiation Measurement (ARM) News & Events*: "Smoke studies: Crucial cloud-deck science" by Corydon Ireland

August 24, 2020 *Forbes*: "China's Coronavirus Lockdowns In February Decreased Some Air Pollution But Not All" by Allison Gasparini

August 22, 2020 *South China Morning Post*: "Coronavirus: China lockdowns lead to big dip in NO2 but air pollution stays steady, study finds" by Echo Xie

August 20, 2020 *UW News*: "February lockdown in China caused a drop in some types of air pollution, but not others" by Hannah Hickey

June 12, 2020 *Mel Magazine*: "Will we ever see a coronavirus-style lockdown due to climate change?" by Harmon Leon

June 9, 2020 *NASA Earth Observatory*: "Image of the Day for June 9, 2020: Cloud Changes in Busy Ship Corridors" by Kasha Patel

June 8, 2020 *Mongabay*: "Climate conundrum: Could COVID-19 be linked to early Arctic ice melt?" by Gloria Dickie

April 21, 2020 *Wired*: "How Is the Coronavirus Pandemic Affecting Climate Change?" by Matt Simon

March 25, 2020 *Eos*: "Quantifying Aerosol Effects on Climate Using Ship Track Clouds" by Bjorn Stevens

March 24, 2020 *Joint UW News & AGU Press Release*: "Ships' emissions create measurable regional change in clouds" by Hannah Hickey