

Personal Information and Current Roles

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Address: Exhibition Road, London SW7 2AZ, United Kingdom

Education

- 2011-2015 **PhD**, Aeronautics and Astronautics
Massachusetts Institute of Technology
- 2007-2011 **BA and MEng**, Aerospace and Aerothermal Engineering
University of Cambridge

Research and Professional Experience

- 2024- **Senior Lecturer**
Brahmil Vasudevan Institute for Sustainable Aviation
Department of Aeronautics
Imperial College London
- 2022-2023 **Principal Research Scientist**
Center for Global Change Science
Massachusetts Institute of Technology
- 2017-2022 **Research Scientist**
Department of Aeronautics and Astronautics
Massachusetts Institute of Technology
- 2015-2017 **Joint NOAA and Harvard Postdoctoral Fellow**
Atmospheric Chemistry Modeling Group
Harvard University
- 2011-2015 **Research Assistant**
Department of Aeronautics and Astronautics
Massachusetts Institute of Technology

Teaching Experience

- 2022- **Lead Instructor** for *Aerospace, Energy, and the Environment*
Teaching scores: 6.4/7.0 (instructor, 2022), 5.8/7.0 (course, 2022)
Massachusetts Institute of Technology
- 2016-2022 **Guest Lecturer** for *Aerospace, Energy, and the Environment (unscored)*
Massachusetts Institute of Technology
- 2016 **Teaching Fellow** for *Atmospheric Chemistry and Physics*
Awarded Certificate of Distinction in Teaching
Harvard University
- 2014 **Teaching Assistant** for *Climate Engineering: Science, Technology, & Policy (unscored)*
Massachusetts Institute of Technology and Harvard University (joint)
- 2013 **Teaching Assistant** for *Introduction to Propulsion*
Teaching score: 4.9/7.0 (teaching assistant)
Massachusetts Institute of Technology

Publications

1. Geraedts, S. *et al.* A scalable system to measure contrail formation on a per-flight basis. *Environ. Res. Commun.* (2023). doi:10.1088/2515-7620/ad11ab
2. Moch, J. M. *et al.* Overlooked Long-Term Atmospheric Chemical Feedbacks Alter the Impact of Solar Geoengineering: Implications for Tropospheric Oxidative Capacity. *AGU Advances* **4**, e2023AV000911 (2023).
3. Picciano, P. *et al.* Air quality related equity implications of U.S. decarbonization policy. *Nat. Commun.* **14**, 5543 (2023).
4. Sun, H., Bourguet, S., Eastham, S. & Keith, D. Optimizing injection locations relaxes altitude-lifetime trade-off for stratospheric aerosol injection. *Geophys. Res. Lett.* **50**, (2023).
5. Berman, B. *et al.* ISORROPIA-MCX: Enabling sensitivity analysis with multicomplex variables in the aerosol thermodynamic model, ISORROPIA. *Earth Space Sci.* **10**, (2023).
6. Freese, L. M., Chossière, G. P., Eastham, S. D., Jenn, A. & Selin, N. E. Nuclear power generation phase-outs redistribute US air quality and climate-related mortality risk. *Nature Energy* 1–12 (2023).
7. Eastham, S. D., Monier, E., Rothenberg, D., Paltsev, S. & Selin, N. E. Rapid estimation of climate–air quality interactions in integrated assessment using a response surface model. *ACS Environ. Au* (2023). doi:10.1021/acsenvironau.2c00054
8. Shah, V. *et al.* Nitrogen oxides in the free troposphere: implications for tropospheric oxidants and the interpretation of satellite NO₂ measurements. *Atmos. Chem. Phys.* **23**, 1227–1257 (2023).
9. Yu, F. *et al.* Particle number concentrations and size distributions in the stratosphere: Implications of nucleation mechanisms and particle microphysics. *Atmos. Chem. Phys.* (2023). doi:10.5194/acp-2022-487
10. Schlosser, C. A. *et al.* Assessing compounding risks across multiple systems and sectors: a socio-environmental systems risk-triage approach. *Frontiers in Climate* **5**, (2023).
11. Lan, R., Eastham, S. D., Liu, T., Norford, L. K. & Barrett, S. R. H. Air quality impacts of crop residue burning in India and mitigation alternatives. *Nat. Commun.* **13**, 1–13 (2022).
12. Ryan, R. G., Marais, E. A., Balhatchet, C. J. & Eastham, S. D. Impact of rocket launch and space debris air pollutant emissions on stratospheric ozone and global climate. *Earths Future* (2022). doi:10.1029/2021ef002612
13. Fritz, T. M. *et al.* Identifying the ozone-neutral aircraft cruise altitude. *Atmos. Environ.* **276**, 119057 (2022).
14. Knowland, K. E. *et al.* NASA GEOS composition forecast modeling system GEOS-CF v1.0: Stratospheric composition. *J. Adv. Model. Earth Syst.* (2022). doi:10.1029/2021ms002852
15. Sun, H., Eastham, S. & Keith, D. Developing a plume-in-grid model for plume evolution in the stratosphere. *J. Adv. Model. Earth Syst.* **14**, (2022).
16. Eastham, S. D. *et al.* Impacts of a near-future supersonic aircraft fleet on atmospheric composition and climate. *Environ. Sci.: Atmos.* (2022). doi:10.1039/D1EA00081K
17. Prashanth, P., Eastham, S. D., Speth, R. L. & Barrett, S. R. H. Aerosol formation pathways from aviation emissions. *Environ. Res. Commun.* (2022). doi:10.1088/2515-7620/ac5229
18. Meijer, V. R. *et al.* Contrail coverage over the United States before and during the COVID-19 pandemic. *Environmental Research Letters* (2022).
19. Martin, R. V. *et al.* Improved advection, resolution, performance, and community access in the new generation (version 13) of the high performance GEOS-Chem global atmospheric chemistry model (GCHP). *Geoscientific Model Development* (2022). doi:10.5194/gmd-2022-42
20. Atkinson, W. *et al.* A Tool for Air Pollution Scenarios (TAPS v1. 0) to enable global, long-term, and flexible study of climate and air quality policies. *Geoscientific Model Development Discussions* 1–28 (2022).

21. Agarwal, A., Meijer, V. R., Eastham, S. D., Speth, R. L. & Barrett, S. R. H. Reanalysis-driven simulations may overestimate persistent contrail formation by 100-250%. *Environ. Res. Lett.* (2021). doi:10.1088/1748-9326/ac38d9
22. Zhang, Y., Eastham, S. D., Lau, A. K. H., Fung, J. & Selin, N. E. Global air quality and health impacts of domestic and international shipping. *Environ. Res. Lett.* (2021). doi:10.1088/1748-9326/ac146b
23. Chossière, G. P. *et al.* Air pollution impacts of COVID-19–related containment measures. *Science Advances* **7**, eabe1178 (2021).
24. Sanz-Morère, I., Eastham, S. D., Allroggen, F., Speth, R. L. & Barrett, S. R. H. Impacts of multi-layer overlap on contrail radiative forcing. *Atmos. Chem. Phys.* **21**, 1649–1681 (2021).
25. Lin, H. *et al.* Harmonized Emissions Component (HEMCO) 3.0 as a versatile emissions component for atmospheric models: application in the GEOS-Chem, NASA GEOS, WRF-GC, CESM2, NOAA GEFS-Aerosol, and NOAA UFS models. *Geoscientific Model Development* (2021).
26. Wang, X. *et al.* Global tropospheric halogen (Cl, Br, I) chemistry and its impact on oxidants. *Atmos. Chem. Phys.* (2021). doi:10.5194/acp-2021-441
27. Bindle, L. *et al.* Grid-stretching capability for the GEOS-Chem 13.0.0 atmospheric chemistry model. *Geoscientific Model Development* (2021). doi:10.5194/gmd-2020-398
28. Prashanth, P., Speth, R. L., Eastham, S. D., Sabnis, J. S. & Barrett, S. Post-Combustion Emissions Control in Aero-Gas Turbine Engines. *Energy Environ. Sci.* (2020). doi:10.1039/D0EE02362K
29. Sanz-Morère, I., Eastham, S. D., Speth, R. L. & Barrett, S. R. H. Reducing uncertainty in contrail radiative forcing resulting from uncertainty in ice crystal properties. *Environmental Science and Technology Letters* (2020). doi:10.1021/acs.estlett.0c00150
30. Zhuang, J. *et al.* Enabling high-performance cloud computing for Earth science modeling on over a thousand cores: application to the GEOS-Chem atmospheric chemistry model. *Journal of Advances in Modeling Earth Systems* (2020). doi:10.1029/2020MS002064
31. Dedoussi, I. R., Eastham, S. D., Monier, E. & Barrett, S. R. H. Premature mortality related to United States cross-state air pollution. *Nature* 261–265 (2020).
32. Fritz, T. M., Eastham, S. D., Speth, R. L. & Barrett, S. R. H. The role of plume-scale processes in long-term impacts of aircraft emissions. *Atmos. Chem. Phys.* (2020). doi:10.5194/acp-2019-498
33. Pfister, G. G. *et al.* A Multi-Scale Infrastructure for Chemistry and Aerosols-MUSICA. *Bulletin of the American Meteorological Society* (2020).
34. Lin, H. *et al.* WRF-GC: online coupling of WRF and GEOS-Chem for regional atmospheric chemistry modeling, Part 1: description of the one-way model (v1.0). *Geoscientific Model Development* (2020).
35. Lu, X. *et al.* Development of the global atmospheric general circulation-chemistry model BCC-GEOS-Chem v1.0: model description and evaluation. *Geoscientific Model Development* (2020). doi:10.5194/gmd-2019-240
36. Dasadhikari, K., Eastham, S. D., Allroggen, F., Speth, R. L. & Barrett, S. R. H. Evolution of sectoral emissions and contributions to mortality from particulate matter exposure in the Asia-Pacific region between 2010 and 2015. *Atmos. Environ.* 116916 (2019).
37. Zhuang, J. *et al.* Enabling immediate access to Earth science models through cloud computing: application to the GEOS-Chem model. *Bull. Am. Meteorol. Soc.* (2019). doi:10.1175/BAMS-D-18-0243.1
38. Zhu, L. *et al.* Effect of sea-salt aerosol on tropospheric bromine chemistry. *Atmos. Chem. Phys.* 1–17 (2019).
39. Wang, X. *et al.* The role of chlorine in global tropospheric chemistry. *Atmos. Chem. Phys.* **19**, 3981–4003 (2019).
40. Grobler, C. *et al.* Marginal Climate and Air Quality Costs of Aviation Emissions. *Environ. Res. Lett.* (2019).

41. Chossière, G. P. *et al.* Country- and manufacturer-level attribution of air quality impacts due to excess NO_x emissions from diesel passenger vehicles in Europe. *Atmos. Environ.* **189**, 89–97 (2018).
42. Sokolov, A. *et al.* Description and Evaluation of the MIT Earth System Model (MESM). *J. Adv. Model. Earth Syst.* **10**, 1759–1789 (2018).
43. Eastham, S. D., Weisenstein, D. K., Keith, D. W. & Barrett, S. R. H. Quantifying the impact of sulfate geoengineering on mortality from air quality and UV-B exposure. *Atmos. Environ.* **187**, 424–434 (2018).
44. Eastham, S. D., Keith, D. W. & Barrett, S. R. H. Mortality tradeoff between air quality and skin cancer from changes in stratospheric ozone. *Environ. Res. Lett.* **13**, 034035 (2018).
45. Yu, K. *et al.* Errors and improvements in the use of archived meteorological data for chemical transport modeling: an analysis using GEOS-Chem v11-01 driven by GEOS-5 meteorology. *Geoscientific Model Development* **11**, 305–319 (2018).
46. Zhuang, J., Jacob, D. J. & Eastham, S. D. The importance of vertical resolution in the free troposphere for modeling intercontinental plumes. *Atmos. Chem. Phys.* (2018). doi:10.5194/acp-2017-1124
47. Eastham, S. D. *et al.* GEOS-Chem High Performance (GCHP v11-02c): A next-generation implementation of the GEOS-Chem chemical transport model for massively parallel applications. *Geosci. Model Dev.* 2941–2953 (2018).
48. Cameron, M. A. *et al.* An intercomparative study of the effects of aircraft emissions on surface air quality. *J. Geophys. Res. D: Atmos.* **122**, 8325–8344 (2017).
49. Chossière, G. P. *et al.* Public health impacts of excess NO_x emissions from Volkswagen diesel passenger vehicles in Germany. *Environ. Res. Lett.* **12**, 034014 (2017).
50. Eastham, S. D. & Jacob, D. J. Limits on the ability of global Eulerian models to resolve intercontinental transport of chemical plumes. *Atmos. Chem. Phys.* **17**, 2543–2553 (2017).
51. Yeung, L. Y. *et al.* Isotopic ordering in atmospheric O₂ as a tracer of ozone photochemistry and the tropical atmosphere. *J. Geophys. Res. D: Atmos.* **121**, 2016JD025455 (2016).
52. Sherwen, T. *et al.* Global impacts of tropospheric halogens (Cl, Br, I) on oxidants and composition in GEOS-Chem. *Atmos. Chem. Phys.* **16**, 12239–12271 (2016).
53. Alvarez, L. E., Eastham, S. D. & Barrett, S. R. H. Radiation dose to the global flying population. *J. Radiol. Prot.* **36**, 93–103 (2016).
54. Eastham, S. D. & Barrett, S. R. H. Aviation-attributable ozone as a driver for changes in mortality related to air quality and skin cancer. *Atmos. Environ.* (2016). doi:10.1016/j.atmosenv.2016.08.040
55. Barrett, S. R. H. *et al.* Impact of the Volkswagen emissions control defeat device on US public health. *Environ. Res. Lett.* **10**, 1–10 (2015).
56. Yim, S. H. L. *et al.* Global, regional and local health impacts of civil aviation emissions. *Environ. Res. Lett.* (2015).
57. Eastham, S. D., Weisenstein, D. K. & Barrett, S. R. H. Development and evaluation of the unified tropospheric–stratospheric chemistry extension (UCX) for the global chemistry-transport model GEOS-Chem. *Atmos. Environ.* **89**, 52–63 (2014).
58. Olsen, S. C. *et al.* Comparison of model estimates of the effects of aviation emissions on atmospheric ozone and methane. *Geophys. Res. Lett.* **40**, 6004–6009 (2013).
59. Eastham, S. D., Coates, D. J. & Parks, G. T. A novel method for rapid comparative quantitative analysis of nuclear fuel cycles. *Ann. Nucl. Energy* **42**, 80–88 (2012).
60. Stettler, M. E. J., Eastham, S. & Barrett, S. R. H. Air quality and public health impacts of UK airports. Part I: Emissions. *Atmos. Environ.* **45**, 5415–5424 (2011).

Grants and Contracts Obtained

Volumes given for ongoing projects relate to most recent year of funding unless otherwise specified. Does not include pending or gift/philanthropic funding. Key: FAA: US Federal Aviation Administration; ASCENT: Aviation Sustainability Center.

2023-	Co-I	Understanding how hydrogen affects the atmosphere. <i>Volume: \$250,000/yr to MIT. Funder: Internal</i>
2023	MIT PI	Speeding up large-scale simulations of atmospheric composition. <i>Volume: \$14,000/yr to MIT. Funder: NSF</i>
2022-	Co-I	Climate effects of hydrogen-fueled aviation. <i>Volume: \$150,000/yr to MIT. Funder: Airbus</i>
2022-	Co-PI	Evaluate environmental impacts of launch vehicles. <i>Volume: \$150,000/yr to MIT. Funder: FAA</i>
2022-	Co-I	Quantify role of aviation NO_x in observed changes in ozone at cruise. <i>Volume: \$150,000/yr to MIT. Funder: NASA</i>
2022-	PI	Modularize the MUSICA global climate model and investigate disagreements in assessments of aviation environmental Impacts. <i>Volume: \$150,000/yr to MIT. Funder: NSF</i>
2022-	Named	Improve performance of and access to GCHP global atm. model. <i>Volume: \$55,000/yr to MIT. Funder: NASA</i>
2022-	Co-I	Evaluate low-impact supersonic aircraft concepts (collaboration with Georgia Tech. through University Leadership Initiative). <i>Volume: \$300,000/yr to MIT. Funder: NASA</i>
2021-	Co-I	Develop contrail avoidance decision support tool. <i>Volume : \$500,000/yr to MIT. Funder: FAA</i>
2020-	Co-PI	Develop high altitude emissions decision support tool. <i>Volume: \$580,000/yr to MIT. Funder: FAA</i>
2020-	Co-I	Assess novel strategies for aircraft electrification. <i>Volume: \$250,000/yr to MIT. Funder: FAA</i>
2019-2022	Co-I	Observation-based evaluation of contrail impacts. <i>Volume: \$150,000/yr to MIT. Funder: NASA</i>
2019-2021	Co-I	Improve atmospheric fluid dynamics in GCHP global atm. model. <i>Volume: \$100,000/yr to MIT. Funder: NASA</i>
2019-2021	Co-I	Next-generation chemistry-climate modeling. <i>Volume: \$150,000/yr to MIT. Funder: NSF</i>
2018	Co-I	Environmental assessment of naphthalene removal from Jet-A1 fuel <i>Volume: \$50,000/yr to MIT. Funder: FAA</i>

Supervision and Mentoring

Date shown corresponds to year final degree was awarded or postdoctoral associate left.

Ongoing	PhD	Andrew Scott White
Ongoing	PhD	China Hagström
Ongoing	PhD	Christopher Womack
Ongoing	SM	Clara Ma
Ongoing	SM	Evan Gibney
Ongoing	SM/PhD	Jeong Suk (Lucas) Oh
Ongoing	SM	Kanghyun Lee
Ongoing	SM/PhD	Louis Anh Tai Robion

Ongoing	PhD	Shreya Sharma
Ongoing	PhD	Vincent Meijer
Ongoing	SM/PhD	Xiangcheng (Michael) Xu
Ongoing	SM	Yuang Chen
Ongoing	SB/SM	Helena McDonald
Ongoing	Postdoc	Anthony Wong
2023	Postdoc	Sadia Afrin
2023	PhD	Carla Grobler
2022	SM/PhD	Inés Sanz-Morère
2022	SM/PhD	Thibaud Fritz
2021	PhD	Akshat Agarwal
2021	PhD	Guillaume Chossière
2020	SM	Ruoyu Lan
2019	SM	Luke Kulik
2018	SM	Kingshuk Dasadhikari

Public service and engagement

Conventional activities such as media interviews, high school outreach, and participation in open house engagement are not listed.

2023	Nominated expert in the UN International Civil Aviation Organization Civil Aviation Environmental Protection Impacts Science Group (UN ICAO CAEP ISG).
2023	Seminar to the American Medical Students Association on the connections between climate, air quality, and public health
2023	Keynote speaker at MIT's "BioSummit" on interactions between climate and health.
2022	Convened a public debate at MIT on the costs and benefits of direct air capture technology for either carbon offsetting or fuel production.
2021	Public webinar on "Multi-sector dynamics and public health" with the MIT Joint Program on the Science and Policy of Global Change.
2019-2023	Member of the Massachusetts State Government's Global Warming Solutions Act Implementation Advisory Committee.
2016	Open seminar at the University of Connecticut on basics of geoengineering.

Talks and seminars

Environmental impacts of supersonic aviation. Invited panelist, AIAA SciTech (2024)

Assessing the evolution of contrail impacts from 1980 to 2019. Talk (on behalf of an absent student), American Geophysical Union (AGU) Fall Meeting (2023)

Environmental impacts of supersonic civil transports (SSTs). Invited talk, SAE supersonics steering group (2023)

Metrics of aviation's environmental impacts. Talk, Zero Impact Aviation Alliance kickoff (2023).

Understanding and mitigating the environmental impacts of aviation. Invited talk, GE EDGE Symposium (2023)

Effects of model resolution on simulated air quality impacts from aviation. Conference presentation, 2nd GEOS-Chem Europe Conference (2023)

Critical gaps in understanding cirrus cloud thinning. Session convener, Geoengineering Modeling Research Consortium 2023 Workshop (2023)

Research at MIT on launch vehicle emissions impacts. Invited speaker, University of Stuttgart Institute of Space Systems Workshop on “Life Cycle Assessment of Space Transportation Systems” (2023)

Accelerating sustainable aviation through advanced atmospheric simulation. Invited speaker, Imperial College London (2023)

Contrails. Invited speaker, University of Cambridge/MIT Joint Workshop on Aviation Impacts (2023)

Global change and human health. Keynote speaker, MIT Club of Boston Biosummit on Climate Change and Human Health (2023)

Understanding the impacts of contrails. Invited panelist, FAA Aircraft Emissions Characterization Roadmap meeting (2023)

Climate change and air quality. Invited speaker, MIT Global Change Forum XLV (2023)

Global impacts of aircraft exhaust. Invited speaker, US National Academies of Science, Engineering, and Medicine Aeronautics and Space Engineering Board Aviation Climate Impacts Meeting of Experts (2023)

Impact of Space Endeavors on Earth's Climate and Atmosphere. Invited panelist, AIAA 2023 SciTech Forum (2023)

Non-CO₂ impacts of aviation. Invited panelist, EU Clean Aviation Joint Undertaking Workshop (2022)

Impact of aviation on atmosphere and the global climate. Invited panelist, NASA Aeronautics and Space Engineering Board 170th Meeting (2022)

Climate and air quality effects of building electrification. Invited panelist, MIT Energy Initiative Fall Meeting (2022)

Feasibility and environmental impacts of hydrogen as an aviation fuel. Invited speaker, FAA Aircraft Emissions Characterization briefing (2022)

GEOS-Chem as a chemistry module in CESM 2.1. Conference presentation, CESM Workshop (2022)

GEOS-Chem as a chemistry module in CESM 2.1. Conference presentation, 10th International GEOS-Chem Conference (2022)

Improvements in simulated transport through direct ingestion of mass flux data. Conference presentation, 10th International GEOS-Chem Conference (2022)

Atmospheric and climate impacts of supersonic transport. Invited talk, AIAA 2022 SciTech Forum (2022)

Mechanisms and impacts of non-CO₂ emissions from aircraft. Invited talk and panel discussion, European Aviation Conference (2021)

Addressing global and regional sustainability challenges with satellite data and machine learning. Session co-convener, American Geophysical Union Fall Meeting (2021)

Atmospheric impacts of a near future supersonic aircraft fleet. Poster talk, American Geophysical Union Fall Meeting (2021)

Global air pollution impacts of COVID. NASA/NOAA interagency COVID-AQ discussion (2021)

Air pollution, public health, and multi-sector dynamics. MIT Joint Program Multi-Sector Dynamics Webinar (2021)

Environmental impacts of aviation NO_x emissions. Invited talk, FAA [Aviation Emissions Characterization Roadmap](#) meeting (2021)

Incorporating high-fidelity air quality simulation into integrated assessment models. Poster talk, American Geophysical Union Fall Meeting (2020)

Impacts of cross-state air pollution. Webinar for EPA state assessors (2020)

Global environmental impact of supersonic cruise aircraft in the stratosphere. Webinar for the ICAO CAEP Impacts and Science Group (2020)

Quantifying environmental impacts of aviation. Invited talk, Georgia Institute of Technology School of Aerospace Engineering (2020)

Time of emergence for the influence of climate change on surface ozone. American Meteorological Society 100th Annual Meeting, Boston (2019)

Impacts of cross-state emissions. Webinar for EPA Air, Climate, and Energy (ACE) Center Principal Investigators (2019)

Implications of environmental policy. Invited talk, VoLo Foundation Climate Correction 2019 Expo and Conference, University of Central Florida (2019)

Geoengineering in the next 15 years: gaps, needs, and opportunities for research. Panel (moderator), Harvard University Center for the Environment (2019)

Resolution and Lagrangian modeling. Second GMRC Workshop, Harvard University (2019)

Carbon pricing and air quality. EPA All Centers Meeting, Carnegie Mellon University (2019)

GEOS-Chem in Earth System Models. 9th International GEOS-Chem Meeting, Harvard University (2019)

Integration of GEOS-Chem into the US Community Earth System Model. CESM Annual Workshop, National Corporation for Atmospheric Research (2019)

Alternative jet fuels and engine technologies. Invited seminar, MIT Airline Industry Consortium Annual Research Meeting, Massachusetts Institute of Technology (2018)

Reducing the environmental impact of commercial aviation. Invited seminar, MIT Airline Industry Consortium Executive Education Course, Massachusetts Institute of Technology (2018)

Projecting and quantifying future changes in socioeconomic drivers of air pollution and its health-related impacts. EPA Air, Climate, and Energy (ACE) Center annual review, Harvard School of Public Health (2018)

Aviation and air quality. Invited seminar, Federal Aviation Administration Emissions Characterization Roadmap, National Academy of Sciences (2018)

High altitude and high performance: modeling the second supersonic jet age. Invited seminar, NASA Jet Propulsion Laboratory (2018)

Development of NAS-wide and global rapid aviation air quality tools. US Federal Aviation Administration Sustainability Center spring meeting, Cambridge (2017)

Intercontinental pollution. Invited seminar, School of Civil and Environmental Engineering, Georgia Institute of Technology (2017)

Better living through chemistry: GEOS-Chem and HPC. Invited seminar, European Centre for Medium-Range Weather Forecasting, University of Reading (2017)

Climate engineering and air quality. Speaker and session co-convenor, Second International Climate Engineering Conference (2017)

Sensitivity of global mortality to sulfate geoengineering. American Geophysical Union fall meeting (2016)

Limits on the ability of Eulerian models to resolve intercontinental chemical plumes. Speaker, Second Atmospheric Composition OSSE Workshop at the University of Reading (2016)

Intercontinental smog: challenges in modeling intercontinental chemical plumes. Invited seminar, Brookhaven National Laboratory (2016)

Geoengineering 101. Invited seminar, University of Connecticut Department of Marine Sciences (2016)

MOSAIC: a flexible new aerosol model for GEOS-Chem. 7th International GEOS-Chem Meeting, Harvard University (2016)

Sensitivities of human health to aerosol climate engineering. SRM Science 2015 - Engineering the Climate, University of Cambridge (2015)

Enhancing understanding of vertical transport through numerical simulation. Second Aviation Climate Change Research Initiative Symposium, Washington DC (2011)