

## HANNAH M. HOROWITZ

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### CURRENT APPOINTMENT

- Jan. 2020 - **Assistant Professor**, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL
- Aug. 2020 - **Affiliate Professor**, Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign, Urbana, IL

### EDUCATION

- 2017 **PhD**, Earth & Planetary Sciences, Harvard University, Cambridge, MA  
Dissertation: “*The global biogeochemical cycle of mercury: Insights from modeling atmospheric chemistry and all-time emissions from human activity*”
- 2016 **M.S.**, Environmental Science & Engineering, Harvard John A. Paulson School of Engineering and Applied Sciences, Cambridge, MA
- 2011 **B.A.**, *magna cum laude*, Earth & Planetary Sciences (minor: French), Harvard College, Cambridge, MA  
Thesis: “*Modeled and Observed Atmosphere-Terrestrial Exchange of Hg<sup>0</sup> in a Temperate Hardwood Forest*”

### HONORS, AWARDS, & FELLOWSHIPS

- 2019 15th Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS XV)
- 2019 Surface Ocean Lower Atmosphere Studies Early Career Scientist Day Presentation Award
- 2017-2019 NSF Atmospheric and Geospace Sciences Postdoctoral Research Fellowship
- 2017-2019 JISAO Postdoctoral Research Fellowship
- 2016 NOAA Climate & Global Change Postdoctoral Fellowship - Alternate
- 2016 CIRES Visiting Postdoctoral Fellowship - Declined
- 2015 Silver Award - Student Presentation, 12th International Conference on Mercury as a Global Pollutant
- 2015 Harvard Earth & Planetary Sciences (EPS) Departmental Conference Travel Grant
- 2014-2015 NSF GROW with USAID Research and Innovation Fellowship
- 2012-2015 National Science Foundation Graduate Research Fellowship
- 2013 Harvard University Certificate of Distinction in Teaching
- 2013 Best Student Presentation, 11th International Conference on Mercury as a Global Pollutant
- 2012 Student Presentation Award, AMS First Conference on Atmospheric Biogeosciences
- 2012 Harvard SEAS/SPH cross-school environmental research & education funding recipient
- 2010 Harvard University Center for the Environment Individual Grant Recipient
- 2010 Harvard College Research Program Grant Recipient

### PEER-REVIEWED PUBLICATIONS

14. **H. M. Horowitz**, C. Holmes, A. Wright\*\*, T. Sherwen, X. Wang, M. Evans, J. Huang, L. Jaeglé, Q. Chen, S. Zhai, and B. Alexander, Effects of sea salt aerosol emissions for Marine Cloud Brightening on atmospheric chemistry: Implications for radiative forcing, *Geophysical Research Letters*, **2020**, 47, e2019GL085838, DOI: 10.1029/2019GL085838. \*\*undergraduate advisee
13. D.G. Streets, **H. M. Horowitz**, Z. Lu, L. Levin, C. P. Thackray, and E.M. Sunderland, Five hundred years of anthropogenic mercury: spatial and temporal release profiles, *Environmental Research Letters*, **2019**, 14, 084004, DOI: 10.1088/1748-9326/ab281f.
12. Y. Zhang, **H. M. Horowitz**, J. Wang, Z. Xie, J. Kuss, and A. Soerensen, An online coupled atmosphere-ocean model for air-sea exchange of mercury in the global ocean and its insights into wet deposition and atmospheric redox chemistry, *Environmental Science & Technology*, **2019**, 53 (9), 5052-5061, DOI: 10.1021/acs.est.8b06205.

11. D.G. Streets, **H. M. Horowitz**, Z. Lu, L. Levin, C. P. Thackray, and E.M. Sunderland, Global and regional trends in mercury emissions and concentrations, 2010-2015, *Atmospheric Environment*, **2019**, *201*, 417-427, DOI: 10.1016/j.atmosenv.2018.12.031.
10. **H. M. Horowitz**, R. M. Garland, M. Thatcher, W. A. Landman, Z. Dedekind, J. van der Merwe, and F. A. Engelbrecht, Evaluation of climate model aerosol seasonal and spatial variability over Africa using AERONET, *Atmospheric Chemistry & Physics*, **2017**, *17*, 13999-14023, DOI: 10.5194/acp-17-13999-2017.
9. **H. M. Horowitz**, D.J. Jacob, Y. Zhang, T.S. Dibble, F. Slemr, H.M. Amos, J.A. Schmidt, E.S. Corbitt, E.A. Marais, and E.M. Sunderland, A new mechanism for atmospheric mercury redox chemistry: implications for the global mercury budget, *Atmospheric Chemistry & Physics*, **2017**, *17*, 6353-6371, DOI: 10.5194/acp-17-6353-2017.
8. Streets, D.G., **H. M. Horowitz**, D.J. Jacob, Z. Lu, L. Levin, A. Ter Schure, and E.M. Sunderland, Total mercury released to the environment by human activities, *Environmental Science & Technology*, **2017**, *51* (11), DOI: 10.1021/acs.est.7b00451.
7. J. Schmidt, D. Jacob, **H. M. Horowitz**, L. Hu, T. Sherwen, M. Evans, Q. Liang, R. Suleiman, D. Oram, M. Le Breton, C. Parcival, S. Wang, B. Dix, and R. Volkamer, Modeling the observed tropospheric BrO background: Importance of multiphase chemistry and implications for ozone, OH, and mercury, *JGR-Atmospheres*, **2016**, *121*, 11819-11835, DOI: 10.1002/2015JD024229.
6. R. Sun, D. G. Streets, **H. M. Horowitz**, H. M. Amos, G. Liu, V. Perrot, J-P Toutain, H. Hintelmann, E. M. Sunderland, and J. E. Sonke, Historical (1850-2010) mercury stable isotope emissions from anthropogenic sources to the atmosphere, *ELEMENTA*, **2016**.
5. Y. Zhang, D. J. Jacob, **H. M. Horowitz**, L. Chen, H. M. Amos, D. P. Krabbenhoft, F. Slemr, V. St. Louis, and E. M. Sunderland, Observed decrease in atmospheric mercury explained by global decline in anthropogenic emissions, *PNAS*, **2016**, DOI: 10.1073/pnas.1516312113.
4. Chen, L., Y. Zhang, D. J. Jacob, A. Soerensen, J. Fisher, **H. M. Horowitz**, E. S. Corbitt, and X. Wang, Differences in decadal trends of atmospheric mercury between the Arctic and northern mid-latitudes suggest a decline in Arctic Ocean mercury, *Geophysical Research Letters*, **2015**, DOI: 10.1002/2015GL06405.
3. Amos, H. M., J. E. Sonke, D. Obrist, N. Robins, N. Hagan, **H. M. Horowitz**, R. P. Mason, M. Witt, I. Hedgecock, E. S. Corbitt, and E. M. Sunderland, Observational and modeling constraints on global anthropogenic enrichment of mercury: a critical review, *Environmental Science & Technology*, **2015** *49* (7), 4036-4047, DOI: 10.1021/es5058665.
2. **Horowitz, H. M.**, D. J. Jacob, H. M. Amos, D. G. Streets, and E. M. Sunderland, Historical mercury releases from commercial products: global environmental implications, *Environmental Science & Technology*, **2014** *48* (17), 10242-10250, DOI: 10.1021/es501337j.
1. Amos, H. M., D. J. Jacob, D. Kocman, **H. M. Horowitz**, Y. Zhang, S. Dutkiewicz, M. Horvat, E. S. Corbitt, D. P. Krabbenhoft, and E. M. Sunderland, Global biogeochemical implications of mercury discharges from rivers and sediment burial, *Environmental Science & Technology*, **2014** *48* (16), 9514-9522, DOI: 10.1021/es502134t.

#### INVITED TALKS & SEMINARS

14. Atmospheric Sciences Seminar, University of Illinois at Urbana-Champaign March 2020  
*Effects of sea salt aerosol emissions for Marine Cloud Brightening on atmospheric chemistry: Implications for radiative forcing*
13. Seminar, IBS Center for Climate Physics, Pusan National University, Busan, South Korea April 2019  
*Impacts of anthropogenic change on pollution and climate*
12. Civil & Environmental Engineering Seminar, University of Illinois at Urbana-Champaign April 2019  
*Impacts of anthropogenic change on pollution and climate*
11. Earth and Environmental Science Seminar, University of Texas at Arlington Feb. 2019  
*Memoirs of a toxin: the lasting human impact on mercury in the environment*

10. Atmospheric Physics & Chemistry Seminar, University of Washington Jan. 2019  
*Blowing snow sea salt aerosol in the Community Earth System Model*
9. How to Get the Mentorship You Need Workshop Panelist, ESWN, AGU Fall Meeting Dec. 2018
8. Chemical Oceanography Seminar, University of Washington May 2018  
*Biogeochemical cycling of anthropogenic mercury in the global ocean*
7. Atmospheric Physics & Chemistry Seminar, University of Washington April 2017  
*The global biogeochemical cycle of mercury: Insights from modeling atmospheric chemistry and all-time emissions from human activity*
6. Earth & Planetary Sciences Graduate Student/Post-Doc Seminar series, Harvard University Nov. 2016  
*What can observations and modeling tell us about how atmospheric chemistry affects mercury deposition to ecosystems?*
5. Beacon Hill Seminar (continuing adult education) - Science in the News series, Boston, MA Oct. 2015  
*Memoirs of a Toxin: The lasting human impact on mercury in the environment*
4. Chemistry Department seminar, Trinity College, Hartford, CT October 2015  
*Understanding Hg in the global environment: anthropogenic impacts and atmospheric redox chemistry*
3. Lake Michigan Air Directors Consortium, Mercury in the Midwest meeting, Indianapolis, IN Aug. 2015  
*Reconciling model results with observed trends in mercury: the importance of updated emissions inventories*
2. Science in the News (SITN) Spring Public Lecture Series, Harvard University May 2015  
*Memoirs of a Toxin: The lasting human impact on mercury in the environment ([link to video](#))*
1. Research Colloquium at the South African Weather Service, Irene, South Africa February 2015  
*Understanding the natural and human elements of the mercury cycle*

### CONFERENCE PRESENTATIONS

*(with advised students\* as noted)*

21. Erin Emme\* and **H. M. Horowitz**, Estimating Contributions of Potential Sea Salt Aerosol Sources to the Arctic Using Satellite Data, oral presentation at the *AGU Fall Meeting*, virtual, December 2020.
20. **H. M. Horowitz**, C. Holmes, A. Wright\*, T. Sherwen, X. Wang, M. Evans, J. Huang, L. Jaeglé, Q. Chen, S. Zhai, and B. Alexander, Effects of sea salt aerosol emissions for Marine Cloud Brightening on atmospheric chemistry: Implications for radiative forcing, oral presentation at the *AMS 22nd Conference on Atmospheric Chemistry*, Boston, MA, January 2020. *Invited presentation*
19. **Horowitz, H. M.**, C. Holmes, A. Wright\*, T. Sherwen, X. Wang, M. Evans, J. Huang, L. Jaeglé, Q. Chen, S. Zhai, and B. Alexander, Impacts of marine cloud brightening on atmospheric chemistry, poster presentation at the *Gordon Research Conference on Atmospheric Chemistry*, Sunday River, ME, August 2019.
18. **H. M. Horowitz**, *Memoirs of a toxin: the lasting human impact on mercury in the environment*, oral presentation at the *15th Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS XV)*, Brookhaven National Laboratory, NY, July 2019.
17. **Horowitz, H. M.**, A. Wright\*, T. Sherwen, X. Wang, M. Evans, J. Huang, L. Jaegle, Q. Chen, C. Holmes, S. Zhai, and B. Alexander, Impacts of marine cloud brightening on atmospheric chemistry, poster presentation at the *9th International GEOS-Chem Users' Meeting*, Cambridge, MA, May 2019.
16. **Horowitz, H. M.**, S. Burrows, J. Huang, C. Bitz, L. Jaegle, P.-L. Ma, V. Nandan, and B. Alexander, Blowing snow sea salt aerosol emissions and radiative effects, poster presentation at the *Surface Ocean Lower Atmosphere Studies (SOLAS) Open Science Conference*, Sapporo, Japan, April 2019.

15. **Horowitz, H. M.**, H. L. Stern, D. Gergel, L. Dawson, E. Campbell, D. Cuomo, L. McCullough, L. G. Beckerman, A. Ismael, R. Scherrer, and K. Sturgeon, Polar Planetarium Show: a new program connecting local scientists, science center educators, and the public to the poles, oral presentation at the *AGU Fall Meeting*, Washington, DC, December 14, 2018.
14. **Horowitz, H. M.**, S. Burrows, J. Huang, L. Jaegle, C. Bitz, B. Alexander, Physical processes of blowing snow sea salt emissions: focus on snow salinity, oral presentation at the *AGU Fall Meeting*, Washington, DC, December 14, 2018.
13. A. Wright\*\*, **H. M. Horowitz\***, T. Sherwen, M. Evans, J. Huang, Q. Chen, L. Jaeglé, and B. Alexander, Impacts of Marine Cloud Brightening on Atmospheric Chemistry, poster presentation at the *AGU Fall Meeting*, Washington, DC, December 12, 2018. \*\*undergraduate advisee; \*presenting author
12. **Horowitz, H. M.**, B. Alexander, C. Bitz, L. Jaégle, J. Huang, and S. Burows, Present and future sea salt emissions from blowing snow on Arctic sea ice, oral presentation at the *AGU Fall Meeting*, New Orleans, LA, December 11, 2017.
11. **Horowitz, H. M.**, D. J. Jacob, Y. X. Zhang, T. S. Dibble, F. Slemr, H. M. Amos, J. A. Schmidt, E. S. Corbitt, E. A. Marais, and E. M. Sunderland, A new mechanism for atmospheric mercury redox chemistry: Implications for the global mercury budget, poster presentation at the *Gordon Research Conference on Atmospheric Chemistry*, Sunday River, ME, July 31-August 1, 2017.
10. **Horowitz, H. M.**, C. Thackray, D. J. Jacob, H. M. Amos, D. G. Streets, and E. M. Sunderland, All-time Enrichment of the Global Oceans with Anthropogenic Hg, oral presentation at the *13th International Conference on Mercury as a Global Pollutant*, Providence, RI, July 19, 2017.
9. **Horowitz, H. M.**, D. J. Jacob, H. M. Amos, Y. Zhang, T. S. Dibble, F. Slemr, and E. M. Sunderland, A state-of-the-science Hg redox mechanism for atmospheric models: constraints from observations and global implications, poster presentation at the *AGU Fall Meeting*, San Francisco, CA, December 18, 2015.
8. R. M. Garland, **H. M. Horowitz\***, M. Thatcher, M. Naidoo, J. van der Merwe, W. A. Landman, and F.A. Engelbrecht, First Evaluation of the CCAM Aerosol Model over Africa: Implications for Regional Climate Modeling, poster presentation at the *AGU Fall Meeting*, San Francisco, CA, December 15, 2015. \*presenting author
7. **Horowitz, H. M.**, R. M. Garland, W. A. Landman, J. van der Merwe, M. Thatcher, and F. A. Engelbrecht, First evaluation of the CCAM climate model aerosol simulation with AERONET measurements over Africa, poster presentation at the *9th Graduate Climate Conference (GCC)*, Woods Hole, MA, November 7, 2015.
6. **Horowitz, H. M.**, D. J. Jacob, H. M. Amos, T. S. Dibble, F. Slemr, J. A. Schmidt, D. A. Jaffe, S. Lyman, E. S. Corbitt, and E. M. Sunderland, Revisiting the GEOS-Chem atmospheric Hg simulation: chemistry and emissions, oral presentation at the *12th International Conference on Mercury as a Global Pollutant*, Jeju-do, South Korea, June 16, 2015.
5. **Horowitz, H. M.**, D. J. Jacob, H. M. Amos, T. S. Dibble, F. Slemr, J. A. Schmidt, D. A. Jaffe, S. Lyman, E. S. Corbitt, and E. M. Sunderland, Revisiting atmospheric Hg oxidation mechanisms in GEOS-Chem: constraints from observations, oral presentation at the *7th International GEOS-Chem Users' Meeting*, Cambridge, MA, May 6, 2015.
4. **Horowitz, H. M.**, D. J. Jacob, D. G. Streets, H. M. Amos, and E. M. Sunderland, Global environmental release of mercury from commercial products, oral presentation at the *11th International Conference on Mercury as a Global Pollutant*, Edinburgh, Scotland, July 29, 2013.
3. **Horowitz, H. M.**, D. J. Jacob, D. G. Streets, H. M. Amos, and E. M. Sunderland, Global source of environmental mercury from intentional uses and its biogeochemical cycling, poster presentation at the *6th International GEOS-Chem Users' Meeting*, Cambridge, MA, May 7, 2013.
2. **Horowitz, H. M.**, D. J. Jacob, D. G. Streets, M. K. Devane, H. M. Amos, and E. M. Sunderland, Global source of environmental mercury from commercial products, oral presentation at the *American Met. Soc. First Conference on Atmospheric Biogeosciences*, Boston, MA, June 1, 2012.

1. **Horowitz, H. M.**, E. S. Corbitt, R. W. Talbot, H. Mao, D. J. Jacob, H. M. Amos, and E. M. Sunderland, Modeled and Observed Atmosphere-Terrestrial Exchange of Hg(0) in a Temperate Hardwood Forest, poster presentation at the *10th International Conference on Mercury as a Global Pollutant*, Halifax, Nova Scotia, July 28, 2011.

### ACADEMIC EXPERIENCE

- 2017 - 2019 NSF AGS Postdoctoral Research Fellow & JISAO Postdoctoral Fellow, JISAO & Dept. of Atmospheric Sciences; University of Washington, Seattle, WA
- 2011 - 2017 Graduate Research Assistant, Biogeochemistry of Global Contaminants & Atmospheric Chemistry Modeling Groups; Harvard University, Cambridge, MA
- Spring 2015 NSF GROW with USAID Research and Innovation Fellow; Climate Studies, Modelling and Environmental Health Research Group, Council for Scientific and Industrial Research, Pretoria, South Africa
- 2010 - 2011 Undergraduate Research Assistant, Atmospheric Chemistry Modeling Group; Harvard University, Cambridge, MA

### RESEARCH ADVISING

#### Current PhD students

Tessa Clarizio, Civil and Environmental Engineering (EWES), Aug. 2020 - present

#### Current M.S. students

Hope Hunter, Civil and Environmental Engineering (EWES), Aug. 2020 - present

#### Current undergraduate research students

Erin Emme, Civil and Environmental Engineering; graduation: May 2021

#### Former undergraduate research students

Alicia Wright (University of Washington); B.S. Atmospheric Sciences, 2019

Ava Krahn (Beloit University), JISAO REU intern; B.S. Studio Art & Environmental Geology, 2019

Florence Chen (Harvard College); B.A. Earth & Planetary Sciences, 2015

### TEACHING

- Fall 2020 Instructor, *CEE 330 Environmental Engineering*, University of Illinois at Urbana-Champaign
- 2020 - present Collins Scholar, Academy for Excellence in Engineering Education, University of Illinois at Urbana-Champaign
- May 2020 Participant, FSI Conference: Strengthening Student Experiences during COVID-19, Center for Innovation in Teaching & Learning, University of Illinois at Urbana-Champaign
- May 2020 Participant, "Moving Your Course Online", Center for Innovation in Teaching & Learning, University of Illinois at Urbana-Champaign
- Fall 2014 TA, *ESE 163: Pollution Control in Aquatic Ecosystems*, Environmental Sciences and Engineering, Harvard University
- Spring 2014 "Scientists Teaching Science" semester course (Dr. Philip Sadler), Harvard University
- Spring 2013 TA, *EPS/ESE 133: Atmospheric Chemistry*, Earth and Planetary Sciences/Environmental Sciences and Engineering, Harvard University
- 2010 - 2011 Peer Tutor, *Linear Algebra and Differential Equations, Mechanics, Electricity and Magnetism, Atmospheric Chemistry*, Bureau of Study Counsel, Harvard College

### SERVICE AND LEADERSHIP

#### At the University of Illinois

- 2020 - onwards Coordinator, Womxn Exploring Graduate Opportunities in CEE ([WeGoCEE](#)) annual workshop for undergraduates across the US, Civil and Environmental Engineering Department
- 2020 - 2021 Seminar series coordinator, Energy-Water-Environment Sustainability (EWES) Interdisciplinary Program, Civil and Environmental Engineering Department
- April 2020 Speaker, Academic Careers Lunch Talk and Q&A, Graduate Society of Women Engineers (GradSWE)

### **Other Service and Leadership**

- Dec. 2020 Session Co-Chair (oral) and Co-Convener, AGU Fall Meeting, “Aquatic Aerosols: From Microscale Processes to Impacts on Climate”
- Dec. 2020 Invited Speaker, Women in STEM Club at University High School, Urbana, IL
- 2020 Judge, Student Presentation Award, AMS Annual Meeting
- 2018 Judge, Outstanding Student Presentation Award (OSPA), AGU Fall Meeting
- 2018 - 2019 Science Communication Fellow - Polar Science, Pacific Science Center, Seattle, WA
- 2017 - 2019 Facilitator and participant, Diversity and Inclusion Group, Dept. of Atmospheric Sciences, University of Washington
- Sep. 2019 Participant, University of Washington Program on Climate Change Summer Institute: Climate Change Impacts on 21st Century Food and Water Security
- Feb 2019 Participant, CESM Joint Atmosphere Model, Chemistry-Climate, and Whole Atmosphere Working Group Meeting, National Center for Atmospheric Research
- Dec. 2018 Mentor, Mentoring365 Live for 3 undergraduate women mentees, American Geophysical Union (AGU) Fall Meeting
- Oct. 2018 Participant, Wildfire Smoke Risk Communication Stakeholder Synthesis Symposium, University of Washington
- May 2018 Participant, NSF-ATC and NCAR Atmospheric Chemistry Workshop, National Center for Atmospheric Research
- 2017 - 2018 Member, Colloquium Committee, Dept. of Atmospheric Sciences, University of Washington
- Dec. 2017 Participant, International Aerosol Modeling Algorithms (IAMA), Davis, CA
- Sep. 2017 Participant, University of Washington Program on Climate Change Summer Institute: Climate Change & Population Health
- 2014 - 2017 Mentor (Graduate student), Atmospheric Chemistry Modeling Group
- 2014 - 2016 Co-President, Harvard University GeoClub Co-President
- 2013, 2015 Volunteer, 6th & 7th International GEOS-Chem Users’ Meetings
- 2014 - 2015 Organizer and Facilitator, “Team Hg/POPs” research discussion meeting on mercury and persistent organic pollutants, Harvard University
- 2014 - 2015 Co-organizer and Moderator, Harvard Atmospheric Chemistry Journal Club
- 2014 Co-organizer and Leader, Earth and Planetary Sciences department-wide Graduate Student Field Trip to the Upper Peninsula of Michigan, Harvard University
- 2011 - 2014 Visiting K-12 Teacher, “There’s a Scientist in My Classroom!”/“Telling Your Story” Program
- 2013 - 2014 Mentor (Graduate student), Harvard Earth & Planetary Sciences Department mentor program
- 2011 - 2014 Mentor (Undergraduate women), Harvard College Women’s Center Women In STEM (WiSTEM) mentorship program
- Jan. 2014 Shaping Policy with Science, mini-course to develop and present policy memos, Harvard University
- Jan. 2014 Seminar speaker, Newington High School Science National Honors Society, Newington, CT
- Nov. 2013 Invited speaker and Participant, Scientist/Engineer-Teacher Partnerships Workshop, MIT
- June 2013 Participant, Women in Science and Engineering Software Carpentry Programming Boot Camp, Boston, MA
- 2012 - 2013 Co-organizer, Earth and Planetary Sciences Department Prospective Graduate Student Visits, Harvard University
- 2011 - 2012 Earth and Planetary Sciences Department Visiting Scholar Lecture Series Committee, Harvard University
- Jan. 2012 Guest lecturer and Q&A on my path to science, Wethersfield High School, Wethersfield, CT

### **Membership and Professional Affiliations**

- since 2019 American Meteorological Society (AMS)
- since 2015 American Geophysical Union (AGU)
- since 2011 Earth Science Women’s Network (EWSN)
- 2018 - 2019 Women in Atmos, Dept. of Atmospheric Sciences, University of Washington
- 2014 - 2017 Harvard/MIT Women in Climate
- 2011 - 2017 Harvard Graduate Women in Science & Engineering (HGWISE)

**Reviewing**

Proposal Reviewer, National Science Foundation - Office of Polar Programs, Atmosphere and Geospace Sciences

Journal Reviewer, *PNAS*, *Atmos. Chem. Phys.*, *Environ. Sci. Technol.*, *STOTEN*, *JAMES*, *Atmosphere*, *Environ. Sci. Process. Impact*