Ithaca College · Department of Physics & Astronomy eleibensperger@ithaca.edu · http://leibensperger.github.io/ · 607-274-5722 (office)

Education

Ph.D. Harvard University, School of Engineering and Applied Sciences, Applied Physics

2011 Thesis: Interaction of Air Quality and Climate: Consequences of US Emissions Controls

Advisor: Daniel J. Jacob

S.M. Harvard University, School of Engineering and Applied Sciences, Applied Physics

2007

B.A. Ithaca College, Chemistry and Physics

2005 Magna Cum Laude

Teaching Experience

Assistant Professor Ithaca College - Department of Physics & Astronomy

Spring 2021 PHYS 360 - Advanced Physics Laboratory

Spring 2021 PHYS/ENVS 147 - Time to Act: The Science & Politics of Climate Change

Fall 2020 PHYS 301 - Mathematical Methods of Physics

Fall 2020 PHYS 305 - Electromagnetism

Assistant/Associate Professor SUNY Plattsburgh - Center for Earth and Environmental Science

Spring 2019 HON 176 - Honors Seminar: War on Science (Gen. Ed.)

Spring 2013, 2015, 2017, 2019 ENV/GEL 406 - Climate Change Science Spring 2014, 2016-2018, 2020 ENV 366 - Global Climate Change (Gen. Ed.)

Fall 2016-2019; Spring 2018 ENV 206 - Environmental Technology ENV/GEL 306 - Atmospheric Processes

Fall 2014-2019 GEL 391 - Physical Oceanography and Limnology

Fall 2012, 2013 GEL 291 - Oceanography

Fall 2012-2015; Spring 2013-2016 ENV 340 - Environmental Science Seminar

2012-2019 Research Mentor to a total of 31 Undergraduate Students

Module Co-author Carleton College

2014-2017 Science Education Resource Center (SERC)

Interdisciplinary Teaching about Earth for a Sustainable Future

(InTeGrate) module

"Regulating Carbon Emissions to Mitigate Climate Change" with Pinar Batur (Vassar), Robyn Smyth (Bard), Curt Gervich (SUNY

Plattsburgh), Gautam Sethi (Bard), Sandra Penny (Bard)

Teaching Fellow Harvard University

Spring 2008; 2009 ES 6 - Environmental Science and Technology (Head TF)

Fall 2008 EPS 208 - Physics of Climate

Fall 2007 EPS 133 - Intro. to Atmospheric Chemistry

Research Co-Mentor Harvard University

Summer 2007; 2008 Summer Research Experience for Undergraduates (REU)

Other Positions Held

Independent Consultant for Harvard University

Model Development School of Engineering and Applied Science Summer 2015 - Fall 2016

Postdoctoral Associate Massachusetts Institute of Technology

Spring 2011 - Fall 2012 Department of Earth, Atmospheric and Planetary Science

Advisor: R. Alan Plumb

Research Topic: Modeling of stratospheric transport and dynamics

Graduate Research Assistant Harvard University

Fall 2005 - Spring 2011 School of Engineering and Applied Science

Advisor: Daniel J. Jacob

Research Topic: Atmospheric chemistry and climate

Research Assistant Ithaca College

Summer 2005 Department of Physics

Advisor: Beth Clark

Research Topic: Photometric modeling of asteroid Eros 443

Dana Intern/Undergraduate Ithaca College

ResearcherSummer 2004
Department of Physics
Advisor: Luke Keller

Research Topic: Composition of protostellar debris disks

Lewis' Education andNASA Glenn Research Center **Research Collaborative Intern**Advisor: Michael A. Meador

Summer 2003 Research Topic: Synthesis of polyacenes through photoenolization

Honors and Awards

2001 - 2005

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Ithaca College Dean's Scholarship

Funding | \$575,989 external funds (Ithaca/SUNY Plattsburgh portions)

2021 - 2023	New York State Energy Research and Development Authority "Mobile Laboratory Measurements of Methane, Ethane, and Co pollutants from Landfills, Oil and Gas Systems and Other Sources in New York State" Principal Investigator with James Schwab (Albany), Lee Murray (Rochester) and Roisin Commane (Columbia) - \$63,691 awarded to Ithaca College
2020 - 2021	New York State Energy Research and Development Authority "Observations in Support of Methane Source Characterization within New York State" Principal Investigator - \$49,913 awarded to Ithaca College
2019 - 2021	New York State Energy Research and Development Authority "Long-Term Monitoring of Methane within New York State Phase II: Assessing Trends in Sources and Characterizing Hot Spots" Principal Investigator with Lee Murray (Rochester) and Roisin Commane (Columbia) - \$40,585 awarded to Ithaca College/SUNY Plattsburgh
2019 - 2020	National Oceanic and Atmospheric Administration Lake Champlain Sea Grant "Upwelling in South Main Lake - Identifying Events and Assessing Impacts" Principal Investigator with Tom Manley (Middlebury College) - \$144,406 awarded to SUNY Plattsburgh
2017 - 2019	National Science Foundation "Collaborative Research: Common Problem Pedagogy (CP²)" Co-Investigator with Dr. James Liszka (SUNY Plattsburgh), Bruce Mattingly and Steven Broyles (SUNY Cortland), Jan Bowers and Joshua Nollenberg (SUNY Oneonta), and Lorrie Clemo and Fehmi Damkaci (SUNY Oswego) - \$81,414 awarded to SUNY Plattsburgh
2016 - 2019	New York State Energy Research and Development Authority "Long-term Monitoring of Methane within New York State: Assessing the Impact of Shifting Energy Portfolios on Regional Air Quality and Climate" Principal Investigator with Lee Murray (Rochester) - \$101,213 awarded to SUNY Plattsburgh
Summer 2016	Lake Champlain Research Consortium "Monitoring Lake Champlain to Assess Future Climate Change Impacts" with undergraduate Will Pierce - \$5,000
2016 - 2018	National Oceanic and Atmospheric Administration Lake Champlain Sea Grant "Monitoring Lake Champlain to Assess Future Climate Change Impacts" Principal Investigator - \$66,767 awarded to SUNY Plattsburgh
2015 - 2016	Interdisciplinary Teaching about Earth for a Sustainable [InTeGrate through the Science Education Resource Center at Carleton College] "Geoscience to policy: Regulating carbon emissions to mitigate climate change" Co-Principal Investigator with Curt Gervich (CEES), Sandra Penny (Sage), Robyn Smyth and Gautam Sethi (Bard), and Pinar Batur (Vassar) - \$15,000
2014	SUNY Research Foundation STEM Undergraduate Research Program Presidential Research Award - \$5,000
2013 - 2014	SUNY Research Foundation 4E Network of Excellence "Adirondack Air Chemistry and Climate: Developing a Collaborative Partnership" Principal Investigator with James Schwab (Albany) and Huiting Mao (SUNY ESF) - \$3,000

Peer-Reviewed Publications

- Penny, S. M., R. Smyth, G. Sethi, **E. M. Leibensperger**, C. Gervich, and P. Batur (2019) "Multidisciplinary and Topical in the Science Classroom: Regulating Carbon Emissions to Mitigate Climate Change" in *Interdisciplinary Teaching About Earth and the Environment for a Sustainable Future*, Goesselin, D. C., A. E. Egger, and J. Taber (Eds.), Springer.
- Mao, J., A. Carlton, R. C. Cohen, W. H. Brune, J. L. Jimenez, H. O. T. Pye, N. L. Ng, B. McDonald, C. Warneke, J. de Gouw, L. J. Mickley, **E. M. Leibensperger**, R. Mathur, and L. Horowtiz (2018) "Southeast Atmosphere Studies: Learning from model-observation syntheses" *Atmos. Chem. Phys.*, 18, 2615-2651, doi:10.5194/acp-18-2615-2018.
- Shen, L., L. J. Mickley, and **E. M. Leibensperger** (2017) "Atlantic Multidecadal Oscillation drives multidecadal variability of summertime surface air quality in the eastern United States" *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL075905.
- Cusworth, D. H., L. J. Mickley, **E. M. Leibensperger**, and M. J. Iacono (2017) "Aerosols as a driver of enhanced U.S. surface solar radiation since the early 21st century and resulting hydrological impacts" *Atmos. Chem. Phys.*, 17, 13559-13572, doi:10.5194/acp-17-13559-2017.
- Fiore, A. M., V. Naik, and **E. M. Leibensperger** (2015) "A Summary of the 45th A&WMA Critical Review: Air Quality and Climate Connections" *EM Magazine*, June, 32-35.
- Fiore, A. M., V. Naik, and **E. M. Leibensperger** (2015) "Critical Review: Air quality and connections" *J. Air Waste Manage.*, 65(6), 646-685.
- Oswald, E., L.-A. Dupigny Giroux, **E. M. Leibensperger**, R. Poirot, and J. Merrell (2015) "Climate controls on air quality in the Northeastern U.S.: An examination of summertime ozone statistics during 1993-2012" *Atmos. Environ.*, 112, 278-288.
- **Leibensperger, E. M.** and R. A. Plumb (2014) "Effective diffusivity in baroclinic flow" *J. Atmos. Sci.*, 71(3), 972-984.
- Barrett, S. R. H., S. H. L. Yim, C. K. Gilmore, L. T. Murray, S. R. Kuhn, A. P. K. Tai, R. M. Yantosca, D. W. Byun, F. Ngan, X. Li, J. Levy, A. Ashok, J. Koo, H. M. Wong, O. Dessens, S. Balasubramanian, G. G. Fleming, C. Wollersheim, R. Malina, M. N. Pearlson, S. Arunachalam, F. S. Binkowski, **E. M. Leibensperger**, D. J. Jacob, J. I. Hileman, and I. A. Waitz (2012) "Public health, climate and economic impacts of desulfurizing jet fuel" *Environ. Sci. Technol.*, 26, 4275-4282.
- **Leibensperger, E. M.**, L. J. Mickley, D. J. Jacob, W.-T. Chen, J. H. Seinfeld, A. Nenes, P. J. Adams, D. G. Streets, N. Kumar, and D. Rind (2012) "Climatic effects of 1950-2050 changes in US anthropogenic aerosols Part 2: Climate response" *Atmos. Chem. Phys.*, 12, 3349-3362.
- **Leibensperger, E. M.**, L. J. Mickley, D. J. Jacob, W.-T. Chen, J. H. Seinfeld, A. Nenes, P. J. Adams, D. G. Streets, N. Kumar, and D. Rind (2012) "Climatic effects of 1950-2050 changes in US anthropogenic aerosols Part 1: Aerosol trends and radiative forcing" *Atmos. Chem. Phys.*, 12, 3333-3348.
- Tai, A. P. K., L. J. Mickley, D. J. Jacob, **E. M. Leibensperger**, L. Zhang, J. A. Fisher, and H.O.T. Pye (2012) "Meteorological modes of variability for fine particulate matter (PM_{2.5}) air quality in the United States: Implications for PM_{2.5} sensitivity to climate change" *Atmos. Chem. Phys.*, 12, 3131-3145.
- Mickley, L. J., **E. M. Leibensperger**, D. J. Jacob, and D. Rind (2012) "Removal of aerosol optical depths over the United States causes large regional warming in a transient 2010-2050 climate simulation" *Atmos. Environ.*, 46, 545-553.

- Wang, Q., D. J. Jacob, J. A. Fisher, J. Mao, **E. M. Leibensperger**, C. C. Carouge, P. Le Sager, Y. Kondo, J. L. Jimenez, M. J. Cubison, and S. J. Doherty (2011) "Sources of carbonaceous aerosols and deposited black carbon in the Arctic in winter-spring: Implications for radiative forcing" *Atmos. Chem. Phys.*, 11, 12453-12473.
- Fisher, J. A., D. J. Jacob, Q. Wang, R. Bahreini, C. C. Carouge, M. J. Cubison, J. E. Dibb, T. Diehl, J. L. Jimenez, **E. M. Leibensperger**, M. B. J. Meinders, H. O. T. Pye, P. K. Quinn, S. Sharma, A. van Donkelaar, and R. M. Yantosca (2011) "Sources, distribution, and acidity of sulfate-ammonium aerosol in the Arctic in winter-spring" *Atmos. Environ.*, 45, 7301-7318.
- Murphy, D. M., J. C. Chow, **E. M. Leibensperger**, W. C. Malm, C. McDade, M. Pitchford, B. A. Schichtel, J. G. Watson, W. H. White (2011) "Decreases in elemental carbon and fine particle mass in the United States" *Atmos. Chem. Phys.*, 11, 4679-4686.
- **Leibensperger, E. M.**, L. J. Mickley, D. J. Jacob, and S. R. H. Barrett (2011) "Intercontinental influence of NO₂ and CO emissions on particulate matter air quality" *Atmos. Environ.*, 45, 3318-3324.
- Kopacz, M., D. L. Mauzerall, J. Wang, **E. M. Leibensperger**, D. K. Henze, and K. Singh (2011) "Origin and radiative forcing of black carbon transported to the Himalayas and Tibetan Plateau" *Atmos. Chem. Phys.*, 11, 2837-2852.
- **Leibensperger, E. M.**, L. J. Mickley, and D. J. Jacob (2008) "Sensitivity of US air quality to mid-latitude cyclone frequency and implications of 1980-2006 climate change" *Atmos. Chem. Phys.*, 8, 7075-7086.
- Wu, S., L. J. Mickley, **E. M. Leibensperger**, D. J. Jacob, D. Rind, D. G. Streets (2008) "Effects of 2000-2050 global change on ozone air quality in the United States" *J. Geophys. Res.*, 113, D06302, doi: 10.1029/2007JD008917.
- Hudman, R. C., D. J. Jacob, S. Turquety, E. M. Leibensperger, L. T. Murray, S. Wu, A.B. Gilliland, M. Avery, T. H. Bertram, W. Brune, R. C. Cohen, J. E. Dibb, F. M. Flocke, A. Fried, J. Holloway, J. A. Neuman, R. Orville, A. Perring, X. Ren, G. W. Sachse, H. B. Singh, A. Swanson, and P. J. Wooldridge (2007) "Surface and lightning sources of nitrogen oxides over the United States: magnitudes, chemical evolution, and outflow" J. Geophys. Res., 112, D12S05, doi: 10.1029/2006JD007912.
- Chen, C. H., B. A. Sargent, C. Bohac, K. H. Kim, **E. Leibensperger**, M. Jura, J. Najita, W. J. Forrest, D. M. Watson, G. C. Sloan, and L. D. Keller (2006) "Spitzer IRS Spectroscopy of IRAS-Discovered Debris Disks" *Astrophys. J. Suppl. S.*, 166, 351-377.
- Sloan, G. C., L. D. Keller, W. J. Forrest, E. Leibensperger, B. Sargent, A. Li, J. Najita, D. M. Watson, B. R. Brandl, C. H. Chen, J. D. Green, F. Markwick-Kemper, T. L. Herter, P. D'Alessio, P. W. Morris, D. J. Barry, P. Hall, P. C. Meyers, and J. Houck (2005) "Mid-Infrared Spectra of Polycyclic Aromatic Hydrocarbon Emission in Herbig Ae/Be Stars" Astrophys. J., 632, 956-963.

Select Presentations

July 23, 2019 Climate change in the Adirondacks: Observed change and emissions monitoring Wilmington, NY Falconer Lecture Series at Whiteface Mountain Field Station

May 9, 2019 Climate change in the Adirondacks

Plattsburgh, NY CEES Student Research Symposium (undergraduate Alexandria Elliot)

May 9, 2019 Plattsburgh, NY	Analysis of simulated methane concentrations at various locations in New York State CEES Student Research Symposium (undergraduate Joseph Judge)
May 9, 2019 Plattsburgh, NY	Seasonality of climate change CEES Student Research Symposium (undergraduate Fuji Maneesai)
May 9, 2019 Plattsburgh, NY	Weather and air quality in New York State: Late 2018 pollution event CEES Student Research Symposium (undergraduate Inna Slager)
May 9, 2019 Plattsburgh, NY	Covariation of air pollutants at Whiteface Mountain CEES Student Research Symposium (undergraduate Shafik Vadsirya)
Oct. 27, 2018 Silver Bay, NY	Climate change in the Adirondacks: Causes, Impacts, Projections North Country Climate Reality Conference (undergraduate Alexandria Elliott)
Jan. 8, 2018 Burlington, VT	Climate change and intraseasonal variability in Lake Champlain L. Champlain Research Conference (presented by Mark Malchoff)
Jan. 8, 2018 Burlington, VT	Development of a Lake Champlain Anglers' Temperature Database L. Champlain Research Conference (undergraduate Joseph Judge)
Nov. 11, 2018 Durham, NC	Regional climate change: Detection, attribution, prediction Duke University
May 3, 2017 Plattsburgh, NY	Observed and projected temperature change in Lake Champlain CEES Student Research Symposium (undergraduate Vasu Govani)
May 3, 2017 Plattsburgh, NY	Calculating the carbon flux within Lake Champlain CEES Student Research Symposium (undergraduate Grace DeSantis)
Dec. 13, 2016 San Francisco, CA	Assessing climate change within Lake Champlain (NY, VT, QC) American Geophysical Union Fall Meeting
May 5, 2016 Plattsburgh, NY	Climate change in Lake Champlain: Modeling future warming CEES Student Research Symposium (undergraduates Conor McCormick and Nicholas Campagna)
May 5, 2016 Plattsburgh, NY	How well can we model the Ice Storm of 1998? Assessing the accuracy of cloud microphysics schemes CEES Student Research Symposium (undergraduate student David Bubbins)
June 9, 2015 Princeton, NJ	Anthropogenic aerosols and the evolution of 20th century U.S. climate Southeast Atmosphere Studies Workshop, NOAA GFDL/Princeton University
May 7, 2015 Plattsburgh, NY	Modeling thermal structure of a small Adirondack lake CEES Student Research Symposium (graduate student Sarah Glancy)
May 7, 2015 Plattsburgh, NY	Chemical composition of Adirondack snow CEES Student Research Symposium (undergraduates Casey Corrigan and Neil Sedlak)
April 14, 2015 Montreal, QC	Does air pollution impact U.S. drought? Department of Atmospheric and Oceanic Science, McGill University

Dec 19, 2014 San Francisco, CA	Anthropogenic aerosols and the evolution of U.S. droughts American Geophysical Union Fall Meeting
Dec. 5, 2014 Palisades, NY	Does air pollution impact drought? Influence of sulfate and BC on U.S. climate Lamont-Doherty Earth Observatory, Columbia University
Sep. 26, 2014 Plattsburgh, NY	Anthropogenic aerosols and the dust bowl NYS Section of the American Physical Society (undergraduate Evan Cazavilan)
Sep. 26, 2014 Plattsburgh, NY	Speak for the trees: What can be learned from Champlain Valley tree core data New York State Section of the American Physical Society (undergraduate Ryan Revette)
March 27, 2012 Ithaca, NY	Connecting US air pollution to international air quality and climate change Department of Chemistry, Ithaca College
October 6, 2011 New York, NY	Interactions between air quality and climate SEAS Colloquium in Climate Science, Columbia University
Sep.12, 2011 Cambridge, MA	Climate effects of US anthropogenic aerosols Atmospheric Science Seminar Series, MIT
June 10, 2011 Cambridge, MA	Interactions between US air quality and climate Joint Program on the Science and Policy of Global Change, MIT
May 3, 2011 Cambridge, MA	Climate effects of US aerosol sources: aerosol trends, radiative forcing, and climate response 5th International GEOS-Chem Meeting, Harvard University
July 11, 2010 Halifax, NS	Climate response to 1950-2050 US aerosol trends ICACGP/IGAC
March 31, 2010 Princeton, NJ	Climate response to changing US aerosol sources NOAA GFDL
Feb. 12, 2010 New York, NY	Climate response to changing US aerosol sources NASA GISS
Dec. 19, 2008 San Francisco, CA	Regional climate response to US aerosol sources American Geophysical Union Fall Meeting
Feb. 21, 2007 Research Triangle Park, NC	Air quality degradation due to greenhouse warming decreasing the frequency of mid latitude cyclones EPA Workshop on Consequences of Global Change for Air Quality

Professional Activities

Academic Peer Reviewer

Journals Atmospheric Chemistry and Physics, Atmos. Environ., Climate Dynamics, Climate

Research, Climatic Change, Current Pollution Reports (editorial board), Environmental Research Letters, Environmental Science & Technology, Geo. Res. Lett., Journal of Climate, Journal of Geophysical Research - Atmosphere, Nature Geoscience, PNAS,

Scientific Reports

Grant Agencies NASA, NOAA, U.K. Natural Environment Research Council

Professional American Geophysical Union, American Meteorological Society (full member),

Memberships American Physical Society, Clinton County Environmental Health & Safety Professional

Advisory Committee

Outreach

Scientific Reviewer Raymond Johnson's climate change column in the Plattsburgh

2012 - present Press Republican

Presenter Falconer Lecture Series at Whiteface Mountain ASRC Lodge

2019 "Climate change in the Adirondacks: Observed change and emissions monitoring"

Presenter Lake Champlain Basin Program Executive Committee,

2019 "SUNY Plattsburgh data buoys and climate change in Lake Champlain"

Panelist Mountain Lake PBS Climate Change Forum (recorded and aired)

2019

2019

Media Expert North Country Public Radio (NPR), Glens Falls Post Star, and Adirondack Daily Enterprise

Presenter North Country Climate Reality Conference

2018 "Climate change in the Adirondacks" with undergraduate student Alexandria Elliot

Presenter Lake Champlain United Anglers meeting

2017 "Temperatures in Lake Champlain: Can climate research be of use to anglers?"

Judge Champlain Valley Regional Science Fair 2013-2017

Presenter Science@30City

2016 "Climate Change: What's Left to Argue?"

Presenter CEES Fridays in the Center Series

2016 "Climate Change is no April Fools' Joke"

Presenter SUNY Plattsburgh College Council "Overview of Lake Champlain Research"

Plattsburgh Rotary Club Presenter

2016 "Overview of Lake Champlain Research"

Panelist 2015

SUNY Plattsburgh Honors Center National Issues Forum on Climate Change

Co-organizer 2015

SUNY Plattsburgh's contribution to SUNY-wide forum on extreme weather and climate

change (included on-campus events open to public)

Scientific Reviewer Climate Literacy and Energy Awareness Network (CLEAN)

2013 - 2016

Co-organizer 2014

SUNY Plattsburgh 50th Anniversary of the Wilderness Act Celebration

Presenter Earth and Environmental Science Club Lecture Series

2014 "Air!"

Presenter Environmental Action Committee Earth Week

2013 "Super Storms!"

Northeast States for Coordinated Air Use Management Lecturer

"Short-lived climate forcers" 2012

Northeast States for Coordinated Air Use Management Lecturer

2012 "Short-lived climate forcers"

University Service

Chair Water Quality Faculty Search Committee

Fall 2019 - present

Member Feinberg Library Undergraduate Research Award Committee

Fall 2015 - present

Ph.D. Committee Ying Zhou (SUNY-ESF)

Fall 2015 - present

Associate Lake Champlain Research Institute

Fall 2012 - present

Chair Soil Science Faculty Search Committee

Fall 2017 - Spring 2019

Faculty Senator SUNY Plattsburgh

Fall 2015 - Spring 2019

Water Quality Modeling, Geology, Soil Science Faculty Search Committee (3 positions) Chair

Spring 2017

Member Aquatic and Terrestrial Ecologist Faculty Search Committee

Fall 2016 - Spring 2017

Member CEES Curriculum Committee

Fall 2012 - Spring 2017

Member Wetland/Forest Ecologist Faculty Search Committee

Spring 2016

CEES Rep. Freshman Orientation

Summer 2015; 2016

Panelist Honors Center National Issues Forum on Climate Change

Spring 2015

Presenter, Museum Docents Meeting, Wilderness Act and the Adirondack Art Walk

Spring 2015

Co-organizer SUNY-wide extreme weather and climate change forum

Fall 2014 - Spring 2015

Co-planner New York State Section of the American Physical Society Topical Meeting

Summer 2014

Co-organizer SUNY Plattsburgh 50th Anniversary of the Wilderness Act Celebration

Summer 2014

Co-developer Environmental Physical Science major

Spring - Fall 2014)

Member, Center for Earth and Environmental Science Director Nomination Committee

Fall 2013

Participant SUNY Distance Mentored Undergraduate Research

Fall 2012 - Spring 2013

Member Forest/Field Ecologist Faculty Search Committee

Fall 2012 - Spring 2013