Eric M. Leibensperger — Curriculum Vitae

Massachusetts Institute of Technology
Department of Earth, Atmospheric and Planetary Sciences
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Education

Ph.D. in Applied Physics, School of Engineering and Applied Sciences, Harvard University, 2011
Thesis: Interaction of Air Quality and Climate: Consequences of US Emissions Controls
Advisor: Daniel J. Jacob

S.M. in Applied Physics, School of Engineering and Applied Sciences, Harvard University, 2007

B.A. (Magna Cum Laude) in Chemistry and Physics, Ithaca College, 2005

Teaching Experience

As a Head Teaching Fellow at Harvard University

Engineering Sciences 6—Environmental Science and Technology, Spring 2009

As a Teaching Fellow at Harvard University

Earth and Planetary Sciences 208—Physics of Climate, Fall 2008
Engineering Sciences 6—Environmental Science and Technology, Spring 2008
Earth and Planetary Sciences 133—Introduction to Atmospheric Chemistry, Fall 2007

As a Research Co-Mentor at Harvard University

Summer Undergraduate Research Student, Summer 2008
Research Experience for Undergraduates, Summer 2007

As a Special Lecturer

The Science of Short-Lived Climate Forcers—Northeast States Coordinated Air Use Management (training course for state air quality and climate planning staff)

As a Teaching Assistant at Ithaca College

Chemistry 332—Physical Chemistry II, Spring 2005
Physics 102—Introduction to Physics II, Spring 2005
Physics 101—Introduction to Physics I, Fall 2004
Chemistry 124—Experimental Chemistry I, Spring 2004
Chemistry 122—Principles of Chemistry II, Spring 2004
Chemistry 121—Principles of Chemistry I, Fall 2003
Chemistry 225—Experimental Chemistry II, Fall 2003
Mathematics 105—Math for Decision Making, Spring 2002–Spring 2005
Mathematics 111—Calculus I, Spring 2002–Spring 2004

Research Experience

Postdoctoral Researcher, Massachusetts Institute of Technology, Spring 2011–present
Research Topic: Stratospheric transport and dynamics
Advisor: R. Alan Plumb

Curriculum Vitae Eric M. Leibensperger

Research Experience continued

Graduate Research Assistant, Harvard University, Fall 2005–Spring 2011
Research Topic: Atmospheric chemistry and climate
Advisor: Daniel J. Jacob

Research Assistant, Ithaca College, Summer 2005
Research Topic: Photometric modeling of asteroid Eros 443
Advisor: Beth Clark

Dana Intern/Undergraduate Research, Ithaca College, Summer 2004
Research Topic: Composition of protostellar disks observed by the Spitzer Space Telescope
Advisor: Luke Keller

Lewis' Education and Research Collaborative Intern, NASA Glenn Research Center, Summer 2003
Research Topic: Synthesis of polyacenes through photoenolization
Advisor: Michael A. Meador

Grants, Honors, and Awards

US Environmental Protection Agency Science to Achieve Results (EPA-STAR)
Graduate Research Fellowship, 2008–2011

Harvard University Certificate of Distinction in Teaching, 2008

Sigma Xi (Scientific Research Society), Spring 2005

Dana Internship Award at Ithaca College, Summer 2004

Sigma Pi Sigma (Physics Honor Society), Spring 2004

Ithaca College First Year Award in Mathematics, Spring 2002

Grimley Trust Scholarship, 2001-2005

Ithaca College Dean's Scholarship, 2001-2005

Professional Activities

Academic Peer Reviewer
Journals: Atmospheric Chemistry and Physics, Atmospheric Environment, Climate Dynamics, Climatic Change, Geophysical Research Letters, Journal of Geophysical Research - Atmospheres
Grant Agencies: U.K. Natural Environment Research Council

Professional Memberships: American Geophysical Union, American Meteorological Society

Curriculum Vitae Eric M. Leibensperger

Publications

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, and J. A. Fisher (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 NO_x 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.

Curriculum Vitae Eric M. Leibensperger

Publications continued

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

Connecting US air pollution to international air quality and climate change (oral)
Ithaca College Chemistry Seminar: March 27, 2012

Atmospheric composition and climate change (oral)
SUNY Plattsburgh Center for Earth and Environmental Science: February 29, 2012

Interactions between air quality and climate (oral)
Columbia University SEAS Colloquium in Climate Science: October 6, 2011

Climate effects of US anthropogenic aerosols (oral)
MIT Atmospheric Science Seminar Series: September 12, 2011

Interactions between US air quality and climate (oral)
MIT Joint Program on the Science and Policy of Global Change: June 10, 2011

Interactions between air pollution and climate: The unintended consequences of cleaning our air (oral)
Ithaca College Physics Banquet: May 5, 2011

Climate effects of US aerosol sources: aerosol trends, radiative forcing, and climate response (oral)
5th International GEOS-Chem Meeting, Harvard University: May 3, 2011

Select Presentations continued

Intercontinental influence of NO_x and CO emissions on particulate matter air quality (poster)
5th International GEOS-Chem Meeting, Harvard University: May 2, 2011

Recent and projected climate consequences of improving US air quality (oral)
EPS Graduate Student and Postdoc Seminar, Harvard University: March 24, 2011

Climate response to 1950-2050 US aerosol trends (poster)
American Geophysical Union Fall Meeting, San Francisco, CA: December 17, 2010.

The science of short-lived climate forcers (oral)
Northeast States for Coordinated Air Use Management, Boston, MA: September 22, 2010.

Climate response to 1950-2050 US aerosol trends (poster)
International Commission on Atmospheric Chemistry and Global Pollution (CACGP)/International Global Atmospheric Chemistry Conference (IGAC), Halifax, NS, Canada: July 11, 2010

Climate response to changing United States aerosol sources (oral)
NOAA GFDL, Princeton, NJ: March 31, 2010

Climate response to changing United States aerosol sources (oral)
NASA GISS, New York, NY: February 12, 2010

Climate response to changing United States aerosol sources: historical and projected aerosol burdens using GEOS-Chem (oral)
GEOS-Chem Scientific and Users' Meeting, Cambridge, MA: April 7, 2009

Regional climate response to US aerosol sources (oral)
American Geophysical Union Fall Meeting, San Francisco, CA: December 19, 2008

Sensitivity of US air quality to mid-latitude cyclone frequency and implications of 1980-2006 climate change (poster)
American Geophysical Union Fall Meeting, San Francisco, CA: December 19, 2008

Trends in mid-latitude cyclone frequency and their effect on air quality (oral)
Global Change and Air Pollution Phase 2 Kick-off Meeting, Harvard University: October 12, 2007

Air quality degradation due to greenhouse warming decreasing the frequency of mid-latitude cyclones (poster)
GEOS-Chem Users' Meeting, Harvard University: April 11, 2007

Air quality degradation due to greenhouse warming decreasing the frequency of mid-latitude cyclones (poster)
EPA Workshop on Consequences of Global Change for Air Quality,
Research Triangle Park, NC: February 21, 2007

Probing the physical characteristics of young-planet-forming stars using emissions from complex molecules (oral)
James J. Whalen Academic Symposium, Ithaca College, March 2005

Mid-infrared spectra of PAH emission in Herbig Ae/Be stars (poster)
Aspen Center for Physics Winter Conference on Astrophysics, Aspen, CO: February 6-12, 2005