

**ALEXANDRA KARAMBELAS**  
The Earth Institute  
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### Current Position

**Columbia University**, New York, NY  
Post-Doctoral Research Fellow, The Earth Institute (2016-present)

### Education

**University of Wisconsin—Madison (UW-Madison)**, Madison, WI  
Ph.D., Environment and Resources, Certificate in Energy Analysis and Policy (2014-16)  
M.S., Atmospheric and Oceanic Sciences (2012-13)  
B.S., Atmospheric and Oceanic Sciences, Certificate in Environmental Studies (2008-12)  
All degrees advised by Prof. Tracey Holloway

### Research Experience

**Columbia University Earth Institute**, New York, NY  
*Post-Doctoral Research Fellow (2016-Present)*  
Using regional models to pursue research at the intersection of land use, air quality and human health in India

**UW-Madison Nelson Institute Center for Sustainability and the Global Environment (SAGE)**, Madison, WI  
*Graduate Research Assistant (2012-2016)*

Using CMAQ to model air quality contributions from energy-sector and biogenic emissions in the U.S. and India, using *in situ* and remote sensing observations to assess air quality conditions

*Project Coordinator (2013)*

Coordinate the development of a publicly accessible data visualization webpage

*Project Assistant (2012)*

Analyzed modeled foreign inflow of ozone and ozone precursors in accordance with the United Nations Task Force on Hemispheric Transport of Air Pollution (TF HTAP)

*Undergraduate Researcher (2011)*

Gained working knowledge of MATLAB, NCL, measurement data, and model data while assisting with a variety of air-quality projects

**Air Pollution and Greenhouse Gases Program (AIR), International Institute for Applied Systems Analysis (IIASA)**, Laxenburg, Austria

*Young Scientist Summer Program (2015)*

Evaluated the impact of future (2030) emission scenarios including reduced energy sector emissions on fine particulate matter air quality in India

**U.S. EPA Office of Research and Development (ORD)**, Research Triangle Park, NC

*Oak Ridge Institute for Science and Education Fellowship (2013)*

Performed preliminary analysis for the Southeast Oxidant and Aerosol Study campaign investigating the link between anthropogenic emissions and biogenic aerosol formation

### Teaching Experience

**Columbia University**, New York, NY  
*Guest Lecturer, Introduction to Atmospheric Chemistry (March 2017)*  
*Mentor for senior undergraduate thesis (2016-2017)*

**UW-Madison Nelson Institute for Environmental Studies**, Madison, WI  
*Teaching Assistant, Introduction to Sustainability Science (Spring 2014)*  
Teaching Assistant for an undergraduate-level introduction to sustainability course. Tasks included grading assignments and working individually with students

Teaching Experience (continued)**UW-Madison Division of Intercollegiate Athletics, Madison, WI***Academic Tutor (2012-2016)*

Tutor student athletes in algebra, trigonometry, calculus, chemistry, physics, and atmospheric science courses

Publications**Karambelas, A.**, T.Holloway, A. Fiore, P. Kinney, R. DeFries (*in preparation*). Using high-resolution emissions to better quantify health impacts associated with PM<sub>2.5</sub> in India.**Karambelas, A.**, T. Holloway, G. Kieseewetter, C. Heyes (*revise and resubmit*). Constraining the uncertainty in emissions over India with a regional model evaluation. *Atmospheric Environment***Karambelas, A.**, E. Bickford (*in review*). Truck-to-rail Freight Transportation Impacts on Ambient Air Quality. *Frontiers for Young Minds*.Yeo, S.K., Z.J. Handlos, **A. Karambelas**, K.S. Griffin, L.Y.-F. Su, D. Brossard (2017). The influence of weather on Twitter discourse of #climatechange and #globalwarming. *Journal of Science Communication*.**Karambelas, A.**, H. O. T. Pye, S. H. Budisulistiorini, J. D. Surratt, R. W. Pinder (2014). Isoprene epoxydiol contribution to urban aerosol: evidence from modeling and measurements. *Environ. Science & Tech. Letters*.Bickford, E., T. Holloway, **A. Karambelas**, M. Johnston, T. Adams, M. Janssen, and C. Moberg (2014). Emissions and air quality impacts of truck-to-rail freight modal shifts in the Midwestern U.S. *Envir. Sci. & Tech.*Awards and Funding

Columbia University Center for Global Energy Policy Faculty Grant, 2017-18 (\$12,000)

Wisconsin Space Grant Consortium Dr. Laurel Salton Clark Memorial Research Fellowship, Fall 2015 (\$5,000)

University of Wisconsin—Madison, Atmospheric, Oceanic, and Space Sciences Poster Reception Best Graduate Student Poster Award, April 2014.

Workshops

American Meteorological Society Summer Policy Colloquium. Attended Summer 2017. Washington, D.C. Awarded registration funding.

National Center for Atmospheric Research Advanced Study Program Summer Colloquium on *Advances in Air Quality Analysis and Prediction: The Interaction of Science and Policy*. Attended Summer 2016. Boulder, CO. Awarded full funding.National Association of Geoscience Teachers Earth Educators' Rendezvous *Preparing for an Academic Career Workshop*. Attended July 2016. Madison, WI. Awarded registration funding.

Denice Denton Emerging Leaders Workshop. Attended June 2016. Madison, WI. Awarded registration funding.

Posters & PresentationsNew York City Metro Area Energy & Air Quality Data Gaps Workshop, poster: *Anthropogenic Sectoral Contributions to Poor Air Quality Days*. Presented May 2017. Palisades, NY.American Meteorological Society (AMS) Annual Meeting, oral presentation: *Air Quality Modeling and Satellite Observations to Assess Pollution in India*. Presented January 2017. Seattle, WA.American Geophysical Union (AGU) Annual Fall Meeting, poster: *Resolving urban-rural variations in air quality over northern India with a high-resolution emissions inventory*. Presented Dec., 2016. San Francisco, CA.Wisconsin Space Conference, oral presentation: *Urban Emissions and Air Quality Impacts in India*. Presented August, 2016. Superior, WI. Invited.

### Posters & Presentations (continued)

AGU Annual Fall Meeting, poster: *Energy Sector Emissions Impacts on PM<sub>2.5</sub> Air Quality in India*. Presented December, 2015. San Francisco, CA.

Wisconsin Alumni Research Foundation, poster: *Energy Sector Contributions to PM<sub>2.5</sub> and O<sub>3</sub> During Pollution Events*. Presented April 2015. Madison, WI.

UW-Madison Nelson Institute Graduate Student Brownbag Seminar, presentation: *Simulated Contribution of Anthropogenic Emissions to PM<sub>2.5</sub> and O<sub>3</sub> Concentrations*. Presented November 2014. Madison, WI.

Gordon Research Conference on Biogenic Hydrocarbons in the Atmosphere, poster: *Biogenic Influence on PM<sub>2.5</sub> Concentrations in the U.S.* Presented July 2014. Girona, Spain.

UW-Madison Atmospheric, Oceanic, and Space Sciences Poster Reception, poster: *Emission Sector Contributions to Poor Air Quality Days*. Presented April 2014 (also presented 2013, 2015). Madison, WI.

UW-Madison Atmospheric and Oceanic Sciences Dept. Seminar, oral presentation: *Simulated Response in Aerosol Production from Interactions of Biogenic and Anthropogenic Precursors*. Presented Nov. 2013. Madison, WI.

AMS Annual Meeting, poster: *Quantifying the Impact of Emissions Sectors to U.S. Air Quality*. Presented January 2013. Austin, TX.

AGU Annual Fall Meeting, poster: *Quantifying the Impact of Emissions Sectors to U.S. Air Quality*. Presented December 2012. San Francisco, CA.

NASA Air Quality Applied Sciences Team (AQA) Meeting, poster: *CMAQ Boundary Conditions and Ozone Concentrations in the U.S.* Presented June 2012. Madison, WI

### Volunteer Science Outreach

Mentoring research students including assisting undergraduates on senior theses and M.S. students with learning NCL and the Wisconsin Horizontal Interpolation Program for Satellites (WHIPS)

Graduate Student Representative for UW-Madison Energy Analysis and Policy Program Managed Nelson Institute undergraduate mentoring, graduate student seminar programs (2015-2016)

Workshop Presenter at Girls Science Day teaching attendees about the nitrogen cycle (Columbia University, November 2016)

Workshop Presenter at Wisconsin Science Festival teaching attendees about energy, air quality, and health (UW-Madison, October 2015)

Facilitator for UW-Madison Atmospheric and Oceanic Sciences Graduate Student Association (2013-2014)

Workshop Presenter at Martin Luther King Jr. Youth Service Day, Madison, WI Performed experiments to teach middle school students about cloud formation (January 2014)

Workshop Presenter at Expanding Your Horizons, Madison, WI Co-led air quality presentation and interactive activity for middle school-aged girls (November 2012)

Student Officer for UW-Madison American Meteorological Society Chapter (2010-2012)

### Affiliations & Skills

American Geophysical Union, American Meteorological Society, National Association of Geoscience Teachers

GEOS-Chem, CMAQ, MEGAN, WRF, MCIP, WRF-Chem, GAINS, NCAR Command Language (NCL), MATLAB, Python, ArcGIS, ArcMap, LaTeX, GEMPAK