

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

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

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

Publications

Karambelas, A., T. Holloway, E. Bickford, M. Janssen (*in preparation*). Evaluating freight activity and NO₂ emissions with OMI satellite observations.

Karambelas, A., T. Holloway, G. Kieseewetter, C. Heyes, W. Shoepf, M. Amann (*in preparation*). Modeling Seasonal Pollution in India with CMAQ.

Harkey, M., T. Holloway, **A. Karambelas**, V. Limaye, J. Patz (*in review*). Impacts of climate change on secondary organic aerosols from biogenic sources. *Journal of Geophysical Research Atmospheres*.

Yeo, S.K., Z.J. Handlos, **A. Karambelas**, K.S. Griffin, L.Y.-F. Su, D. Brossard (Under review). The influence of weather on Twitter discourse of #climatechange and #globalwarming. *Climatic Change*.

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

Wisconsin Space Grant Consortium Dr. Laurel Salton Clark Memorial Research Fellowship, Fall 2015 (\$5000)

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

Workshops

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 & Presentations

Wisconsin Space Conference, invited presentation: *Urban Emissions and Air Quality Impacts in India*. Presented August, 2016. Superior, WI.

American Geophysical Union (AGU) Annual Fall Meeting, poster: *Energy Sector Emissions Impacts on PM_{2.5} Air Quality in India*. Presented December, 2015. San Francisco, CA.

Wisconsin Alumni Research Foundation, poster: *Energy Sector Contributions to PM_{2.5} and O₃ During Pollution Events*. Presented April 2015. Madison, WI.

UW-Madison Nelson Institute Graduate Student Brownbag Seminar, presentation: *Simulated Contribution of Anthropogenic Emissions to PM_{2.5} and O₃ Concentrations*. Presented November 2014. Madison, WI.

Gordon Research Conference on Biogenic Hydrocarbons in the Atmosphere, poster: *Biogenic Influence on PM_{2.5} 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, presentation: *Simulated Response in Aerosol Production from Interactions of Biogenic and Anthropogenic Precursors*. Presented Nov. 2013. Madison, WI.

Posters & Presentations (continued)

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

American Geophysical Union (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 (AQAST) 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 and M.S. students with writing, learning NCL and the Wisconsin Horizontal Interpolation Program for Satellites (WHIPS), and answering research questions

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 Wisconsin Science Festival teaching attendees about energy, air quality, and health (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

EPA Community Multi-scale Air Quality (CMAQ) Model, Model of Emissions of Gases and Aerosols in Nature (MEGAN), Weather Research and Forecasting (WRF) Model, Meteorology-Chemistry Interface Processor (MCIP), WRF-Chem, Greenhouse Gas-Air Pollution Interaction and Synergies (GAINS) Model, NCAR Command Language (NCL), MATLAB, Python, ArcGIS, ArcMap, LaTeX, GEMPAK