

## ANASTASIA (STACY) MONTGOMERY

Dept. of Earth and Planetary Sciences, Northwestern University  
2145 Sheridan Rd, Evanston, IL 60208  
(847) 481-8180 • stacy@earth.northwestern.edu

### ABOUT

My PhD research integrates satellite, model, and ground-based data to create neighborhood scale maps of air quality that can be used to identify meteorological and anthropogenic drivers of pollutant hotspots. I am also developing a low-cost, offline optical NO<sub>2</sub> gas sensor using UV LEDs to improve low cost sensor technology.

### EDUCATION

#### **Northwestern University (2018 - Present)**

*Degree:* PhD, Earth and Planetary Sciences

#### **University of Wisconsin-Madison (2014 – 2018)**

*Degree:* BS, Civil & Environmental Engineering

*Graduation:* May 2018

### RESEARCH EXPERIENCE

#### **Climate Change Research Group (September 2018 – Present)**

*Position:* PhD Student Researcher for Dr. Daniel Horton

*Fellowships:* The NSF Integrated Data-Driven Discovery in Research (IDEAS) Fellowship, 2019-2020

*Scholarships:* Air & Wastewater Management (AWMA) Rothblatt Scholarship, 2019

*Projects:* Primary project: integrating satellite observations, sensor measurements, and model simulations of air quality to explore urban air quality, focusing on the interaction of climate, design, and policy. Secondary project: developing an offline, optical gas sensor using UV-LEDs with Dr. Patricia Beddows.

*Certificates:* Certificate for the Sparse Matrix Operator Kernel Emissions (SMOKE) Modeling System by CMAS (May 2019); Certificate in Research Communication (Aug. 2018); Certificate in Integrated Data Science (in progress)

*Extracurricular Focus:* Policy and scientific communication.

#### **Center for Sustainability and the Global Environment (September 2016 – August 2018)**

*Position:* Research Intern

*Projects:* Using OMI satellite data to explore urban air quality, using emissions inventories and Community Multiscale Air Quality (CMAQ) model to confirm trends in satellite-derived trends in NO<sub>2</sub>, using satellite data to derive urban heat island effects and observe changes in urban land cover.

#### **UW-Hospital Department of Surgery and Urology (March 2015 – September 2016)**

*Position:* Undergraduate research assistant, assistant lab manager

*Projects:* Experiments in epigenetics, culturing cells and isolating DNA, collecting and experimenting on tissue and cells, general chemistry bench work, using R and Excel to analyze genetic data from hospital patients.

### PUBLISHED WORK

**Anastasia Montgomery**, Tracey Holloway (2018). Assessing the Relationship between Satellite-Derived NO<sub>2</sub> and Economic Growth over the 100 Most Populous Global Cities. *Journal of Applied Remote Sensing*. 12(4), 042607(2018), doi: 10.1117/1.JRS.12.042607

## PRESENTATIONS, WORKSHOPS, CONFERENCES

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### ***Presentations***

- Climate, People, & Environment Program (CPEP) Seminar at UW-Madison (Feb. 2018) on “NO<sub>x</sub> Trends and Economic Development over Global Cities”
- Sloss Talk (Sept. 2019) on “A Multiplatform Analysis of Urban Air Quality in Chicago”

### ***Posters***

- Bryson Poster Contest (Apr. 2017) on “Quantifying Vehicle NO<sub>x</sub> Emissions in Delhi Metropolitan Region”
- NASA Health & Air Quality Applied Sciences Meeting at Columbia University (Nov. 2017) on “NO<sub>x</sub> Emissions & Satellite- Derived NO<sub>2</sub> over 100 Most Populous Global Cities”
- NASA Health & Air Quality Applied Sciences Meeting at University of Wisconsin-Madison (Jul. 2018) on “Relating Social Metrics to NO<sub>2</sub> over Urban Areas”
- American Geophysical Union (Dec. 2019) “A Multiplatform Analysis of Chicago Air Quality”

### ***Workshops and Certificates***

- Certificate for the Sparse Matrix Operator Kernel Emissions (SMOKE) Modeling System by Community Modeling and Analysis System (CMAS), May 2019
- Union of Concerned Scientists (UCS) Science Advocacy and Midwest Energy Policy Summit Workshop, June 2019
- Sustainable Urban Systems: Predictive, Interconnected, Resilient and Evolving (SUSPIRE) Workshop, July 2019
- Project Judge for Design for America’s (DSA) Summit, August 2019
- American Geophysical Union Congressional Visits Day (GeoCVD), September 2019

## EDUCATIONAL ACTIVITIES

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### ***Science Policy Outreach Task Force (September 2018 – present)***

*Description:* Performing outreach activities for senior citizens in Evanston, including giving lectures on “The Science of Climate Change” and “How Cities Can Prepare for Climate Change.” Duties also include writing one-pagers for legislators in the Chicago area on air quality.

### ***Environmental Engineering Club (January 2016 – July 2018)***

*Position:* Board member, co-founder.

*Description:* Started the Environmental Engineering Club at UW-Madison. Duties include contacting organizations for speakers, organizing speakers & events, & keeping students updated with activities.

### ***The Wisconsin Engineer Magazine (September 2014 – June 2018)***

*Position:* Editor and writer for a quarterly magazine on subjects in engineering and science.

*Skills:* Writing essays for publication, interviewing, conducting research, finding article subjects and interviewees, meeting publication deadlines, reviewing other student’s paper for publication, pitching and assigning stories, general magazine management.

*Awards:* “The Rock” (May 2018) for dedication, quality, and initiative in management and in editing the magazine; Edward M. Kurtz Scholarship for excellence in journalism (June 2015); Writer Staff Award (December 2014) for outstanding writing, initiative, and substantial commitment to the magazine.