



Christopher W. Callahan

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Program in Ecology, Evolution, Environment, and Society
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RESEARCH INTERESTS

Climate change effects on socioeconomic well-being | climate econometrics | detection and attribution | internal variability and large ensemble modeling | air quality and air pollution

EDUCATION

Dartmouth College	Hanover, NH
Ph.D., Ecology, Evolution, Environment, and Society (in progress)	2018 – Present
NSF Graduate Research Fellow	
Advisor: Justin Mankin	

Northwestern University	Evanston, IL
B.A., Environmental Science, with honors	2014 – 2018

PUBLICATIONS

4. **Callahan, C.W.**, Chen, C., Rugenstein, M., Bloch-Johnson, J., Yang, S., & Moyer, E.J. (2021) “Robust decrease in El Niño/Southern Oscillation amplitude under long-term warming.” *Nature Climate Change*, 10.1038/s41558-021-01099-2
3. Erbaugh, J.T., **Callahan, C.W.**, Finger Higgins, R., DeSiervo, M., Bolger, D.T., Cox, M., Howarth, R.B. (2021) “Sociotechnical stability and equilibrium.” *Current Opinion in Environmental Sustainability*, 10.1016/j.cosust.2021.01.003
2. **Callahan, C.W.** & Mankin, J.S. (2020) “The influence of internal climate variability on projections of synoptically driven Beijing haze.” *Geophysical Research Letters*, 10.1029/2020GL088548
1. **Callahan, C.W.**, Schnell, J.L., & Horton, D.E. (2019) “Multi-index attribution of extreme winter air quality in Beijing, China.” *Journal of Geophysical Research: Atmospheres*, 10.1029/2018JD029738

MANUSCRIPTS IN PROGRESS

1. **Callahan, C.W.** & Mankin, J.S. (In review) “National-scale attribution of both climate damages and mitigation indemnities.”

WORKING PAPERS AND PREPRINTS

1. **Callahan, C.W.** & Mankin, J.S. (2021) “Temperature variability and extremes *both* affect economic growth.” *EarthArXiv preprint*, 10.31223/X57G8F

PRESENTATIONS

First-author presentations only

10. **Callahan, C.W.** & Mankin, J.S. (2021) “Persistent effects of El Niño on economic growth in present and future climates.” AGU Fall Meeting (*upcoming*)

9. **Callahan, C.W.** & Mankin, J.S. (2021) “El Niño variability mediates 21st century growth effects of climate change.” SMILE large ensemble webinar series (Oral)
8. **Callahan, C.W.** & Mankin, J.S. (2021) “El Niño variability mediates 21st century growth effects of climate change.” EGU General Assembly (vPICO, *virtual*)
7. **Callahan, C.W.** & Mankin, J.S. (2020) “National attribution of climate damages under Earth system uncertainty.” AGU Fall Meeting (eLightning, *virtual*)
6. **Callahan, C.W.** & Mankin, J.S. (2020) “On the use of large ensembles for studying climate and air quality.” AMS Annual Meeting (Oral)
5. **Callahan, C.W.** & Mankin, J.S. (2019) “National attribution of climate damages under deep uncertainty.” AGU Fall Meeting (Poster)
4. **Callahan, C.W.** & Mankin, J.S. (2019) “The influence of internal variability on synoptically driven Beijing haze.” US CLIVAR Large Ensembles Workshop (Oral)
3. **Callahan, C.W.** & Mankin, J.S. (2018) “Linkages between synoptic circulation and poor air quality in Beijing.” AGU Fall Meeting (Poster)
2. **Callahan, C.W.**, Diffenbaugh, N.S., & Horton, D.E. (2018) “Multi-index attribution of Beijing’s 2013 Airpocalypse.” Northwestern Computational Research Day (Poster)
1. **Callahan, C.W.**, Diffenbaugh, N.S., & Horton, D.E. (2017) “Multi-index attribution of Beijing’s 2013 Airpocalypse.” AGU Fall Meeting (Poster)

GRANTS AND FUNDING

NSF Graduate Research Fellowship (\$102,000)	2020 – 2023
Department of Education GAANN Fellowship (\$34,000)	2018 – 2019

HONORS AND AWARDS

Outstanding Graduate Student Teacher (nominated by undergraduate)	2021
Best Senior Thesis, Northwestern Program in Environmental Sciences	2018
Northwestern Conference Travel Grant	2017
AGU Fall Meeting Student Travel Grant	2017
National Merit Scholarship	2014 – 2018
National Champion in Policy Debate, National Speech and Debate Tournament	2014

TEACHING

Teaching Assistant, BIOL 16: Ecology	Spring 2020 (<i>virtual</i>), Fall 2018
Professor: Caitlin Hicks Pries	
Teaching Assistant, ENVS 12: Energy and the Environment	Winter 2020
Professor: Elizabeth Wilson	
Teaching Assistant, ENVS 15: Environmental Issues of the Earth’s Cold Regions	Spring 2019
Professor: Ross Virginia	

PROFESSIONAL DEVELOPMENT

Community Terrestrial Systems Model tutorial, hosted by the National Center for Atmospheric Research. 2019

“Lessons in Professional Conduct at Field Sites,” workshop led by Katie Hinde and Robin Nelson, hosted by Dartmouth College. 2018

SERVICE

Student representative to EEES Curriculum Committee 2019 – 2020

Peer review for: *Atmospheric Chemistry and Physics, Environmental Modelling and Software*

OTHER SKILLS

Computing skills: Python/Jupyter, R, Julia, NCL, MATLAB, L^AT_EX, Unix/bash

PROFESSIONAL ORGANIZATIONS

European Geophysical Union 2021 – Present

American Geophysical Union 2017 – Present