Christopher W. Callahan

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Research Interests

Climate change effects on socioeconomic well-being; detection and attribution of extreme climate events; climate econometrics; 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 – 2023
NSF Graduate Research Fellow
Advisor: Justin Mankin

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

Publications

3. Erbaugh, J.T., **Callahan, C.W.**, Finger Higgens, R., DeSiervo, M., Bolger, D.T., Cox, M., Howarth, R.B. (In press) "Sociotechnical equilibrium and transitions." *Current Opinion in Environmental Sustainability*

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

2. **Callahan, C.W.** & Mankin, J.S. (Submitted) "National-scale attribution of both climate damages and mitigation indemnities." *Science Advances*

1. **Callahan, C.W.**, Chen, C., Rugenstein, M., Bloch-Johnson, J., Yang, S., & Moyer, E.J. (In review) "Robust decrease in ENSO amplitude under long-term warming." *Nature Climate Change*

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

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)

Awards, Grants, & Fellowships

NSF Graduate Research Fellowship	2020 – 2023
Department of Education GAANN Fellowship	2018 – 2019
Best Senior Thesis, Northwestern Program in Environmental Sciences	2018
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 (*virtual*), 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: *Environmental Modelling and Software*

Other Skills

Computing skills: Python/Jupyter, R, Julia, NCL, MATLAB, LaTeX, Unix/bash

Professional Organizations

European Geophysical Union 2021 – Present
American Geophysical Union 2017 – Present