Christopher W. Callahan

Dartmouth College
Program in Ecology, Evolution, Environment, and Society
Department of Geography

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Research Interests

Climate change effects on socioeconomic well-being | climate econometrics | detection and attribution | internal variability and large ensemble modeling | loss and damage

Education

Dartmouth College — Hanover, NH
Ph.D., Ecology, Evolution, Environment, and Society — 2018 – 2023 (*expected*)
NSF Graduate Research Fellow

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

Publications

7. **Callahan, C.W.**, Dominy, N.J., DeSilva, J.M., & Mankin, J.S. (Forthcoming) "Global warming, home runs, and the future of America's pastime." *Bulletin of the American Meteorological Society*, 10.1175/BAMS-D-22-0235.1

6. **Callahan, C.W.** & Mankin, J.S. (2022) "Globally unequal effect of extreme heat on economic growth." *Science Advances*, 10.1126/sciadv.add3726

5. **Callahan, C.W.** & Mankin, J.S. (2022) "National attribution of historical climate damages." *Climatic Change*, 10.1007/s10584-022-03387-y

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 Higgens, 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

2. **Callahan, C.W.** & Mankin, J.S. (In review) "Persistent effect of El Niño on global economic growth." EarthArXiv preprint: https://doi.org/10.31223/X5NM1W

1. **Callahan, C.W.** & Mankin, J.S. (Submitted) "Climate mitigation eliminates the warming penalty to adaptation."

Other Writing

1. Mankin, J.S. & **Callahan, C.W.** "The scientific case for climate liability and loss and damage claims." *Lawfare*, 14 November 2022

Invited Talks

3. Irving Institute New Energy Series, Dartmouth College, virtual, January 2023 (*upcoming*)

2. Geospatial Day, Dartmouth College, Hanover, NH, October 2022

1. Potsdam Institute for Climate Impact Research RD4 seminar, Potsdam, Germany, September 2022

Contributed Presentations

12. **Callahan, C.W.** & Mankin, J.S. (2022) "The social cost of intensified extreme heat." AGU Fall Meeting

11. **Callahan, C.W.** & Mankin, J.S. (2022) "Internal variability shapes climate damage projections." The Workshop in Environmental Economics and Data Science (oral)

10. **Callahan, C.W.** & Mankin, J.S. (2021) "Persistent effects of El Niño on economic growth mediated by atmospheric teleconnections." AGU Fall Meeting (Poster)

9. **Callahan, C.W.** (2021) "Persistent effects of El Niño on economic growth in present and future climates." Graduate Climate Conference (Oral)

8. **Callahan, C.W.** & Mankin, J.S. (2021) "El Niño variability mediates 21st century growth effects of climate change." SMILE large ensemble webinar series (Oral)

7. **Callahan, C.W.** & Mankin, J.S. (2021) "El Niño variability mediates 21st century growth effects of climate change." EGU General Assembly (vPICO)

6. **Callahan, C.W.** & Mankin, J.S. (2020) "National attribution of climate damages under Earth system uncertainty." AGU Fall Meeting (eLightning)

5. **Callahan, C.W.** & Mankin, J.S. (2020) "On the use of large ensembles for studying climate and air quality." AMS Annual Meeting (Oral)

4. **Callahan, C.W.** & Mankin, J.S. (2019) "National attribution of climate damages under deep uncertainty." AGU Fall Meeting (Poster)

3. **Callahan, C.W.** & Mankin, J.S. (2019) "The influence of internal variability on synoptically driven Beijing haze." US CLIVAR Large Ensembles Workshop (Oral)

2. **Callahan, C.W.** & Mankin, J.S. (2018) "Linkages between synoptic circulation and poor air quality in Beijing." AGU Fall Meeting (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
Dartmouth External Course Award ($2,000) 2022
Department of Education GAANN Fellowship ($34,000) 2018 – 2019

Honors and Awards

Outstanding Graduate Student Teacher (nominated by undergraduate) 2021
NSF Graduate Research Fellow 2020
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, ENVS 55: Ecological Economics Spring 2022
Professor: Richard Howarth

Teaching Assistant, BIOL 16: Ecology Spring 2020, 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

Service

Peer review for: *Atmospheric Chemistry and Physics*, *Climatic Change*, *Earth's Future*, *Environmental Modelling and Software*, *Environmental Research Letters*

Organizing committee, Graduate Organized Laborers of Dartmouth (GOLD-UE) 2022 – 2023

Community Working Group member for Dartmouth sustainability master plan review 2023

Student representative to EEES Curriculum Committee 2022 – 2023, 2019 – 2020

Mentor to middle and high school science students, Dartmouth ManyMentors 2019 – 2021

Professional Development

Swiss Climate Summer School (theme: "Extreme weather and climate: from atmospheric processes to impacts on ecosystems and society"), Grindelwald, Switzerland 2022

Time Series Analysis, course in the ICPSR Summer Program in Quantitative Methods of Social Research, virtual 2022

Bayesian Modeling for the Social Sciences, course in the ICPSR Summer Program in Quantitative Methods of Social Research, virtual 2022

Community Terrestrial Systems Model tutorial, hosted by NCAR, Boulder, CO 2019

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

Miscellaneous

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

Media interviews and coverage of research (selected): Washington Post, Guardian, Associated Press, Reuters, Bloomberg, BBC, Nature, Carbon Brief, Lawfare, Yale Climate Connections

Assistant Debate Coach
- Dartmouth College 2020 – Present
- Northwestern University 2018 – 2020

Professional Society Member
- American Association of Geographers 2022 – Present
- American Geophysical Union 2017 – Present