



# Christopher W. Callahan

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Dartmouth College  
Program in Ecology, Evolution, Environment, and Society  
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## RESEARCH INTERESTS

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

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## EDUCATION

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**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

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## PUBLICATIONS

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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 Higgs, 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

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## MANUSCRIPTS IN PROGRESS

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

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## WORKING PAPERS AND PREPRINTS

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

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## PRESENTATIONS

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

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

#### HONORS AND AWARDS

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|   |             |
|---|-------------|
| 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

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

## PROFESSIONAL DEVELOPMENT

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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

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Student representative to EEES Curriculum Committee 2019 – 2020

Peer review for: *Environmental Modelling and Software*

## OTHER SKILLS

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Computing skills: Python/Jupyter, R, Julia, NCL, MATLAB, L<sup>A</sup>T<sub>E</sub>X, Unix/bash

## PROFESSIONAL ORGANIZATIONS

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European Geophysical Union 2021 – Present

American Geophysical Union 2017 – Present