Daniel Alexander Bishop

Lamont-Doherty Earth Observatory
Columbia University
61 Route 9W, Palisades, NY 10964
dbishop@ldeo.columbia.edu
danielabishop.github.io

EDUCATION

Columbia University, New York, NY
Ph.D. Candidate, Earth and Environmental Sciences — Exp. 2021
M.Phil., Earth and Environmental Sciences — 2020
M.A., Earth and Environmental Sciences — 2018
Advisor: Dr. A Park Williams
Thesis: Attributing the causes of a century of precipitation increases in the southeastern United States

SUNY College of Environmental Science and Forestry, Syracuse, NY
M.Sc., Forest and Natural Resources Management — 2013
Advisor: Dr. Colin M Beier
Thesis: Integrating effects of climate change and acidic deposition on Adirondack sugar maple (*Acer saccharum*) stands

Cornell University, Ithaca, NY
B.Sc., Atmospheric Science — 2010

RESEARCH

Research Activities: Hydroclimate, bioclimatology, remote sensing, global change, dendrochronology, terrestrial carbon sequestration, paleoclimatology.

Technical Skills: Matlab, R, Python, Jupyter, ArcGIS, git.

AWARDS

NASA Earth and Space Science Fellowship ($135,000) — 2017-2020
Columbia University Dean's Fellowship — 2016
Northeastern States Research Cooperative Grant ($10,000) — 2013

EXPERIENCE

Graduate Research Assistant — 2016-
Columbia University, New York, NY

Research Assistant — 2014-2016
Harvard Forest, Harvard University, Petersham, MA

Research Staff Assistant — 2014
Lamont-Doherty Earth Observatory, Palisades, NY

Graduate Research Project Assistant — 2011-2013
SUNY College of Environmental Science and Forestry, Syracuse, NY

REFEREED PUBLICATIONS

Publications In Progress

23. **Bishop DA**, Williams AP, Seager R, Bolles K, Cook ER, Peteet DM, Cook BI, Rao MP. *In preparation.* Placing the east-west United States aridity gradient in a millennial context.
22. **Bishop DA**, Williams AP, Seager R, Cook BI, Miller RL. *In preparation.* Quantifying the drivers of fall-season southeastern United States regional hydroclimate change.

21. Bolles K, Williams AP, Cook ER, Cook BI, **Bishop DA**. *In review.* Tree-ring reconstruction of the atmospheric ridging feature that causes flash drought in the central United States since 1490.

First Author Publications

20. **Bishop DA**, Williams AP, Seager R. 2019. Increased fall precipitation in the southeastern United States driven by higher-intensity, frontal precipitation. *Geophysical Research Letters* 46(14):8300-8309. https://doi.org/10.1029/2019GL083177

    Media Coverage: AGU, Phys.org.

19. **Bishop DA**, Williams AP, Seager R, Fiore AM, Cook BI, Mankin JS, Singh D, Smerdon JE, Rao MP. 2019. Investigating the causes of increased twentieth-century fall precipitation over the southeastern United States. *Journal of Climate* 32(2):575-590. https://doi.org/10.1175/JCLI-D-18-0244.1

18. **Bishop DA**, Beier CM, Pederson N, Lawrence GB, Stella JC, Sullivan TJ. 2015. Regional growth decline of sugar maple (*Acer saccharum*) and potential causes. *Ecosphere* 6: art179. https://doi.org/10.1890/ES15-00260.1

    Media Coverage: WAMC Northeast Public Radio, Inside Science, Smithsonian Magazine, Popular Science, Albany Times Union, Syracuse Post-Standard, Modern Farmer.

17. **Bishop DA**, Pederson N. 2015. Regional variation of transient precipitation and rainless-day frequency across a subcontinental hydroclimate gradient. *Journal of Extreme Events* 2(02):1550007. https://doi.org/10.1142/S2345737615500074

16. **Bishop DA**, Beier CM. 2013. Assessing uncertainty in high-resolution spatial climate data across the US Northeast. *PLoS ONE* 8(8):e70260. https://doi.org/10.1371/journal.pone.0070260

Co-Authored Publications

15. Rao MP, Cook ER, Cook BI, D'Arrigo RD, Palmer JG, Lall U, Woodhouse CA, Buckley BM, Uriarte M, **Bishop DA**, Jian J, Webster PJ. 2020. Seven centuries of reconstructed Brahmaputra River discharge demonstrate underestimated high discharge and flood hazard frequency. *Nature Communications* 11:6017. https://doi.org/10.1038/s41467-020-19795-6

14. Pederson N, Leland C, **Bishop DA**, Pearl J, Anchukaitis KJ, Mandra T, Hopton-Ahmed M, Martin-Benito D. 2020. A framework for determining population-level vulnerability to climate: evidence for growth hysteresis in *Chamaecyparis thyoides* along its contiguous latitudinal distribution. *Frontiers in Forests and Global Change* 3:39. https://doi.org/10.3389/ffgc.2020.00039

13. Dannenberg MP, Song C, Wise EK, Pederson N, **Bishop DA**. 2020. Delineating environmental stresses to primary production of U.S. forests from tree rings: Effects of climate seasonality, soil, and topography. *Journal of Geophysical Research: Biogeosciences* 125(2):e2019JG005499. https://doi.org/10.1029/2019JG005499

12. Williams AP, Abatzoglou JT, Gershunov A, Guzman-Morales J, **Bishop DA**, Balch JK, Lettenmaier DP. 2019. Observed impacts of anthropogenic climate change on wildfire in California. *Earth's Future* 7(8):892-910. https://doi.org/10.1029/2019EF001210

    Media Coverage: The Atlantic, CNN, CBS News, Washington Post.

11. Alexander MR, Pearl JK, **Bishop DA**, Cook ER, Anchukaitis KJ, Pederson N. 2019. The potential to strengthen temperature reconstructions in ecoregions with limited tree line using a multispecies approach. *Quaternary Research* 92(2):583-597. https://doi.org/10.1017/qua.2019.33

10. Dye A, Alexander MR, **Bishop DA**, Druckenbrod D, Pederson N, Hessl A. 2019. Size-growth asymmetry is not consistently related to productivity across an eastern US temperate forest network. *Oecologia* 189(2):515-528. https://doi.org/10.1007/s00442-018-4318-9

9. Trotsiuk V, Pederson N, Druckenbrod DL, Orwig DA, **Bishop DA**, Barker-Plotkin A, Fraver S, Martin-Benito D. 2018. Testing the efficacy of tree-ring methods for detecting past disturbances. *Forest Ecology and Management* 425:59-67. https://doi.org/10.1016/j.foreco.2018.05.045

8. D'Orangeville L, Maxwell J, Kneeshaw D, Pederson N, Duchesne L, Logan T, Houle D, Arseneault D, **Bishop DA**, Beier CM, Druckenbrod D, Fraver S, Girard F, Halman J, Hansen C, Hart JL, Hartmann H, Kaye M, Leblanc D, Manzoni S, Rayback S, Rollinson C, Phillips RP. 2018. Drought timing and local climate determine the sensitivity of eastern temperate forests to drought. *Global Change Biology* 24(6):2339-2351. https://doi.org/10.1111/gcb.14096

7. Leland C, Cook ER, Andreu-Hayles L, Pederson N, Hessl A, Anchukaitis A, Byambasuren O, Baatarbileg N, Davi N, D'Arrigo R, **Bishop DA**, Rao MP. 2018. Strip-bark morphology and radial growth trends in ancient Pinus sibirica trees from central Mongolia. *Journal of Geophysical Research: Biogeosciences* 123(3):945-959. https://doi.org/10.1002/2017JG004196

6. Williams AP, Cook BI, Smerdon JE, **Bishop DA**, Seager R, Mankin JS. 2017. The 2016 southeastern US drought: an extreme departure from centennial wetting and cooling. *Journal of Geophysical Research: Atmospheres* 122(20):10888-10905. https://doi.org/10.1002/2017JD027523

5. Montane F, Fox AM, Arellano AF, MacBean N, Alexander MR, Dye A, **Bishop DA**, Trouet V, Babst F, Hessl AE, Pederson N, Blanken PD, Bohrer G, Gough CM, Litvak ME, Novick KA, Phillips RP, Wood JD, Moore DJP. 2017. Evaluating the effect of alternative carbon allocation schemes in a land surface model on carbon fluxes, pools and turnover in temperate forests. *Geoscientific Model Development* 10(9):3499-3517. https://doi.org/10.5194/gmd-10-3499-2017

4. Rollinson CR, Liu Y, Raiho A, Moore DJ, McLachlan J, **Bishop DA**, Dye A, Matthes JH, Hessl A, Hickler T, Pederson N, Poulter B, Quaife T, Schaefer K, Steinkamp J, Dietze MC. 2017. Emergent climate and CO2 sensitivities of net primary productivity in ecosystem models do not agree with empirical data. *Global Change Biology* 23(7):2755-2767. https://doi.org/10.1111/gcb.13626

3. Dye A, Barker-Plotkin A, **Bishop DA**, Pederson N, Poulter B, Hessl AE. 2016. Comparing tree-ring and permanent plot estimates of aboveground net primary production in three eastern U.S. forests. *Ecosphere* 7(9):e01454. https://doi.org/10.1002/ecs2.1454

2. Tipton J, Hooten MB, Tingley M, Pederson N, **Bishop DA**. 2016. Reconstruction of late Holocene climate based on tree growth and mechanistic hierarchical models. *Environmetrics* 27(1):42-54. https://doi.org/10.1002/env.2368

1. Sullivan TJ, Lawrence GB, Bailey SW, McDonnell TC, Beier CM, Weathers KC, McPherson GT, **Bishop DA**. 2013. Effects of acidic deposition and soil acidification on sugar maple trees in the Adirondack Mountains, New York. *Environmental Science & Technology* 47(22):12687-12694. https://doi.org/10.1021/es401864w

PRESENTATIONS (* = talk)

1. *** Bishop DA**, Williams AP, Seager R, Bolles K, Cook ER, Peteet DM, Cook BI, Rao MP. December 2020. Placing the east-west United States aridity gradient in a millennial context. *2020 AGU Fall Meeting*. View
2. **Bishop DA**, Williams AP, Miller RL, Cook BI, Seager R. December 2019. Quantifying the drivers of regional hydroclimate change from the fall-season North Atlantic Subtropical High. *2019 AGU Fall Meeting*, San Francisco, CA. View
3. **Bishop DA**, Williams AP, Seager R. December 2018. Fall wetting in the southeastern US driven by higher-intensity frontal precipitation. *2018 AGU Fall Meeting*, Washington, DC. View
4. *** Bishop DA**, Williams AP, Seager R, Fiore AM, Cook BI, Mankin JS, Singh D, Smerdon JE, Rao MP. December 2017. Assessing the causes of 20th century wetting in the eastern United States. *2017 AGU Fall Meeting*, New Orleans, LA. View
5. *** Bishop DA**. April 2017. Attributing the causes of a century of wetting in the eastern US. *First Year Colloquium*, Lamont-Doherty Earth Observatory, Palisades, NY. View
6. *** Bishop DA**. March 2016. Regional growth decline in sugar maple and its potential causes. *Green Mountain Division, Society of American Foresters, 2016 Winter Meeting*, Fairlee, VT. **[Invited]**
7. **Bishop DA**, Beier CM, Pederson N, Lawrence GB, Stella JC, Sullivan TJ. March 2016. Assessing the factors of regional growth decline of sugar maple. *Third American Conference of Dendrochronology*, Mendoza, Argentina.
8. **Bishop DA**, Beier CM, Pederson N, Lawrence GB, Stella JC, Sullivan TJ. December 2014. Assessing the factors of regional growth decline of sugar maple. *2014 AGU Fall Meeting*, San Francisco, CA.
9. **Bishop DA**, Beier CM. July 2013. Assessing uncertainty in high-resolution spatial climate data across the US Northeast. *IMAGe Next Generation Climate Data Products Workshop*, National Center for Atmospheric Research, Boulder, CO.
10. **Bishop DA**, Beier CM, Lawrence GB. March 2013. Integrating effects of climate change, acidic deposition and insect defoliation on sugar maple (*Acer saccharum*) growth and yield in the Northern Forest. *Northeastern Ecosystem Research Cooperative Conference*, Saratoga Springs, NY.
11. **Bishop DA**, Beier CM, Signell SA, Luttman A, DeGaetano AT. November 2011. Mapping climate change in the Adirondacks: local-scale comparison of trend maps based on two high-resolution gridded data products. *2011 EMEP Conference*, Albany, NY.
12. *** Bishop DA**, Wysocki MW, Belcher BN. March 2010. WRF simulation and case study of January, 2003, lake-effect snow event. *35th Annual Northeastern Storms Conference*, Saratoga Springs, NY.

PEER REVIEWS

2020: Journal of Climate
2019: Bulletin of the American Meteorological Society
2018: Global Change Biology, Journal of Hydrometeorology
2017: Journal of Climate
2016: Canadian Journal of Forest Research, Tree-Ring Research

TEACHING EXPERIENCE

Regional Climate and Climate Impacts Spring 2020
Teaching Assistant, Earth and Environmental Sciences, Columbia University

Dynamics of Climate Spring 2019
Teaching Assistant, Earth and Environmental Sciences, Columbia University

Quantitative Models of Climate-Sensitive Natural & Human Systems Fall 2017
Teaching Assistant, Earth and Environmental Sciences, Columbia University

Satellite Remote Sensing in Biological Oceanography Summer 2009
Teaching Assistant, Earth and Atmospheric Sciences, Cornell University

SERVICE

Biology & Paleo Environment Division Seminar Committee 2017-2019
Lamont-Doherty Earth Observatory, Columbia University

Lamont-Doherty Earth Observatory Open House Volunteer 2016-2017

Tree Ring Lab Tour Guide 2016-
Lamont-Doherty Earth Observatory, Columbia University

Earth2Class Workshop Volunteer Speaker 2017
Lamont-Doherty Earth Observatory, Columbia University

Student Tree Ring Workshop Speaker and Instructor 2017
Lamont-Doherty Earth Observatory, Columbia University

PROFESSIONAL REFERENCES

1. Dr. Park Williams, Associate Professor, Lamont-Doherty Earth Observatory, Columbia University. Email: williams@ldeo.columbia.edu, 845-365-8193
2. Dr. Richard Seager, Lamont Research Professor, Lamont-Doherty Earth Observatory, Columbia University. Email: seager@ldeo.columbia.edu, 845-365-8743
3. Dr. Neil Pederson, Senior Ecologist, Harvard Forest, Harvard University. Email: neilpederson@fas.harvard.edu, 978-756-6141