Daniel A Bishop

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Summary

- Detail-oriented, fast-learning climate scientist with expertise in catastrophe modeling in insurance and reinsurance industries, and project design and management through independent and collaborative research
- Data-intensive, interdisciplinary scientific research and communication experience with 22 peer-reviewed publications and 12 conference presentations, and demonstrated resilience and versatility in evolving projects
- Comprehensive computer programming, statistics, and data analytics background, with proficiency in MATLAB and R and experience in Python, and ability to work with large multi-dimensional data

Relevant Experience

Atmospheric Scientist | *Karen Clark & Company, Boston, MA*   **Jul 2021 – *present***

- Designed and implemented climate change scenarios for wind, flood, and wildfire perils, co-wrote executive summary of IPCC AR6, and provided client presentations and white papers on model development
- Experience with hurricane, wildfire and flood models, projected losses in real time for landfalling hurricanes and wildfire events, and co-led damage survey after major landfalling hurricane

Graduate Research Assistant | *Columbia University, New York, NY*   **Sep 2016 – Jun 2021**

- Discovered increased rainfall from highest-intensity precipitation events led to increased total fall-season precipitation in southeastern US, driven by shift in wind-driven moisture transport from Gulf of Mexico
- Identified east-west spatial gradient in soil moisture across the US moderated by natural low-frequency variability in western US drought and exacerbated by long-term increase in eastern US precipitation
- Investigated causes of precipitation and soil moisture trends using signal processing, PCA, and hydrologic and environmental proxy modeling with observations, reanalyses, CMIP6 and SST-forced model output

Research Staff Assistant | *Harvard Forest, Petersham, MA*   **Mar 2014 – Aug 2016**

- Analyzed drought and forest composition using tree-ring proxy modeling, variance and cluster analysis, revealing the Northeast US experienced higher-frequency, more extreme 20th-century summer precipitation

Graduate Research Assistant | *SUNY-ESF, Syracuse, NY*   **Jun 2011 – Dec 2013**

- Applied trend and uncertainty analyses on climate and forest productivity data using non-parametric statistics, discriminant analysis, stochastic mixed-effects models, Kalman filtering, and state space models

Education

Ph.D. | *Columbia University, New York, NY*   **Sep 2016 – Jun 2021**
Earth and Environmental Sciences, GPA: 3.92

Awards: NASA Earth and Environmental Science Fellowship

M.Sc. | *SUNY-ESF, Syracuse, NY*   **Jun 2011 – Dec 2013**
Forest and Natural Resources Management, GPA: 3.86

Awards: Northeastern States Research Cooperative Grant

B.Sc. | *Cornell University, Ithaca, NY*   **Aug 2006 – May 2010**
Atmospheric Science

Continuing:	Machine Learning Certificate through Stanford University (Coursera)	**2019**
	Likelihood Methods in Ecology through Cary Institute	**2012**

Skills & Expertise

Technical: Cat Modeling · Wind, Fire, & Flood Risk · Climate Change · MATLAB · R · Python · GIS

Statistics: Multivariate Analysis · Nonlinear Models · Regression · Discriminant Analysis · PCA

Signal Processing · Data Mining · Spatial Statistics · Big Data · Factor Analysis · Monte Carlo Methods

Selected Publications (of 22)

- **Bishop DA**, Williams AP, Seager R, Cook ER, Peteet DM, Cook BI, Rao MP, Stahle DW. 2021. Placing the east-west North American aridity gradient in a multi-century context. *Environmental Research Letters* 16(11):114043.
- **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.
- **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.
- 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.
  <u>*Media Coverage:*</u> The Atlantic, CNN, CBS News, Washington Post.
- **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.
  <u>*Media Coverage:*</u> WAMC Northeast Public Radio, Inside Science, Smithsonian Magazine, Popular Science, Albany Times Union, Syracuse Post-Standard, Modern Farmer.
- **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.

Selected Conference Presentations (= talk)*

- *** 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.
- **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.
- **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.
- *** 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.
- *** 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]**

Service & Communication

Manuscript Reviews (8)
Journal of Climate (2), Bulletin of the American Meteorological Society, Global Change Biology, Journal of Hydrometeorology, Journal of Climate, Canadian Journal of Forest Research, Tree-Ring Research

Teaching Experience
Regional Climate and Climate Impacts (Spring 2020), Dynamics of Climate (Spring 2019), Quantitative Models of Climate-Sensitive Natural and Human Systems (Fall 2017)

Leadership & Outreach
Tree-Ring Tour Guide and Workshop Host for Students and Educators (2016-2021), Organizing Committee for Lamont-Doherty Biology & Paleo Environment Division Weekly Seminar Series (2017-2019), Lamont-Doherty Open House Volunteer (2016-2017), Earth2Class Workshop Volunteer Speaker (2017)