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## Current position(s)

*Research Physical Scientist*, NASA Goddard Institute for Space Studies, New York, New York  
*Adjunct Associate Research Scientist*, Lamont-Doherty Earth Observatory, Palisades, New York

## Areas of specialization

drought, land surface-climate interactions, paleoclimate, plant phenology

## Appointments held

2009-pres Research Physical Scientist (GS-14), NASA-GISS, New York  
2009-pres Adjunct Research Scientist, LDEO, New York  
2009 Scientific Programmer/Analyst, NASA-GISS/Sigma Space Partners  
2007-2009 NOAA Global Change Postdoctoral Fellow, NASA-GISS/LDEO

## Education

2007 PhD in Environmental Science, University of Virginia (Advisors: Howard Epstein, Paolo D'Odorico)  
2004 MSc in Environmental Science, University of Virginia (Advisor: Michael E. Mann)  
2001 BS in Environmental and Forest Biology, SUNY College of Environmental Science and Forestry

## Awards, Fellowships, & Invited Lectures

2017 CIRES Distinguished Lecturer, University of Colorado, Boulder  
2017 Stephen S Visher Lecturer, Indiana University  
2015 Kavli Fellow, Sixth Indo-American Frontiers of Science Symposium, US National Academy of Sciences  
2013 NASA Early Career Achievement Medal  
2010 2009 Editors' Citation for Excellence in Refereeing, AGU  
2007 NOAA Climate and Global Change Postdoctoral Fellowship, NOAA  
2007 Maury Environmental Sciences Prize, University of Virginia

## Peer Reviewed Publications

†student or postdoc in our research group; \*\*as co-lead author

## IN REVIEW

- [131] Huang N, Mondal P, **Cook BI**, McDermid S “Turn of the 21st century vegetation changes in Serengeti National Park”, *Environmental Research Letters*
- [130] †Baek SH, Smerdon, JE, **Cook BI**, Williams AP, “US Pacific Coastal Droughts are Predominantly Driven by Internal Atmospheric Variability”, *Journal of Climate*
- [129] McDermid SS, **Cook BI**, Dekauwe M, Mankin J, Smerdon J, Williams AP, Seager R, Puma, MJ, Aleinov I, Kelley M, Nazarenko L “Disentangling the regional climate impacts of competing vegetation responses to elevated atmospheric CO<sub>2</sub>”, *Journal of Geophysical Research, Atmosphere*

## 2021

- [128] †Bolles KC, Williams AP, Cook ER, **Cook BI**, Bishop DA, “Tree-ring reconstruction of the atmospheric ridging feature that causes flash drought in the central United States since 1500”, *Geophysical Research Letters*, doi: <https://doi.org/10.1029/2020GL091271>
- [127] Chamberlain CJ, **Cook BI**, Morales-Castilla, Wolkovich EM “Climate change reshapes the drivers of false spring risk across European trees”, *New Phytologist*, doi: <https://doi.org/10.1111/nph.16851>
- [126] †Zhou S, Williams AP, Lintner BR, Berg AM, Zhang Y, Keenan TF, **Cook BI**, Hagemann S, Seneviratne SI, Gentile P “Soil moisture-atmosphere feedbacks mitigate projected surface water availability declines in drylands”, *Nature Climate Change*, 11, 38–44, doi: <https://doi.org/10.1038/s41558-020-00945-z>

## 2020

- [125] Williams AP, Anchukaitis KJ, Woodhouse CA, Meko DM, **Cook BI**, Bolles K, Cook ER “Tree rings suggest no stable cycles in Sierra Nevada cool-season precipitation”, *Water Resources Research*, doi: <https://doi.org/10.1029/2020WR028599>
- [124] Weltzin JF, Betancourt JL, **Cook BI**, Crimmins TM, Enquist CAF, Gerst MD, Gross JE, Henebry GM, Hufft RA, Kenney MA, Kimball JS, Reed BC, Running SW “Seasonality of Biological and Physical Systems as Indicators of Climate Variation and Change”, *Climatic Change*, 163, 1755–1771, doi: <https://doi.org/10.1007/s10584-020-02894-0>
- [123] †Rao MP, Cook ER, **Cook BI**, D’Arrigo RD, Palmer J, Lall U, Woodhouse CA, Uriarte M, Bishop DA, Jian J, Webster PJ “Six hundred years of reconstructed Brahmaputra River flow demonstrate long-term flood risk is substantially underestimated”, *Nature Communications*, doi: <https://doi.org/10.1038/s41467-020-19795-6>
- [122] Krakauer N, **Cook BI**, Puma MJ “Effect of irrigation on humid heat extremes”, *Environmental Research Letters*, Vol 15, doi: <https://doi.org/10.1088/1748-9326/ab9ecf>

- [121] †Baek SH, Smerdon, JE, Dobrin G-C, Naimark J, Cook ER, **Cook BI**, Seager R, Cane MA, Scholz SR, “A Quantitative Hydroclimatic Context for the European Great Famine of 1315-1317”, *Communications Earth & Environment*, 1, 19, doi: <https://doi.org/10.1038/s43247-020-00016-3>
- [120] Nielsen-Gammon J, Banner JL, **Cook BI**, Tremaine DM, Wong CI, Mace RE, Gao H, Yang Z-L, Gonzalez MF, Hoffpauir R, Gooch T, Hayhoe K, Kloesel K, Anderson R “Unprecedented challenges for Texas water resources in the context of changing climate: what do researchers and stakeholders need to know?”, *Earth’s Future*, doi: <https://doi.org/10.1029/2020EF001552>
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## 2019

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- [112] Mankin JS, Seager R, Smerdon JE, **Cook BI**, Williams AP “Projected vegetation responses to climate change decrease freshwater availability for vast mid-latitude regions”, *Nature Geoscience*, doi: <https://doi.org/10.1038/s41561-019-0480-x>
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- [82] †Pascolini-Campbell MA, Seager R, Pinson A, **Cook BI** “Covariability of climate and stream-flow in the Upper Rio Grande from interannual to interdecadal timescales”, *Journal of Hydrology: Regional Studies*, 13, 58–71, doi: doi.org/10.1016/j.ejrh.2017.07.007
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## 2016

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## 2015

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## 2014

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## 2005

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## 2004

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## 2003

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### Funded Proposal & Grants

“Integrating models, paleoclimate, and recent observations to develop process-level understanding of projected changes in US drought”, NOAA 2018 MAPP Award, NOAA-OAR-CPO-2019-2005530, Lead Principal Investigator, \$178,110

“Quantifying process-based variability and uncertainties in ocean, land, and atmosphere forcing of extra-tropical droughts and heat waves in GISS ModelE and observations”, NASA MAP Award 16-MAP16-0081, Lead Principal Investigator, \$898,819

“Collaborative Research: Cool and Warm Season Reconstruction and Modeling over North America”, NSF Award AGS-1266014, Collaborator, \$219,650

“P2C2: Continental scale droughts in North America: Their frequency, character and causes over the past millennium and near term future”, NSF Paleo-Perspectives on Climate Change, Collaborator, \$776,807

“Parameter Sets and Propagation of Uncertainty in a Global Terrestrial Biosphere Model: Data Mining, Diversity, and Expected Variability”, NASA ROSES 2012, Modeling Analysis and Prediction, CO-I, \$630,600

“Collaborative Research: EaSM2: Linking near-term future changes in weather and hydroclimate in western North America to adaptation for ecosystem and water management” NSF Award, CO-I, \$2,106,026

“Forecasting phenology: Integrating ecology, climatology, and phylogeny to understand plant responses to climate change.” Working Group Proposal, National Center for Ecological Analysis and Synthesis. **Cook BI** and Wolkovich E

“Paleoclimate Shocks: Environmental Variability, Human Vulnerability, and Societal Adaptation During the Last Millennium in the Greater Mekong Basin.” NSF Award GEO-0908971, CO-I, \$1,401,351

“North American Megadrought: Atmosphere-Ocean Forcing and Landscape Response from the Medieval Period to the Near-Term Greenhouse Future.” NSF Award ATM-0902716, CO-I, \$638,135

“NSF P2C2 Collaborative Research: Past and Future Drought Variability in the Mediterranean Basin”. NSF Award 1103450, CO-I, \$70,388

### Mentoring

Andrew Bell (postdoc, co-advisor; currently Assistant Professor at New York University), Liora Hostyk (undergrad), Sloan Coats (graduate student, Ph. D. committee member; currently Research Scientist at Woods Hole Oceanographic Institute), Leo Lemordant (graduate student, Ph.D. committee member), Madeleine Pascolini-Campbell (graduate student, Ph.D. committee member), Justin S Mankin (postdoc, co-advisor; currently Assistant Professor at Dartmouth College), Deepti Singh (postdoc, co-advisor; currently Assistant Professor at Western Washington University)

### Other Publications

**Cook BI** (2018): “Guest post: Climate change is already making droughts worse”, Carbon Brief

**Cook BI** (2016): “Global warming is pushing wine harvests earlier – but not necessarily for the better”, The Conversation

Marvel K, Schmidt GA, Tsigaridis K, **Cook BI** (2015) “Sensitivity to factors underlying the hiatus”, *US CLIVAR Variations*, 13, no. 3, 25-29

Seager R, **Cook BI** (2012), “Dust Bowl”, Encyclopedia of Natural Hazards

Puma MJ, **Cook BI** (2011), "Irrigation's climate effects and the water sustainability link", *International Water Power and Dam Construction Magazine*, pp. 38–40, March

### Professional Activities

- Contributing Author, Working Group I for the Intergovernmental Panel on Climate Change Sixth Assessment Report -Associate Editor, *Journal of Climate*
- Member of "Phenology Team" as part of the National Climate Assessment
- Member of the Plant Phenology Advising Working Group, National Ecological Observatory Network (NEON)
- Advisor to research interns and postdoctoral researchers as part of NSF Award GEO-0908971; also advised High School Students on independent study projects at LDEO
- Panel, proposal, and manuscript reviewer: NASA, NSF, Journal of Geophysical Research, Global Change Biology, Water Resources Research, Geophysical Research Letters, Climate Dynamics, and Nature Geoscience.
- Lead organizer for oral and poster session at AGU 2010, "A03: Understanding Drought Variability, Forcing, and Feedbacks"
- Lead organizer for oral and poster session at AGU 2011, "B43a: Beyond Earlier Spring: Diverse Phenological Responses to Climate Across Species and Ecosystems"

### Classes Taught

**The Earth's Climate System:** A quantitative introduction to the climate system, including an overview of the global energy balance, general circulation, and specialized topics intended for non-science majors. (*Sustainability Management Program, Columbia University*)

## Selected Media Coverage

- John Schwartz *New York Times* (May 1, 2019), [In a Warming World, Evidence of a Human 'Fingerprint' on Drought](#)
- Allison Aubrey *All Things Considered, National Public Radio* (March 23, 2016), [Study Finds Climate Change Could Be Leading To Better Wine](#)
- Lucy Westcott *Newsweek* (March 3, 2016), [MOST RECENT MIDDLE EAST DROUGHT WAS WORST IN 900 YEARS: NASA](#)
- Ishaan Tharoor *Washington Post* (March 4, 2016), [The Middle East just suffered its worst drought in 900 years](#)
- Don Melvin *CNN* (March 3, 2016), [Mideast's worst drought in 900 years may have contributed to Syrian war](#)
- Darryl Fears *Washington Post*, [A 'megadrought' will grip U.S. in the coming decades, NASA researchers say](#)
- Ben Brumfeld *CNN* (February 14, 2015), [Risk of American 'megadroughts' for decades, NASA warns](#)
- Brian Clark Howard *National Geographic* (February 12, 2015), [Worst Drought in 1,000 Years Predicted for American West](#)
- Hannah Hoag *Nature News & Views* (October 16, 2014), [US Dust Bowl unrivalled in past 1,000 years](#)
- Andrea Thompson, *Climate Central* (April 2, 2014), [Warming Temperatures Could Dry Out One Third of Planet](#)
- Jonathan Overpeck, *Nature News & Views* (November 20, 2013), [Climate science: The challenge of hot drought](#)
- ScienceDaily* (March 11, 2013), [Study Predicts Lag in Summer Rains Over Parts of US and Mexico](#)
- Nicholas Mott, *National Geographic, Daily News* (November 9, 2012), [Why the Maya Fell: Climate Change, Conflict—And a Trip to the Beach?](#)
- UC Santa Barbara, *Science Daily* (June 1, 2012), [Plants Previously Thought to Be 'Stable' Found to Be Responding to Climate Change](#)
- Kim McDonald, *Phys.Org* (May 22, 2012), [More plant species responding to global warming than previously thought](#)
- Elizabeth Pennisi, *ScienceNOW* (May 2, 2012), [Plant Experiments Underestimate Climate Change Effects](#)
- Leslie McCarthy and Patrick Lynch, *NASA* (May 2, 2012), [Decades of Data Show Spring Advancing Faster Than Experiments Suggest](#)
- Shazia Khan, *NY1* (March 20, 2012), [Experts Say Warm Winter Could Lead To A Hot, Buggy Spring](#)
- Holli Riebeek and Jess Allen, *NASA Image of the Day* (February 1, 2012), [Mayan Deforestation and Drought](#)
- Stephanie Pappas, *MSNBC* (December 5, 2011), [Real Mayan apocalypse may have been their own fault](#)
- Adam Voiland and Maria José-Viñas, *NASA* (December 1, 2011), [Ancient Dry Spells Offer Clues About the Future of Drought](#)
- Jai Ranganathan, *Pacific Standard* (December 17, 2010), [The Dust Bowl: Lessons from the Greatest U.S. Environmental Disaster](#)
- Justin Gillis, *New York Times* (September 9, 2010), [The Irrigation Juggernaut](#)
- Michael Reilly, *Discovery News* (March 23, 2009), [Dust Bowl Had Human Fingerprint](#)
- Anthony DePalma, *New York Times* (September 15, 2008), [Weather History Offers Insight Into Global Warming](#)
- Jeanna Bryner, *Live Science* (May 4, 2008), [Why the 1930s Dust Bowl Was So Bad](#)