

A. PARK WILLIAMS

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Department of Geography • Department of Atmospheric & Oceanic Sciences
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Education

University of California, Santa Barbara	Ph.D. Geography	2009
University of California, Santa Barbara	M.A. Geography	2006
University of California, Irvine	B.S. Earth Systems Science	2003

Dissertation Title

Tree Rings, Climate Variability, and Coastal Summer Stratus Clouds in the Western United States. *Committee members: Dr. Christopher Still, Dr. Joel Michaelsen, Dr. Catherine Gautier, Dr. Steven Leavitt*

Research Interests

I am a multi-disciplinary hydroclimatologist whose research aims to understand the causes and consequences of hydrological extremes such as drought. While much of my research focuses on climatology in its own right, much of my research also aims to improve understanding of how hydrological extremes affect life on earth. Questions that I find especially interesting involve the effects of human-caused climate change on the hydrological cycle, and how these changes affect ecological systems and humanity through extreme events such as heat waves, wildfires, and flooding. My ultimate goal is to advance scientific knowledge in ways that are relevant to policy makers and future scientific endeavors, and also interesting to the public and other scientists.

Relevant Skills

Computer statistical programming (MATLAB); assimilation and analysis of large datasets; diagnostics of climate variability; remote sensing; time-series and geo-statistics; field work in ecology; construction and maintenance of weather stations; stable-isotope analysis; collection, measurement, and analysis of tree-ring samples; creativity in research; teaching and public speaking

Appointments

University of California, Los Angeles

July 2023 – present: *Professor*, Department of Geography

March 2021 – June 2023: *Associate Professor*, Department of Geography

September 2023 – present: *Professor (0% appointment)*, Department of Atmospheric and Oceanic Sciences.

Lamont-Doherty Earth Observatory, Columbia University

March 2021 – present: *Adjunct Research Scientist*

July 2020 – February 2021: *Lamont Associate Research Professor – Senior Staff*

July 2017 – June 2020: *Lamont Associate Research Professor – Junior Staff*

December 2013 – June 2017: *Lamont Assistant Research Professor*

Los Alamos National Laboratory, New Mexico

April 2011 – November 2013: *Postdoctoral researcher*, Mentors: Dr. Nate McDowell (LANL) and Dr. Craig D. Allen (USGS).

University of California, Santa Barbara

October 2009 – February 2011: *Postdoctoral researcher*, Mentor: Dr. Christopher Funk (USGS) and Dr. Joel Michaelsen (UCSB).

September 2003 – September 2009: *Graduate researcher*, Department of Geography. Mentor: Dr. Christopher Still.

University of California, Irvine

September 2001 – June 2003: *Undergraduate researcher*, Department of Ecology and Evolutionary Biology – Field, lab, and statistical research on tropical agroforestry in Costa Rica with Dr. F. Lynn Carpenter.

Fellowships, Grants, and Awards

- 2023 MacArthur Foundation Fellowship – \$800,000
- 2023 USGS Southwest Climate Adaptation Science Center – Atmospheric Rivers and Downslope winds as Tollgates of Aridification in the Southwest: Impacts on Water Resources and Wildfire Management - \$350,000. A Gershunov (lead), D Cayan, RES Clemesha, **AP Williams** (UCLA lead)
- 2023 The Moore Foundation – *Western US Fire Ecology and Forest Resilience Science Collaborative* - \$3,700,000. PIs: WD Hansen (lead), **AP Williams** (UCLA lead), AT Trugman, L Kueppers
- 2022 The AON Center: *Future Fire Weather Scenarios* - \$40,000. PIs: JT Abatzoglou (lead), **AP Williams** (UCLA lead), D Swain
- 2021 California Department of Water Resources: *Drivers of Oscillations in Western US Cool-Season Precipitation* - \$ 213,182. PIs: **AP Williams** (lead), KJ Anchukaitis
- 2021 USGS: *Powell Climate Center – Synthesis of the new North American tree-ring fire-scar network: using past and present fire-climate relationships to improve projections of future wildfire* - \$155,382. PIs: E Margolis (lead), C Guiterman, R Loehman, S Parks. Collaborators: J Abatzoglou, L Daniels, D Falk, K Kipfmuller, M Krawchuk, J Portier, M Stambaugh, J Villanueva-Diaz, E Whitman, **AP Williams**, L Yocom, T Swetnam.
- 2021 DOE: *The role of vegetation in past and future global hydroclimatic change* - \$700,000. PIs: JE Sermdon (lead), Mankin JS, R Seager, **AP Williams**, K Marvel, BI Cook
- 2020 NASA Future investigators in NASA Earth and Space Science and Technology: *Building resilience to wildfires in the western United States: predictive modeling in a coupled climate and human system* (3-years of funding support for PhD student, Caroline Juang). PI: **AP Williams** (proposal written by C Juang)
- 2019 One of three finalists (not 1st place) for the Lamont-Doherty annual mentorship award
- 2019 Zegar Family Foundation: *Harnessing the big data and machine learning revolution to model wildfire across the Western United States* - \$640,953. PIs: **AP Williams** (lead), P Gentine
- 2019 NOAA MAPP: *Integrating models, paleoclimate, and recent observations to develop process-level understanding of projected changes in US drought* - \$198,022. PIs: BI Cook (lead), **AP Williams** (LDEO lead), K Marvel

- 2019 Lamont Climate Center Grant to study “*Biophysical climate regulation during postfire succession in the Alaskan boreal forest*” - \$10,000. PI: W Hansen, **AP Williams**
- 2017 Palisades Geophysical Institute Young Scientist Award (4.5 months of funding per year for 2018-2020: ~\$170,000). PI: **AP Williams**
- 2017 NSF PREEVENTS Track 1: Fire Prediction Across Scales Conference at Columbia University (\$31,500). PIs: R Field (lead), K Fernandes, **AP Williams**
- 2017 NSF PIRE: *Climate Research Education in the Americas using Tree-ring and speleothem Examples (PIRE-CREATE)* (\$4,997,208). PIs: M Vuille (lead), R D’Arrigo, A Dai, CT Lawson, L Andreu-Hayles, G Ceccantini, FW Cruz, ME Ferrero, EG Neves, Karmann I, GM Locosselli, MS Morales, CM Skott, JA Skrivanel, JE Smerdon, NM Strikis, R Villalba, **AP Williams**
- 2017 NASA Earth and Space Science Graduate Student Fellowship: *Attributing the causes of a century of wetting in the eastern United States using observations, models, and tree rings* (3-years of funding support for PhD student, Daniel Bishop). PI: **AP Williams** (proposal written by DA Bishop)
- 2017 NSF P2C2: *Inferring Spatio-Temporal Variations in the Risk of Extreme Precipitation in the Western United States from Tree Ring Chronologies* - \$170,077. PIs: **AP Williams** (lead), M Ho, U Lall, ER Cook
- 2017 Lamont Climate Center Grant to host an international 3-day workshop at Columbia University: *The 2017 Conference on Fire Prediction Across Scales* - \$10,000. PIs: R Field (lead), Fernandes K, **AP Williams**
- 2017 NSF P2C2: *Decomposition and reconstruction of drought variability across the continental U.S. and northern Mexico* - \$501,014. PIs: **AP Williams** (lead), ER Cook
- 2017 NASA MAP: *Quantifying process-based variability and uncertainties in ocean, land, and atmosphere forcing of extra-tropical droughts and heat waves in GISS ModelE and observations* - \$461,838. PIs: BI Cook (lead), **AP Williams** (LDEO Lead), MJ Puma, R Seager, Nazarenko L
- 2016 NSF P2C2: *Reconstruction and Dynamics of Interhemispheric Hydroclimate Variability Between the Americas* - \$626,108. PIs: JE Smerdon (lead), ER Cook, R Seager, **AP Williams**
- 2016 Lamont Climate Center Grant to study “Net Primary Productivity Inferred from Tree-Ring Isotopes” - \$10,000. PIs: M Levesque, L Andreu-Hayles, **AP Williams**
- 2016-2019 Fellowship from Columbia’s Center for Climate and Life - \$178,614
- 2014 Lamont Climate Center Grant to study “*Climatic Thresholds for Forests Across a Regional-Scale Moisture Gradient*” - \$10,000. PI: **AP Williams**
- 2013 LAAP (Los Alamos Award Program) “Award for high level achievements in 2013” - \$500
- 2013 The Ecological Society of America Biogeosciences Gene E. Likens Junior Scientist (early-career) Award - \$250
- 2013 Co-PI – National Geographic Grant for field expedition in Ethiopia to sample for tree-ring isotopes. PI: Iain Robertson, Swansea University - £17,000
- 2009 The 2009 Graduate Student Excellence in Research Award – UC Santa Barbara Geography - \$1,000

- 2007-2008 Travel grant to attend three meetings on the Biological Impacts of Climate Change in California (BICCCA) – California Energy Commission
- 2007 UCSB Dep. of Geography Dangermond Travel Scholarship - \$500
- 2006 Outstanding Paper Award – American Geophysical Union fall meeting
- 2006 Nomination for campus-wide Outstanding Teaching Assistant award
- 2004-2007 NASA Earth System Science Graduate Student Fellowship - \$78,000 + tuition over three years
- 2005 American Geophysical Union meeting travel grant – San Francisco
- 2004 Nomination for campus-wide Outstanding Teaching Assistant award
- 2003 Excellence in Undergraduate Research in the Biological Sciences at UC Irvine award
- 2002 UC Irvine Undergraduate Summer Research Grant - \$3,000

Peer-Reviewed Publications

- In Revision. **Williams AP**, McKinnon KA, Anchukaitis KJ, Gershunov A, Varuolo-Clarke AM, Clemesha RES, Liu H. Anthropogenic influence on extreme cool-season precipitation has not yet emerged across the western United States. *Journal of Geophysical Research–Atmospheres*.
- In Revision. Varuolo-Clarke AM, Smerdon JE, **Williams AP**. Jet dynamics do not explain climate model simulations of muted multidecadal summer precipitation trends in Southeastern South America. *Geophysical Research Letters*.
- In Revision. Mankin JS, Siegert N, Smerdon JE, Cook BI, Seager R, **Williams AP**, Lesk C, Li Z, Singh H, Martinez E. Nonlinear carbon feedbacks diminish future freshwater availability.
- In Revision. Balch JK, Iglesias V, Mahood AL, Cook MC, Amaral C, DeCastro A, Leyk S, McIntosh TL, Nagy RC, St. Denis L, Tuff T, Verleye E, **Williams AP**, Kolden CA. The fastest growing and most destructive fires in the U.S. (2001-2020). *Science*.
- Under Review. Brucker CP, Rosario-Ortiz FL, Yao F, **Williams AP**, Becker WC, Kampf SK, Rajagopalan B, Livneh B. Wildfires drive significant multi-year water quality degradation across the U.S. West. *Communications Earth & Environment*.
- Submitted. Ficklin DL, Touma D, Cook BI, Wang L, Robeson SM, Hwang T, Scheff J, **Williams AP**. Vegetation greening mitigates the impacts of increasing extreme rainfall on runoff events. *Earth's Future*.
- Under Review. Konings A, Rao K, McCormick EL, Trugman AT, **Williams AP**, Diffenbaugh NS, Yerba M, Zhao M. Species cover explains only half of explained spatial variability in plant water sensitivity. *Global Change Biology*.
- Under Review. Johnston MR, Barnes ML, Priesler Y, Smith WK, Biederman JA, Scott RL, **Williams AP**, Dannenberg M. Effects of Hot vs. Dry Vapor Pressure Deficit on Ecosystem Carbon and Water Fluxes. *Journal of Geophysical Research–Biogeosciences*.
- Under Review. Williams EL, Abatzoglou JT, Hegewisch KC, **Williams AP**. When will the drought end? Anthropogenic climate change reduces drought recovery probabilities across the Western US. *Nature Communications Earth & Environment*.
- Under Review. Parks SA, Guiterman CH, Margolis EQ, Lonerman M, Whitman E, Abatzoglou JT, Falk DA, Johnston JD, Daniels LD, Lafon CW, Loehman RA, Kipfmueller KF, Naficy CE, Parisien M-A, Portier J, Stambaugh MC, **Williams AP**, Wion AP, Yocom LL. A persistent fire deficit exists across most of North America despite recent increases in area burned. *Proceedings of the National Academy of Sciences USA*.

- Submitted. Margolis E, Wion A, Abatzoglou J, Daniels L, Falk D, Guiterman C, Johnston J, Kipfmüller K, Lafon C, Rachel L, Lonergan M, Cameron N, Parisien M-A, Parks S, Portier J, Stambaugh M, Whitman E, **Williams AP**, Yocom L. Spatiotemporal synchrony of climate and fire across North America (1750-1880). *Global Ecology and Biogeography*.
- Under Review. McKinnon KA, Simpson I, **Williams AP**. The pace of change of summertime temperature extremes. *Proceedings of the National Academy of Sciences USA*.
- Submitted. Dannenberg M, McCabe G, Wise E, Johnston M, Huntzinger D, **Williams AP**. Recent extreme Missouri River streamflow driven by combined effects of climate variability, land use change, and elevated CO₂. *Science Advances*.
- [129] Accepted. Hall J, Sandor M, Harvey BJ, Parks S, Trugman AT, **Williams AP**, Hansen WD. Forest carbon storage in the western United States: distribution, drivers, and trends. *Earth's Future*.
- [128] In press. Stephenson NL, Caprio AC, Soderberg DN, Das AJ, Lopez EL, **Williams AP**. Post-fire reference densities for giant sequoia seedlings in a new era of high-severity wildfire. *Forest Ecology and Management*, <https://doi.org/10.1016/j.foreco.2024.121916>
- [127] In press. Novick KA, Ficklin DL, Grossiord C, Konings AG, Martínez-Vialta J, Walid S, Trugman AT, **Williams AP**, Wright AJ, Abatzoglou JT, Dannenberg MP, Gentine P, Kaiyu G, Johnston MR, Lowman LEL, Moore DJP, McDowell NG. The impacts of rising vapour pressure deficit in natural and managed ecosystems. *Plant, Cell, & Environment*, <https://doi.org/10.1111/pce.14846>
- [126] 2024. Jacobson TWP, Seager R, **Williams AP**, Simpson IR, McKinnon KA, Liu H. An unexpected decline in spring atmospheric humidity in the interior Southwestern United states and implications for forest fires. *Journal of Hydrometeorology* 25(3):373–390, <https://doi.org/10.1175/JHM-D-23-0121.1>
- [125] 2024. **Williams AP**, Anchukaitis KJ, Varuolo-Clarke AM. Atmospheric rivers are responsible for cyclicity in Sierra Nevada precipitation. *Journal of Climate* 35(5):1613–1627, <https://doi.org/10.1175/JCLI-D-23-0421.1>
- [124] 2023. Rao K, **Williams AP**, Diffenbaugh NS, Yerba M, Bryant C, Konings AG. Dry live fuels increase the likelihood of lightning-caused fires. *Geophysical Research Letters* 50(15):e2022GL100975, <https://doi.org/10.1029/2022GL100975>
- [123] 2023 Tripathy KP, Mukherjee S, Mishra AK, Mann ME, **Williams AP**. Climate change will accelerate the high-end risk of compound drought and heatwave events. *Proceedings of the National Academy of Sciences USA* 120(8):e2219825120, <https://doi.org/10.1073/pnas.2219825120>
- [122] 2023. Borkotoky SS, **Williams AP**, Steinschneider S. Six hundred years of reconstructed atmospheric river activity along the US West Coast. *Journal of Geophysical Research – Atmospheres* 128(12):e2022JD038321, <https://doi.org/10.1029/2022JD038321>
- [121] 2023. Buch J, **Williams AP**, Juang C, Hansen WD, Gentine P. SMLFire1.0: a stochastic machine learning (SML) model for wildfire activity in the western United States. *Geoscientific Model Development* 16:3407–3433, <https://doi.org/10.5194/gmd-16-3407-2023>
- [120] 2023. Abatzoglou JT, Kolden C, **Williams AP**, Sadegh M, Balch JK, Hall A. Downslope wind-driven fires in the western United States. *Earth's Future* 11(5):e2022EF003471, <https://doi.org/10.1029/2022EF003471>

- [119] 2022. Zhou S, **Williams AP**, Lintner BR, Findell KL, Keenan TF, Zhang Y, Gentine P. Diminishing seasonality of subtropical water availability dominated by soil moisture-atmosphere feedbacks. *Nature Communications* 13:5756, <https://doi.org/10.1038/s41467-022-33473-9>
- [118] 2022. Cook BI, Smerdon JE, Cook ER, **Williams AP**, Anchukaitis K, Mankin JS, Allen K, Andreu-Hayles L, Ault T, Belmecheri S, Coats S, Coulthard B, Fonsu B, Grierson P, Griffin D, Herrera D, Ionita M, Lehner F, Leland C, Marvel K, Morales M, Mishra V, Ngoma J, Nguyen H, O'Donnell A, Palmer J, Rao M, Rodriguez-Caton M, Seager R, Stahle D, Stevenson S, Thapa U, Varuolo-Clarke A, Wise E. Megadrought in the Common Era and the Anthropocene. *Nature Reviews Earth & Environment* 3:741–757, <https://doi.org/10.1038/s43017-022-00329-1>
- [117] 2022. Cook BI, **Williams AP**, Marvel KD. Projected changes in early summer ridging and drought over the Central Plains. *Environmental Research Letters* 17:104020, <https://doi.org/10.1088/1748-9326/ac8e1a>
- [116] 2022. Hansen WD, Schwartz NB, **Williams AP**, Albrich K, Kueppers LM, Ramming A, Reyer CPO, Staver AC, Seidl R. Global forests are influenced by legacies of past inter-annual temperature variability. *Environmental Research: Ecology* 1:011001, <https://doi.org/10.1088/2752-664X/ac6e4a>
- [115] 2022. Hansen WD, Krawchuk MA, Trugman AT, **Williams AP**. The dynamic temperate and boreal fire and forest-ecosystem simulator (DYNAFFOREST): Development and evaluation. *Environmental Modeling and Software* 156:105473, <https://doi.org/10.1016/j.envsoft.2022.105473>
- [114] 2022. Jacobson TWP, Seager R, **Williams AP**, Henderson N. Climate dynamics preceding summer forest fires in California and the extreme case of 2018. *Journal of Applied Meteorology and Climatology* 61(8):989–1002, <https://doi.org/10.1175/JAMC-D-21-0198.1>
- [113] 2022. Dannenberg MP, Yan D, Barnes ML, Smith WK, Johnston MR, Biederman JA, Knowles JF, Scott RL, Wang X, Duan T, Litvak ME, Kimball JS, **Williams AP**, Zhang Y. Exceptional heat and atmospheric dryness amplified losses of primary production during the 2020 U.S. Southwest hot drought. *Global Change Biology* 28(16):4794–4806, <https://doi.org/10.1111/gcb.16214>
- [112] 2022. Varuolo-Clarke A, **Williams AP**, Smerdon JE, Ting M, Bishop DA. Influence of the South American low-level jet on the austral summer precipitation trend in southeastern South America. *Geophysical Research Letters* 49(9):e2021GL096409, <https://doi.org/10.1029/2021GL096409>
- [111] 2022. Zhou S, Keenan TF, **Williams AP**, Lintner BR, Zhang Y, Gentine P. Large divergence in tropical hydrological projections caused by model spread in vegetation. *Earth's Future* 10(4):e2021EF002457, <https://doi.org/10.1029/2021EF002457>
- [110] 2022. Hammond W, **Williams AP**, Abatzoglou JT, Adams HD, Klein T, Rodríguez RL, Sáenz-Romero C, Hartmann H, Breshears DD, Allen CD. Global field observations of tree die-off reveal hotter-drought fingerprint for Earth's forests. *Nature Communications* 13:1761, <https://doi.org/10.1038/s41467-022-29289-2>
- [109] 2022. Juang CS, **Williams AP**, Abatzoglou JT, Hurteau MD, Balch JK, Moritz MA. Rapid growth of large forest fires drives the exponential response of annual forest-fire area to aridity in the western United States. *Geophysical Research Letters* 49(5):e2021GL097131, <https://doi.org/10.1029/2021GL097131>

- [108] 2022. **Williams AP**, Livneh B, McKinnon KA, Hansen WD, Mankin JS, Cook BI, Smerdon JE, Varuolo-Clarke AM, Bjarke NR, Juang CS, Lettenmaier DP. Growing impact of wildfire on western United States water supply. *Proceedings of the National Academy of Sciences USA* 119(10): e2114069119, <https://doi.org/10.1073/pnas.2114069119>
- [107] 2022. Dong C, **Williams AP**, Abatzoglou JT, Lin K, Okin GS, Gillespie TW, Long D, Lin Y. -H., Hall A, MacDonald GM. The season for large fires in Southern California is projected to lengthen in a changing climate. *Communications Earth & Environment* 3:22, <https://doi.org/10.1038/s43247-022-00344-6>
- [106] 2022. Balch JK, Abatzoglou JT, Joseph MB, Koontz MJ, Mahood AL, McGlinchy J, Cattau ME, **Williams AP**. Warming weakens the nighttime barrier to global fire. *Nature* 602:442–448, <https://doi.org/10.1038/s41586-021-04325-1>
- [105] 2022. **Williams AP**, Cook BI, Smerdon JE. Rapid intensification of the emerging southwestern North American megadrought in 2020–2021. *Nature Climate Change* 12:232–234, <https://doi.org/10.1038/s41558-022-01290-z>
- [104] 2022. Rao K, **Williams AP**, Diffenbaugh NS, Yerba M, Konings AG. Plant-water sensitivity regulates wildfire vulnerability. *Nature Ecology & Evolution* 6:332–339, <https://doi.org/10.1038/s41559-021-01654-2>
- [103] 2021. Bishop DA, **Williams AP**, Seager R, Cook ER, Peteet DM, Cook BI, Rao MP, Stahle DW. Placing the east-west North American aridity gradient in a multi-century context. *Environmental Research Letters* 16(11):114043, <https://doi.org/10.1088/1748-9326/ac2f63>
- [102] 2021. Abatzoglou JT, Battisti DS, **Williams AP**, Hansen WD, Harvey BJ, Kolden CA. Projected increases in western US forest fire despite growing fuel constraints. *Communications Earth & Environment* 2:227, <https://doi.org/10.1038/s43247-021-00299-0>
- [101] 2021. Steiger NJ, Smerdon JE, **Williams AP**, Seager R, Varuolo-Clarke A. Coupled megadrought risk in North and South America. *Nature Geoscience* 14:739–744, <https://doi.org/10.1038/s41561-021-00819-9>
- [100] 2021. Gershunov A, Guzman-Morales J, Hatchett B, Guirguis K, Aguilera R, Shulgina T, Abatzoglou JT, Cayan D, Pierce D, **Williams AP**, Small I, Clemesha R, Schwarz L, Benmarhnia T, Tardy A. Hot and cold flavors of southern California’s Santa Ana winds: their causes, trends, and links with wildfire. *Climate Dynamics* 57:2233–2248, <https://doi.org/10.1007/s00382-021-05802-z>
- [99] 2021. Cook BI, Mankin JS, **Williams AP**, Marvel KD, Smerdon JE, Liu H. Uncertainties, limits, and benefits for climate change mitigation for soil moisture drought in Southwestern North America. *Earth’s Future* 9(9):e2021EF002014, <https://doi.org/10.1029/2021EF002014>
- [98] 2021. Marvel KD, Cook BI, Bonfils C, Smerdon JE, **Williams AP**, Liu H. Projected changes to hydroclimate seasonality in the continental United States. *Earth’s Future* 9(9):e2021EF002019, <https://doi.org/10.1029/2021EF002019>
- [97] 2021. Varuolo-Clarke AM, Smerdon JE, **Williams AP**, Seager R. Gross discrepancies between observed and simulated 20th to 21st-century precipitation trends in Southeastern South America. *Journal of Climate* 34(15):6441–6457, <https://doi.org/10.1175/JCLI-D-20-0746.1>

- [96] 2021. Borkotoky SS, **Williams AP**, Steinschneider S, Cook ER. Reconstructing extreme precipitation in the Sacramento River watershed using tree-ring based proxies of cold-season precipitation. *Water Resources Research* 57(4):e2020WR028824, <https://doi.org/10.1029/2020WR028824>
- [95] 2021. Gaglioti BV, Berner LT, Jones BM, Orndahl K, **Williams AP**, Andreu-Hayles L, D'Arrigo RD, Goetz SJ, Mann DH. Tussocks enduring or shrubs greening: Alternate responses to changing fire regimes in the Noatak River Valley, Alaska. *JGR–Biogeosciences* 126(4):e2020JG006009, <https://doi.org/10.1029/2020JG006009>
- [94] 2021. McDermid SS, Cook I, De Kauwe MG, Mankin J, Smerdon JE, **Williams AP**, Seager R, Puma MJ, Aleinov I, Kelley M, Nazarenko L. Disentangling the regional climate impacts of competing vegetation responses to elevated atmospheric CO₂. *JGR–Atmospheres* 125(5):e2020JD034108, <https://doi.org/10.1029/2020JD034108>
- [93] 2021. **Williams AP**, Anchukaitis KJ, Woodhouse CA, Meko DM, Cook BI, Bolles K, Cook ER. Tree rings and observations suggest no stable cycles in Sierra Nevada cool-season precipitation. *Water Resources Research* 57(3):e2020WR028599, <https://doi.org/10.1029/2020WR028599>
- [92] 2021. Bolles K, **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* 48(4):e2020GL091271, <https://doi.org/10.1029/2020GL091271>
- [91] 2021. Baek SH, Smerdon JE, Cook BI, **Williams AP**. US Pacific coastal droughts are predominantly driven by internal atmospheric variability. *Journal of Climate* 34(5):1947–1962, <https://doi.org/10.1175/JCLI-D-20-0365.1>
- [90] 2021. Zhou S, **Williams AP**, Lintner BR, Berg AM, Zhang Y, Keenan TF, Cook BI, Hagemann S, Seneviratne S, Gentile P. Soil moisture-atmosphere feedbacks mitigate projected surface water availability declines in drylands. *Nature Climate Change* 11:38–44, <https://doi.org/10.1038/s41558-020-00945-z>
- [89] 2021. Abatzoglou JT, Juang CS, **Williams AP**, Kolden CA, Westerling AL. Increasing synchronous fire danger in forests of the western United States. *Geophysical Research Letters* 48(2):e2020GL091377, <https://doi.org/10.1029/2020GL091377>
- [88] 2021. Hansen WD, Fitzimmons R, Olnes J, **Williams AP**. Assessing resilience of an alternate vegetation type following forest conversion in the boreal biome. *Journal of Ecology* 109(1):85–98, <https://doi.org/10.1111/1365-2745.13446>
- [87] 2020. Dye AW, Rastogi B, Clemesha REW, Kim JB, Samelson RM, Still CJ, **Williams AP**. Spatial patterns and trends of summertime low cloudiness for the Pacific Northwest, 1997–2017. *Geophysical Research Letters* 46(16): e2020GL088121, <https://doi.org/10.1029/2020GL088121>
- [86] 2020. Cook BI, McDermid S, Puma M, **Williams AP**, Seager R, Kelley M, Nazarenko L, Aleinov I. Divergent regional climate consequences of maintaining current irrigation rates. *JGR–Atmospheres* 125(114):e2019JD031814, <https://doi.org/10.1029/2019JD031814>
- [85] 2020. Morales MS, Cook ER, Barichivich J, Christie DA, Villalba R, LeQuesne C, Srur AM, Ferrero ME, Gonzalez-Reyes A, Couvreaux F, Matskovsky V, Aravena JC, Lara A, Mundo IA, Rojas F, Prieto MR, Smerdon JE, Bianchi LO, Masiokas MH, Urrutia R, Muñoz AA, Rodriguez-Caton M, Rojas-Badilla M, Alvarez C, Lopez L, Luckman B, Lister D, Harris I, Jones PD, **Williams AP**, Velazquez G, Aliste D, Aguilera-Betti I,

- Marcotti E, Flores F, Muñoz T, Cuq E, Boninsegna JA. Six hundred years of South American tree rings reveal an increase in severe hydroclimatic events since the mid-20th century. *Proceedings of the National Academy of Sciences USA* 117(29):16816–16823, <https://doi.org/10.1073/pnas.2002411117>
- [84] 2020. Zhang Y, Commane R, Zhou S, **Williams AP**, Gentine P. Light limitation regulates the response of autumn terrestrial carbon uptake to warming. *Nature Climate Change* 10:739–743, <https://doi.org/10.1038/s41558-020-0806-0>
- [83] 2020. Cook BI, Mankin JS, Marvel KM, **Williams AP**, Smerdon JE, Anchukaitis KJ. Twenty-first century drought projections from the CMIP6 forcing scenarios. *Earth's Future* 8(6):e2019EF001461, <https://doi.org/10.1029/2019EF001461>
- [82] 2020. Rao K, **Williams AP**, Flefil JF, Konings AG. SAR-enhanced mapping of live fuel moisture content. *Remote Sensing of Environment* 245:111797, <https://doi.org/10.1016/j.rse.2020.111797>
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2015. **Williams AP**. Megadroughts. *Academic Minute: A WAMC National Production*.
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2011. **Williams AP**. Forest responses to warming on the Sky Islands of the southwestern United States. *Mountain Views* 5(1):24–28.
http://www.fs.fed.us/psw/cirmount/publications/pdf/Mtn_Views_mar_11.pdf
2010. **Williams AP**, Funk C. A westward extension of the tropical Pacific warm pool leads to March through June drying in Ethiopia and Kenya. *USGS Open-File Report*.
<http://pubs.usgs.gov/of/2010/1199/>

Professional Presentations

- 2024 May. Climate change, water, and wildfire in the western United States. Invited talk at the 2024 MacArthur Foundation Fellows Gathering. Racine, WI.
- 2024 May. Climate change and water in the western United States. Invited lecture for the UC Santa Barbara Department of Geography colloquium series. Santa Barbara, CA.
- 2024 May. How the Earth's changing climate affects water availability for plants, animals, and humans. Invited keynote lecture for the UCLA Chancellor's Society Weekend. Lake Arrowhead, CA.
- 2024 April. Is Global Warming Intensifying Winter Storms in the Western United States. Invited lecture for the UCLA Geography Graduate Student Seminar Series. University of California, Los Angeles. Los Angeles, CA.
- 2024 March. Wildfire-Climate-Vegetation Interactions. Invited talk for the sustainable LA Grand Challenges workshop on wildfire research. University of California, Los Angeles. Los Angeles, CA.

- 2024 January. Why have humans lost control of wildfire in the western United States. Invited in-person lecture for the University of Utah Wilkes Center for Climate Science & Policy Seminar Series. Salt Lake City, UT.
- 2023 September. Future fire projections at a regional scale. Invited talk at a workshop by the National Academies of Sciences, Engineering, and Medicine on Greenhouse Gas Emissions from Wildland Fires. Washington, DC.
- 2023 August. Drivers of cyclicity in western precipitation and the effect of global warming (or lack of) on the wet water-year 2023. Invited talk at the Western States Water Council workshop on Improving Subseasonal to Seasonal (S2S) Precipitation Forecasting. San Diego, CA.
- 2023 August. An update on Southwestern North America's turn-of-the-century megadrought. Invited talk at the 2023 conference of the Ecological Society of America. Portland, OR.
- 2023 May. Modeling forest fire in the western United States. Invited virtual talk for the 2023 Land Surface Hazards Modeling Expo, a virtual conference hosted by the NSF-funded Center for Land Surface Hazards. <https://www.youtube.com/watch?v=6x6dHK-C08M&t=1098s> (minutes 18:30–25:40)
- 2023 April. Fire and ecosystem modeling to understand past and future changes in western US wildfire. Invited talk for the Sanford conference on Climate Science in Service of Climate Solutions. Stanford University, Palo Alto, CA.
- 2023 April. Causes of ongoing increase in western US wildfire activity and sources of uncertainty in predicting the future of this trend. Invited virtual talk for the Verisk Insurance Conference. Scottsdale, AZ.
- 2023 March. Why have humans lost control of wildfire in the western United States? Colloquium for the Bren School of Environmental Science and Management, University of California, Santa Barbara. Santa Barbara, CA. <https://vimeo.com/807700915>
- 2023 February. Why have humans lost control of wildfire in the western United States? Colloquium for the Department of Geography at UCLA. Los Angeles, CA.
- 2023 January. Using fire and ecosystem modeling to understand the increase in western U.S. forest-fire activity over the past four decades. Colloquium for the Department of Earth Systems Science at UC Irvine. Irvine, CA.
- 2022 December. Western United States Forest-Fire Trends and Climate Change: 1984–2021. Talk at the fall meeting of the American Geophysical Union, Chicago, IL.
- 2022 October. Why have humans lost control of wildfire in the western United States? Keynote Talk for the UC Santa Barbara Wildfire Prevention and Policy Lecture Series. Direct Relief, Santa Barbara, CA.
- 2022 August. As drought lingers, larger and more destructive wildfires pose new threats to water supply. Keynote Lecture for the Urban Water Institute Fall Conference. Mission Bay Resort, San Diego, CA.
- 2022 August. Spatially explicit forest-fire modeling in the western United States for climate-change and fuel-characteristic attribution. Talk at the annual meeting of the Ecological Society of America – Montréal, Canada.
- 2022 June. Climate change and wildfire in the western United States. Inaugural Climate & Wildfire Institute Convening. University of California, Los Angeles.
- 2022 May. Climate change, megadrought, and wildfire in the western United States. 9th Annual Charles Keeling Memorial Lecture for the Scripps Institution of Oceanography. Birch Aquarium at Scripps, La Jolla, CA. <https://www.youtube.com/watch?v=G-9S1c2R1Mk>

- 2022 March. Megadrought in the American West. Invited virtual presentation for Oakland Rotary Club.
- 2022 February. Recent progress on CMIP6 related research. Virtual presentation for the NOAA CMIP6 Task Force.
- 2022 February. Why is wildfire activity increasing in the western US and how will this affect water resources? Invited virtual presentation for the NOAA Drought Task Force.
- 2022 January. Why is wildfire activity increasing in the western US and how will this affect water resources? Invited virtual seminar for UCLA's Garrick Institute for Risk Sciences. University of California, Los Angeles, CA.
- 2022 January. The effect of climate change on water, wildfire, and life across western North America. Invited virtual seminar for the UC Santa Barbara Environmental Research Institute, Santa Barbara, CA.
- 2021 December. Growing impact of wildfire on western United States water supply. Invited talk at the fall meeting of the American Geophysical Union, New Orleans, LA.
- 2021 November. Understanding the rapid recent increase in western US wildfire activity. Invited lecture for the EarthTalks seminar hosted by the Earth and Environmental Systems Institute at Penn State University, State College, PA.
- 2021 November. The effect of climate change on water, wildfire, and life across western North America. Invited Richard Murphy Annual Memorial Lecture at the University of New Mexico, Albuquerque, NM.
- 2021 October. Why is wildfire activity increasing in the western US and how will this affect water resources? Invited seminar for the Department of Atmospheric and Oceanic Sciences at UCLA. University of California, Los Angeles, CA.
- 2021 October. The effect of climate change on water, wildfire, and life across western North America. Invited keynote lecture at annual meeting of the Association of Pacific Coast Geographers, San Diego, CA.
- 2021 September. Understanding the observed increase in western US wildfire activity over the past four decades. Invited talk at the UCLA Law School Faculty Workshop, Los Angeles, CA.
- 2021 May. Impact of anthropogenic warming on an emerging North American megadrought. Invited virtual seminar for NASA Goddard Hydrological Sciences Laboratory.
- 2021 April. Understanding the observed increase in western US wildfire activity over the past four decades. Invited virtual seminar for the Department of Earth and Planetary Sciences department at Harvard University.
<https://harvard.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=0351d500-89dd-4380-8649-ad080123058f>
- 2021 January. Understanding the observed increase in western US wildfire activity over the past four decades. Invited virtual seminar for the California Fire Science Seminar Series, hosted by the Fire Research Group at UC Berkeley and UC Merced.
<https://www.youtube.com/watch?v=7IDyCjXbkQM>
- 2021 January. Impact of anthropogenic warming on an emerging North American megadrought. Invited virtual seminar for UC Berkeley Atmospheric Sciences Center seminar series.
- 2020 September. On Fire: The Escalating Consequences of a Warming Climate. Public webinar hosted by Columbia University's Earth Institute.
<https://www.youtube.com/watch?v=Oca9231Msew>

- 2020 May. Impact of anthropogenic warming on an emerging North American megadrought. Invited national-scale webinar for the NOAA National Integrated Drought Information System. www.youtube.com/watch?v=VKxa_fWMguU
- 2020 March. Wildfire modeling in the western United States. Invited speaker at the Lamont Advisory Board Meeting, Lamont-Doherty Earth Observatory of Columbia University. Palisades, NY.
- 2020 February. Large contribution from anthropogenic warming to an emerging North American megadrought. Invited seminar for the Center for Ecosystem Science and Society and the School of Informatics, Computing, and Cyber Systems at the Northern Arizona University. Flagstaff, AZ.
- 2020 February. Large contribution from anthropogenic warming to an emerging North American megadrought. Invited seminar for the Laboratory of Tree Ring Research at the University of Arizona. Tucson, AZ.
- 2020 January. Large contribution from anthropogenic warming to an emerging North American megadrought. Invited seminar for the Geography Department at UCLA. Los Angeles, CA.
- 2020 January. Large contribution from anthropogenic warming to an emerging North American megadrought. Invited seminar for the Biology and Paleo Environment division at the Lamont-Doherty Earth Observatory of Columbia University. Palisades, NY.
- 2019 December. A 1200-year perspective on modern high- and low-frequency variability in California's Sierra Nevada cold-season precipitation using tree rings. Fall meeting of the American Geophysical Union – San Francisco, CA.
- 2019 November. Large contribution from anthropogenic warming to an emerging North American megadrought. Invited talk at the Healthy Forests, Healthy Watersheds Workshop at the University of Arizona. Tucson, AZ.
- 2019 September. Combining modern observations with clues from Earth's past to understand climate change, drought, and wildfire. Invited talk for the Columbia University Earth Institute's Climate Task Force. New York, NY.
- 2019 September. Wildfire, megadrought, and climate change in western North America. Lecture for the Harvard Atmospheric and Environmental Chemistry Seminar Series. Harvard University. Cambridge, MA.
- 2019 May. Wildfires. Invited talk at Columbia University's Workshop on Correlated Extremes. New York, NY.
- 2019 May. Understanding Sierra Nevada cool season precipitation from tree-ring reconstructions. Invited talk at the annual meeting on precipitation forecasting of the Western States Water Council. San Diego, CA.
- 2019 April. Climate change, wildfire, and megadrought. Invited public lecture for the Climate Change Education Seminar Series, hosted by the New Mexico State University. Las Cruces, NM.
- 2019 January. Paleoclimate: Using clues left behind by nature to tell the story of Earth's past. Invited workshop for local high school students at the New York City Department of Education's Youth Climate Summit. New York, NY.
- 2018 December. Twenty-first century megadrought in western North America: millennial context and anthropogenic contributions. Fall meeting of the American Geophysical Union – Washington, DC.

- 2018 December. The United States' wildfire problem. Invited talk at the Columbia University Earth Institute Faculty Meeting – New York, NY.
- 2018 October. Wildfire, megadrought, and the role of humans. Invited lecture for an outreach event hosted by Alex Halliday, director of the Columbia University Earth Institute – New York, NY.
- 2018 October. Wildfire, megadrought, and the role of humans. Invited lecture at the Earth Institute Practicum at Columbia University – New York, NY.
- 2018 October. Wildfire. Invited talk for Prudential, Lamont-Doherty Earth Observatory of Columbia University – Palisades, NY.
- 2018 October. Climate change, drought, and fire. Invited lecture at the annual Open House at the Lamont-Doherty Earth Observatory of Columbia University – Palisades, NY.
- 2018 September. Progress toward improved continental drought reconstruction. NSF project meeting, University of Albany – Albany, NY.
- 2018 September. Is western North America in a megadrought? Invited talk at an informal science brain-storming week hosted by Dr. Edward Cook – Rufina, Italy.
- 2018 August. Effect of reduced summer cloud shading on evaporative demand and wildfire in coastal southern California. Invited talk at the annual meeting of the Ecological Society of America – New Orleans, LA.
- 2018 May. Anthropogenic and natural influences on drought and fire in the western United States. Seminar at Oregon State University – Corvallis, OR.
- 2018 May. Effect of cloud cover reductions on aridity and fire danger in coastal California. Invited talk at the Fire Continuum Conference – Missoula, MT.
- 2018 May. Predictability of drought and its impacts, Invited talk for the Greenwich Retired Men's Association's speaker series on Food, Water, Shelter, and Energy – Greenwich, CT.
- 2018 April. Wildfire: A critical component of the coupled Earth system. Invited talk at the Land Atmosphere Interactions and Extremes Workshop within the 2018 US Climate Modeling Summit, University of Maryland – College Park, MD.
- 2018 March. The 2016 southeastern US drought: an extreme departure from centennial wetting and cooling. Invited talk for the monthly telecom for the National Land Data Assimilation System.
- 2018 February. Anthropogenic and natural influences on drought and fire in the western United States. Environmental Sciences Seminar Series, University of California, Merced – Merced, CA.
- 2018 February. Anthropogenic and natural influences on drought and fire in the western United States. Colloquium for the Department of Atmospheric and Environmental Sciences, University at Albany – Albany, NY.
- 2017 December. The 2016 southeastern US drought: an extreme departure from centennial wetting and cooling. Invited presentation at the 2017 fall meeting of the American Geophysical Union – New Orleans, LA.
- 2017 December. Humans, global climate change, and wildfire. Invited public lecture for Brooklyn Public Library's Green Series – Brooklyn, NY.
- 2017 October. Recent work on climate-induced changes in fire risk in the Southeastern US and coastal California. Presentation for the lab group of Dr. Jennifer Balch at the University of Colorado – Boulder, CO.

- 2017 September. Effects of human-caused climate change and forest management on fire in the western United States and beyond. Invited lecture at the Earth Institute Practicum at Columbia University – New York, NY.
- 2017 August. Human-caused warming, natural climate variability, and forest fire in the western United States. Invited talk at the annual meeting of the Ecological Society of America – Portland, OR.
- 2017 June. Research on water resources at the Lamont-Doherty Earth Observatory. Special presentation for the Columbia University Center for Climate and Life – Palisades, NY.
- 2017 May. Drought and wildfire in the western United States: implications for Chile. Meeting for the South American Drought Atlas. Laboratorio de Dendrocronología y Cambio Global, Universidad Austral de Chile – Valdivia, Chile.
- 2017 May. Drought and wildfire in the western United States: implications for Chile. Invited lecture at the Pontificia Universidad Católica de Valparaíso – Valparaíso, Chile.
- 2017 May. Drought and wildfire in the western United States: implications for Chile. Panel speaker at a seminar on the future of forests and glaciers in Chile. Columbia University's Global Center in Chile – Santiago, Chile.
- 2017 May. Recent work studying southeast US drought, and connections to upcoming work in South America. Columbia University's Earth Institute Faculty Meeting – Palisades, NY.
- 2017 May. Recent work studying southeast US drought, and connections to upcoming work in South America. Columbia University's Earth Institute Faculty Meeting – Palisades, NY.
- 2017 May. Causes and consequences of drought. Developmental Review at the Lamont-Doherty Earth Observatory of Columbia University – Palisades, NY.
- 2017 May. Recent work studying southeast US drought, and connections to upcoming work in South America. Columbia University's Earth Institute Faculty Meeting – Palisades, NY.
- 2017 April. The impact of human-caused warming on drought and forest fire in the western US. Systems Ecology Seminar Series, University of Montana – Missoula, MT.
- 2017 February. The impact of human-caused warming on drought and forest fire in the western US, and an evaluation of the fall 2016 drought in the Southeast US. Seminar for the Ocean & Climate Physics division at the Lamont-Doherty Earth Observatory, Columbia University – Palisades, NY.
- 2017 January. The impact of human-caused warming on drought and forest fire in the western United States. Colloquium for the Carnegie Ecology Seminar, Stanford University – Palo Alto, CA.
- 2016 October. The impact of human-caused warming on drought and fire in the western United States. Invited lecture at the annual Open House Event at the Lamont-Doherty Earth Observatory of Columbia University – Palisades, NY.
- 2016 February. How climate and humans shape drought impacts in the western United States. Colloquium for the Earth & Environmental Sciences Department at the University of Illinois, Chicago – Chicago, IL.
- 2016 February. Drought, vegetation, and wildfire: an overview. Tele-conference for the Bureau of Land Management's Division of Wildfire Predictive Services Division – Boise, ID.
- 2016 February. Contribution of human-caused warming to the recent California drought. Presentation for Arup, an independent engineering firm that works on global climate change adaptation and resilience – Palisades, NY.
- 2015 December. Certainties and uncertainties in the future of forest fire in the western United States. American Geophysical Union Meeting – San Francisco, CA.

- 2015 December. Contribution of anthropogenic warming to California drought during 2012-2015. Invited talk at the American Geophysical Union Meeting – San Francisco, CA.
- 2015 December. How climate and humans are shaping droughts in western North America. Presentation for the Director’s Circle of the Lamont-Doherty Earth Observatory of Columbia University – New York, NY.
- 2015 December. How climate and humans shape drought in the western United States. Seminar for the Columbia University Department of Ecology, Evolution, and Environmental Biology – New York, NY.
- 2015 October. Drought, vegetation, and wildfire: an overview. Keynote speaker at a NIDIS workshop on Integrating Drought Science and Information with Wildfire Management – Boise, ID.
- 2015 May. A road trip through three states of drought, from the Southwestern forests to the Los Angeles Coast. Seminar for the UCLA Geography Department – Los Angeles, CA.
- 2015 April. Temperature is a potent driver of regional forest drought stress, disturbance, and tree mortality. University of Arkansas Geosciences Departmental Seminar – Fayetteville, AR.
- 2015 March. Decomposition of Thornthwaite and P-M PDSI into T and P contributions for CA up through the past winter. Drought Task Force monthly telecom – Hosted by Martin Hoerling, Boulder, CA.
- 2015 March. Urbanization causes increased cloud-base height and decreased fog in coastal southern California. Pacific Climate Meeting (PACCLIM) – Pacific Grove, CA.
- 2014 September. Drought, forests, wildfire, and coastal fog in the Southwestern U.S. Seminar for the University of Delaware Geography Department – University of Delaware, Newark, DE.
- 2014 June. Temperature is a potent driver of regional forest drought stress, disturbance, and tree mortality. Guest Lecture for Columbia University’s Graduate Program on Management Science and Engineering – Columbia University, New York.
- 2014 June. Climate controls on past and future summer fog and stratus cloudiness in coastal southern California. USGS webinar series on fog studies.
- 2014 February. Influence of Indian Ocean warming on atmospheric circulation and drought in the Horn of Africa. Seminar at Addis Ababa University – Addis Ababa, Ethiopia.
- 2014 January. Temperature is a potent driver of regional forest drought stress, disturbance, and tree mortality. Invited speaker at the 9th International Conference on Dendrochronology (WorldDendro) – Melbourne, Australia.
- 2013 December. Temperature is a potent driver of regional forest drought stress, disturbance, and tree mortality. Invited talk at the American Geophysical Union Meeting – San Francisco, CA.
- 2013 October. Temperature is a potent driver of regional forest drought stress, disturbance, and tree mortality. Invited talk at the 12th Biennial Conference of Science and Management on the Colorado Plateau – Flagstaff, AZ.
- 2013 September. Climate change and global forests. Invited dinner speaker at the Los Alamos National Laboratory’s meeting of the Board of the Governors – Santa Fe, NM.
- 2013 September. Drought, climate change, and their ecological impacts. Invited seminar at the Lamont-Doherty Earth Observatory at Columbia University – Palisades, NY.

- 2013 August. Temperature is a potent driver of regional forest drought stress and tree mortality. Invited Speaker at the Ecological Society of America (ESA) meeting – Minneapolis, MN.
- 2013 July. Accelerating global forest mortality. Meeting of the Regents of the University of California – San Francisco, CA.
- 2013 June. The future of southwestern climate and forests. Presentation for a panel of external reviewers of the Los Alamos National Laboratory – Los Alamos, NM.
- 2013 April. The future of southwestern climate and forests. Sierra Club Climate Town Hall Meeting – Albuquerque, NM.
- 2013 March. Broad and diverse investigations into drought and its impacts. Los Alamos National Laboratory seminar for management – Los Alamos, NM.
- 2013 February. The future of southwestern forests. Albuquerque Rotary Club – Albuquerque, NM.
- 2013 January. Temperature as a potent driver of regional forest drought stress and tree mortality. Southwestern Wildfire Consortium – Santa Fe, NM.
- 2012 December. Climate controls on summer fog and stratus cloudiness in coastal southern California. Invited speaker at the American Geophysical Union Meeting – San Francisco, CA.
- 2012 November. How climate will change our forests. Los Alamos National Laboratory project review meeting – Los Alamos, NM.
- 2012 October. How climate will change our forests, and when. Department of Earth & Planetary Sciences Colloquium – University of New Mexico, Albuquerque, NM.
- 2012 October. How climate will change our forests, and when. Public lecture – Museum of Northern Arizona, Flagstaff, AZ.
- 2012 October. Temperature as a potent driver of forest drought stress and tree mortality. Mountain Climate Research Conference (MtnClim) – Estes Park, CO.
- 2012 September. Climate change and the rising cost of living for forests in the Southwestern United States. Southwest Climate Conference – Jemez Springs, NM.
- 2012 June. Climate change and the rising cost of living for forests in the Southwestern United States. Seminar for Los Alamos National Laboratory's Climate, Ocean and Sea Ice Modeling (COSIM) group – Los Alamos, NM.
- 2012 June. Temperature and atmospheric circulation effects on forests and society. Seminar for the Department Ecology and Conservation – University of Montana, Missoula.
- 2012 April. Climate change and the rising cost of living for forests in the Southwestern United States. Geography Department Colloquium – University of Wisconsin, La Crosse.
- 2012 March. Tree rings from USA Southwest foretell of forest declines under future climate. Santa Fe Watershed Climate Change Workshop – Santa Fe, NM.
- 2010 December. Forest responses to increasing aridity and warmth in southwestern North America. American Geophysical Union Meeting – San Francisco, CA.
- 2010 December. Forest responses to increasing aridity and warmth in southwestern North America. AGU press conference – San Francisco, CA.
- 2010 December. Stable isotopes in tree rings from Ethiopia suggest a changing moisture source during the summer rainy season. Monthly Climate Research Meeting – The Earth Research Institute (ERI) and Institute for Computational Earth System Science (ICESS) – UC Santa Barbara.

- 2010 November. Forest responses to increasing aridity and warmth in southwestern North America. Invited talk at the California Forest Pest Council Annual Meeting – Sacramento, CA.
- 2010 September. Diagnosing the causes of decadal-scale variability of precipitation in the Greater Horn of Africa. Monthly Climate Research Meeting – The Earth Research Institute (ERI) and Institute for Computational Earth System Science (ICESS) – UC Santa Barbara.
- 2010 August. Covariability among ocean temperatures, atmospheric circulation, and eastern African rainfall from March through September. Famine Early Warning System Network (FEWS NET) Meeting – Boulder, CO.
- 2010 August. Forest responses to increasing aridity and warmth in southwestern North America. Ecological Society of America (ESA) – Pittsburgh, PA.
- 2010 April. A westward extension of the warm pool intensifies the Walker circulation, drying eastern Africa. Famine Early Warning System Network (FEWS NET) Meeting – UC Santa Barbara, CA.
- 2009 June. Climatic controls on summertime fog and low stratus cloudiness along the US West Coast – Invited talk at Scripps Institute of Oceanography – La Jolla, CA.
- 2009 March. Climatic controls on summertime fog and low stratus cloudiness along the US West Coast – Pacific Climate Meeting (PACLIM) – Pacific Grove, CA.
- 2008 February. The influence of summertime fog and overcast clouds on the growth of a coastal Californian pine: a tree-ring study. Channel Islands Symposium – Oxnard, CA.
- 2007 December. Using tree-ring width data from 1,000 sites to predict how American forests will respond to climate change. American Geophysical Union Meeting – San Francisco, CA.
- 2007 October. Using tree-ring width data from 1000 sites to predict how American forests will respond to climate change. Biological Impacts of Climate Change in California (BICCCA) meeting – Stanford University, CA.

Poster Sessions

- 2016 December. Impact of anthropogenic climate change on wildfire across western US forests. American Geophysical Union Meeting – San Francisco, CA.
- 2014 December. Urbanization reduces fogginess in coastal Southern California. American Geophysical Union Meeting – San Francisco, CA.
- 2012 December. Temperature as a potent driver of regional forest drought stress and tree mortality. American Geophysical Union Meeting – San Francisco, CA.
- 2011 December. 1,100 years of past, present, and future forest response to drought in the North American Southwest. American Geophysical Union Meeting – San Francisco, CA.
- 2010 December. Diagnosing the causes of drought during the summer rainy season in the Greater Horn of Africa. American Geophysical Union Meeting – San Francisco, CA.
- 2009 December. Airflow toward Kenya during the long and short rainy seasons. American Geophysical Union Meeting – San Francisco, CA.
- 2008 December. Climatic controls on summertime fog and low stratus cloudiness along the US West Coast. American Geophysical Union Meeting – San Francisco, CA.
- 2006 March. Teasing foggy memories out of pines on the California Channel Islands using tree-ring and stable isotope approaches. Pacific Climate (PACLIM) meeting – Pacific Grove, CA.

- 2006 December. Teasing foggy memories out of pines on the California Channel Islands using tree-ring and stable isotope approaches. American Geophysical Union Meeting – San Francisco, CA.
- 2005 December. Fog and Vegetation on the California Channel Islands: A tree ring and satellite analysis. American Geophysical Union Meeting – San Francisco, CA.
- 2005 September. Fog and Vegetation on the California Channel Islands: A tree ring and satellite analysis. NASA Biodiversity and Ecological Forecasting team meeting – Washington, D.C.

Peer Reviewer

Journal reviews: 1 *Aerosol and Air Quality Research*; 2 *Agriculture and Forest Meteorology*; 3 *Atmospheric Chemistry and Physics*; 4 *Atmospheric Environment*; 5 *Biogeosciences*; 6 *Bulletin of the American Meteorological Society*; 7 *Communications Earth & Environment*; 8 *Climatic Change*; 9 *Climate Dynamics*; 10 *Columbia University Press*; 11 *Dendrochronologia*; 12 *Earth's Future*; 13 *Earth System Science Data*; 14 *Ecography*; 15 *Ecological Applications*; 16 *Ecology*; 17 *Ecology Letters*; 18 *Ecosystems*; 19 *Environmental Research Letters*; 20 *Geophysical Research Letters*; 21 *Global Change Biology*; 22 *Global Ecology and Biogeography*; 23 *Hydrological Processes*; 24 *International Journal of Climatology*; 25 *Journal of Applied Ecology*; 26 *Journal of Applied Meteorology and Climatology*; 27 *Journal of Biogeography*; 28 *Journal of Climate*; 29 *Journal of Forest Ecology and Management*; 30 *Journal of Geophysical Research – Atmospheres*; 31 *Journal of Geophysical Research – Biogeosciences*; 32 *Journal of Hydrology*; 33 *Journal of Hydrometeorology*; 34 *Journal of Selected Topics in Applied Earth Observations and Remote Sensing*; 35 *Journal of the Torrey Botanical Society*; 36 *Landscape Ecology*; 37 *Meteorological Applications*; 38 *Methods in Ecology and Evolution*; 39 *Nature*; 40 *Nature Climate Change*; 41 *Nature Communications*; 42 *Nature Ecology & Evolution*; 43 *Nature Geoscience*; 44 *New Phytologist*; 45 *npj Climate and Atmospheric Science*; 46 *Oecologia*; 47 *Plant, Cell & Environment*; 48 *Proceedings of the National Academy of Sciences USA*; 49 *Proceedings of the Royal Society B*; 50 *Quaternary Research*; 51 *Quaternary Science Advances*; 52 *Remote Sensing of Environment*; 53 *Science*; 54 *Science Advances*; 55 *Scientific Reports*; 56 *The Holocene*; 57 *The Science of the Total Environment*; 58 *Tree-Ring Research*; 59 *Water*; 60 *Water Resources Research*

Grant Proposal reviews: LDEO Center for Climate & Life; LDEO Postdoctoral Fellowship; NASA ABoVE; NSF Paleo Perspectives on Climate Change; USGS National Climate Change and Wildlife Science Center

Editor

2022–2023. Review Editor for the 2023 United States National Climate Assessment.

Course Instructor

Winter 2024 UCLA; GEOG 1: Earth's Physical Environment
Fall 2023 UCLA; GEOG 1: Earth's Physical Environment
Spring 2023 UCLA; GEOG 119: Global Climate and Climate Change
Winter 2023 UCLA; GEOG 280: Climate Modeling, the IPCC, and the CMIP6
Fall 2022 UCLA; Geog 1: Earth's Physical Environment
Spring 2022 UCLA; Geog 1: Earth's Physical Environment
Winter 2022 UCLA; GEOG 280: Climate Modeling, the IPCC, and the CMIP6
Fall 2021 UCLA; GEOG 191: Introduction to Climatology and Global Climate Change

Summer 2020 Columbia University; U6115: Climatology (part of the MPA program in Environmental Science and Policy, School of International and Public Affairs)
Summer 2019 Columbia University; U6115: Climatology
Summer 2018 Columbia University; U6115: Climatology
Summer 2017 Columbia University; U6115: Climatology
Summer 2016 Columbia University; U6115: Climatology
Summer 2007 UCSB; Geography 3B: Intro. to Physical Geography II: Land Surface Processes (co-taught with Ryan Perroy)

Teaching Assistantships

Spring 2008 UCSB; Geography 175: Environmental Data Analysis (Professor: Dar Roberts)
Winter 2008 UCSB; Geography 110: Introductory Meteorology (Professor: Joel Michaelsen)
Winter 2008 UCSB; Geography 3A: Intro. to Physical Geography (Professor: Tommy Dickey)
Fall 2007 UCSB; Environmental Studies 100: Environmental Ecology (Professor: Joshua Schimel)
Fall 2006 UCSB; Geography 3A: Intro. to Physical Geography (Professor: Christopher Still)
Fall 2004 UCSB; Geography 3A: Intro. to Physical Geography (Professor: Christopher Still)
Spring 2004 UCSB; Geography 134: Global Climate Change (Professor: Catherine Gautier)
Winter 2004 UCSB; Geography 3A: Intro. to Physical Geography (Professor: Christopher Still)
Fall 2003 UCSB; Geography 167: Biogeography (Professor: Christopher Still)

Supplemental Educational Activities as a Graduate Student

North American Dendroecological Fieldweek: June 2007. Completed a 1-week tree-ring field course in Smokey Mountains National Park, TN.
University of California, Santa Barbara – Geography Department: 2007. Worked to design a biogeography field methods course, funded by a UCSB course improvement grant.
University of California, Santa Barbara – Geography Department: 2005-2006. Assisted on a course improvement grant for Geography 167 (*Biogeography: The Study of Plant and Animal Distributions*, C. Still, instructor) to create a course workbook.
University of Arizona – Laboratory of Tree Ring Research: May 2005. Completed a 1-week Wood Anatomy course led by Dr. Fritz Schweingruber and Dr. Holger Gärtner.
University of Arizona – Laboratory of Tree Ring Research: May & June 2005. Completed a 2 week Dendroecology course led by Drs. Tom Swetnam and Don Falk.
University of Utah – Biology Department: June 2004. Completed a 2-week Stable Isotope Ecology course led by Dr. Jim Ehleringer and other leaders in the field.

Graduate students advised

Anna Jiselle Ongjoco (PhD, UCLA) 2024-present – Committee member
Karen Dutko (MA, UCLA) 2024-present – Committee member
Jennifer Badger (PhD, UCLA) 2023-present – Committee member
Bowen Wang (MA, UCLA) 2023-present – Committee chair
Qian He (PhD, UCLA) 2023-present – Committee chair
Erica Gallerani (PhD, UCLA) 2023-present – Committee member
Melissa Ferriter (PhD, UCLA) 2022-present – Committee co-chair
Jacob Jones (PhD, UCLA) 2022-present – Committee chair
Francis Turney (PhD, UCLA) 2022-2024 – Committee member
Alexander Gottlieb (PhD, Dartmouth) 2021-present – External committee member

Zhaoxin Ban (PhD, UCLA) 2020-2023 – Committee member
Lu Su (PhD, ULCA) 2020-2023 – Committee member
Caroline Juang (PhD, Columbia) 2019-present – Committee chair
Krishna Rao (PhD, Stanford) 2019-2022 – External committee member
Daniel Kennedy (PhD, Columbia) 2018-2019 – Committee member
Arianna Varuolo-Clarke (PhD, Columbia) 2018-2023 – Committee co-chair
Daniel Bishop (PhD, Columbia) 2016-2021 – Committee chair
Colleen Baublitz (PhD, Columbia) 2016-2019 – Committee member
Xiaomeng Jin (PhD, Columbia) 2015-2020 – Committee member

Postdoctoral researchers mentored

Jatan Buch 2021-present – Co-mentor
Katherine (Kasey) Bolles 2018-present – Primary mentor
Winslow Hansen 2018-present – Primary mentor
Sha Zhou 2018-present – Co-mentor
Nathan Steiger 2016-present – Unofficial co-mentor
Justin Mankin 2016-2018 (now at Dartmouth College) – Unofficial co-mentor

Undergraduate students advised

Jade Bentley 2023-present
Bowen Wang 2023-present

Other synergistic activities

Conference organization

Co-organizer of the Conference on Fire Prediction Across Scales, a 3-day meeting of approximately 100 scientists, managers, and stake-holders interested in learning about and improving fire modeling. Columbia University–New York, NY, October 23-25, 2017.

STEM outreach and diversity

March 2020. Guest on the Bill Nye *Science Rules* podcast.

<https://www.stitcher.com/podcast/stitcher/science-rules-with-bill-nye/e/68137498>

January 2020. Video interview with 4th grade class in Brooklyn, NY about climate change, wildfires, and what they can do to help.

October 2019. Panelist in a discussion for the public at the Lamont-Doherty Open House, titled “Beyond Hot Headlines: New Frontiers in Effective Climate Communication”

January 2019. Workshop leader at the New York City Youth Climate Summit, put on by the NYC Department of Education “to empower 9th-12th grade students to learn about the issues related to climate change and collaborate on innovative cross-discipline solutions.”

2018-2019. Mentor for a freshman at Nikola Tesla STEM High School in Redmond, WA. My role is to mentor this student’s research project on wildfire prediction modeling for the 2019 Central Sound Regional Science and Engineering Fair.

November 2017. Participant in an NSF-funded 3-day GeoDES workshop at UCAR (Boulder, CO) to enhance social justice and diversity in the geosciences.

February 2017. Video lesson on tree rings and climate for Lindsey Middle School in Long Beach, California.

November 2015. Demonstration on tree rings and climate for high-school students from Harlem, NY through Columbia University’s Double Discovery Center, which aims to

increase high-school graduation and college education among first-generation college-bound youth from low performing schools in northern Manhattan.

Interaction with practitioners

Invited talk at a workshop by the National Academies of Sciences, Engineering, and Medicine on Greenhouse Gas Emissions from Wildland Fires aimed at assessing the status of knowledge regarding the effect of wildfires on carbon emissions and potential for mitigation at regional to global scales. September 2023.

Keynote Talk for the UC Santa Barbara Wildfire Prevention and Policy Lecture Series at the Santa Barbara Fire Safe Council Workshop in Santa Barbara, CA. October 2022.

Keynote Lecture for the Urban Water Institute Fall Conference in San Diego, CA. August 2022.

Keynote Lecture at the inaugural meeting of UCLA's Climate and Wildfire Institute about the effect of climate change on wildfire in the western United States. UCLA. June 2022.

Invited lecture at the annual meeting on Seasonal to Sub-Seasonal Precipitation Forecasting, held by the Western States Water Council and the California Department of Water Resources. San Diego, CA. May 2019.

Invited public lecture for the Climate Change Education Seminar Series, hosted by the New Mexico State University. Las Cruces, NM. April 2019.

Invited participant at the National Academies of Sciences Sackler Forum on Climate Change and Ecosystems, held in at the NAS Headquarters in Washington D.C. November 2018.

Contributing Author of California's Fourth Climate Change Assessment, Statewide Summary Report, published August 27, 2018: <http://climateassessment.ca.gov/>

Invited participant at a workshop at the University of Idaho titled "Towards a National Fire Science and Technology Center: Goals for Collaboration." The ultimate objective is to develop a proposal that aims to improved integration of wildfire research/modeling with management. June 2017.

Three-day visit to Santiago and Valparaiso, Chile to present to universities and meet with government officials to discussion the recent devastating Chilean wildfires that occurred in southern hemisphere summer 2016/17. May 2017.

Meetings with officials in the California Department of Water Resources (DWR), including Jeanine Jones who oversees DWR-sponsored research. The purpose of the meetings was to discuss research ideas and how I can enhance the usefulness of my research. April 2017–present.

Invited participation in a small workshop (~30 participants) in San Francisco, CA on Droughts of the Future organized by the Public Institute of California Center for Water Policy. April 2017.

Invited participant at the National Academies of Sciences Workshop on Wildland Fire, held in at the NAS Headquarters in Washington D.C. The theme of the workshop is "A Century of Wildland Fire: Contributions to Long-Term Approaches for Wildland Fire Management." March 2017.

Keynote talk and participation at NIDIS workshop for wildfire managers in Boise, Idaho. October 2015.

University committee service

2023–2024: UCLA Campus committee on Libraries and Scholarly Communications

2023: UCLA Department of Geography Faculty Promotion Committee chair

2023–2024: UCLA Department of Geography Search Committee member for the Alexander von Humboldt Endowed Chair in Geography
2023–2024: UCLA Department of Geography Graduate Committee member
2023: UCLA Department of Geography Faculty Promotion Committee chair
2022–2023: UCLA Department of Geography Graduate Committee member
2022: UCLA Department of Geography Faculty Promotion Committee chair
2022: UCLA Department of Geography Faculty Promotion Committee member
2021: UCLA Department of Geography Faculty Promotion Committee member
2020: Lamont-Doherty Earth Observatory Vision Committee
2019: Search committee member – Columbia University Climate & Life Fellowship
2018: Search committee member – Columbia University Climate & Life Fellowship
2017: Search committee member – Columbia University Climate & Life Fellowship
2016/17: Search committee member – Lamont Research Professor for the Oceanography and Climate Physics Division
2016: Search committee member – Columbia University Climate & Life Fellowship
2015/16: Search committee Chair – Lamont Postdoc Fellowship
2014/15: Search committee member – Lamont Postdoc Fellowship

Select media coverage

<https://www.latimes.com/environment/story/2022-02-21/growing-wildfires-pose-new-problems-for-water-supply>
<https://www.latimes.com/environment/story/2022-02-14/western-megadrought-driest-in-1200-years>
<https://www.nytimes.com/2022/02/14/climate/western-drought-megadrought.html>
<https://www.nytimes.com/2020/04/24/nyregion/lamont-doherty-earth-observatory-global-warming.html>
<https://www.economist.com/science-and-technology/2020/04/18/the-american-wests-drought-is-its-second-worst-for-12-centuries>
<https://www.nytimes.com/2020/04/16/climate/drought-southwest-climate-change.html>
<https://www.teenvogue.com/story/california-wildfires-why-happening>
<https://www.nytimes.com/2019/10/25/climate/california-fires-climate-change.html>
<https://www.pbs.org/newshour/show/climate-change-is-part-of-californias-perfect-recipe-for-intense-wildfire>
<https://www.nytimes.com/2017/12/07/climate/california-fires-warming.html>
https://www.democracynow.org/2017/10/11/as_deadly_wildfires_rage_in_california
<http://www.climatecentral.org/news/climate-change-behind-surge-western-wildfires-20775>
<https://www.nytimes.com/2016/10/11/science/climate-change-forest-fires.html>
<http://www.mercurynews.com/2016/10/10/new-study-forest-fires-have-doubled-in-west-due-to-climate-change/>
<https://www.nytimes.com/2015/08/21/science/climate-change-intensifies-california-drought-scientists-say.html>
<http://www.latimes.com/science/la-sci-climate-change-drought-20150820-story.html>
https://www.democracynow.org/2015/8/21/global_warming_worsens_california_drought_as
<http://www.latimes.com/science/sciencenow/la-sci-sn-summer-fog-urban-sprawl-20150306-story.html>