



Noah Diffenbaugh

William Wrigley Professor and Kimmelman Family Senior Fellow
Earth System Science

Bio

BIO

Dr. Noah Diffenbaugh is the William Wrigley Professor and Kimmelman Family Senior Fellow in Stanford's Doerr School of Sustainability, and the Olivier Nomellini Family University Fellow in Undergraduate Education. His research is focused on understanding what aspects of the climate system most directly and acutely impact people and ecosystems. Dr. Diffenbaugh has served as a Lead Author for the Intergovernmental Panel on Climate Change (IPCC), and as Editor-in-Chief of the peer-review journals *Geophysical Research Letters* and *Environmental Research: Climate*. He has provided testimony and scientific expertise to Federal, State and local officials. Dr. Diffenbaugh is an elected Fellow of the American Geophysical Union (AGU), a recipient of the James R. Holton Award and William Kaula Award from the AGU, and has been recognized as a Kavli Fellow by the U.S. National Academy of Sciences.

ACADEMIC APPOINTMENTS

- Professor, Earth System Science
- Senior Fellow, Stanford Woods Institute for the Environment
- Affiliate, Precourt Institute for Energy

ADMINISTRATIVE APPOINTMENTS

- William Wrigley Professor, Department of Earth System Science, Stanford University, (2025- present)
- Chair, Department of Earth System Science, Stanford University, (2023- present)
- Kimmelman Family Senior Fellow, Woods Institute for the Environment, Stanford University, (2017- present)
- Kara J Foundation Professor, Department of Earth System Science, Stanford University, (2017-2025)
- Professor of Earth System Science, Stanford University, (2016- present)
- Senior Fellow, Woods Institute for the Environment, Stanford University, (2013- present)
- Associate Professor of Environmental Earth System Science, Stanford University, (2013-2016)
- Assistant Professor of Environmental Earth System Science, Stanford University, (2009-2013)
- Center Fellow, Woods Institute for the Environment, Stanford University, (2009-2013)
- Associate Professor of Earth and Atmospheric Sciences, Purdue University, (2008-2009)
- Assistant Professor of Earth and Atmospheric Sciences, Purdue University, (2004-2008)
- Postgraduate Research Earth Scientist, University of California, Santa Cruz, (2003-2004)

HONORS AND AWARDS

- Fellow, American Geophysical Union (2020)

- William Kaula Award, American Geophysical Union (2020)
- James R. Holton Award, American Geophysical Union (2006)
- Highly Cited Research, Clarivate Web of Science (2020 - 2024)
- Timothy J. O'Leary, S. J., Distinguished Scientist, Gonzaga University (2018)
- Kavli Fellow, U.S. National Academy of Sciences (2010, 2016)
- NSF CAREER Award, National Science Foundation (2010 - 2015)
- Google Science Communication Fellow, Google (2011)
- Faculty Scholar, Stanford University (2015 – 2016)
- Stanford Fellow, Stanford University (2013 - 2015)
- Terman Fellowship, Stanford University (2009 - 2012)
- University Faculty Scholar, Purdue University (2009)
- ARCS Scholar, ARCS Foundation (2002 - 2003)
- Regents Fellowship, University of California (2000 - 2001)
- Editors' Highlight, Herrera-Estrada and Diffenbaugh, 2020, Water Resources Research (2020)
- Featured Article, Goss et al., 2020, Environmental Research Letters (2020)
- Journal Highlight, Batibeniz et al., 2020, Earth's Future (2020)
- "Top 10 Stories of 2019", Diffenbaugh and Burke, PNAS, 2019, Proceedings of the National Academy of Sciences (2019)
- ISI "Highly Cited Paper", Diffenbaugh and Burke, PNAS, 2019, Thompson Reuters (2019)
- Journal Highlight, Gonzales et al., 2019, Journal of Geophysical Research-Atmospheres (2019)
- ISI "Highly Cited Paper", Burke et al., Nature, 2018, Thompson Reuters (2018)
- Panelist, 154th National Academy of Sciences Annual Meeting, National Academy of Sciences (2017)
- Geosciences Distinguished Lecture, National Science Foundation (2016)
- Introductory Speaker, US Kavli Frontiers of Science, National Academy of Sciences (2016)
- ISI "Hot Paper" and "Highly Cited Paper", Diffenbaugh et al., PNAS, 2015, Thompson Reuters (2015)
- "2015 Highlights", Mankin et al., Environmental Research Letters (2015)
- "California Game Changers at COP21", NexGen Climate America (2015)
- ISI "Highly Cited Paper", Swain et al., Bulletin of the American Meteorological Society, Thompson Reuters (2014)
- ISI "Highly Cited Paper", Horton et al., Nature Climate Change, 2014, Thompson Reuters (2014)
- ISI "Highly Cited Paper", Singh et al., Nature Climate Change, 2014, Thomson Reuters (2014)
- School of Earth Sciences Undergraduate Teaching Recognition, Stanford University (2014)
- ISI "Highly Cited Paper", Diffenbaugh and Field, Science, 2013, Thompson Reuters (2013)
- ISI "Highly Cited Paper", Diffenbaugh et al., Nature Climate Change, 2013, Thomson Reuters (2013)
- Fifth Anniversary Collection, Diffenbaugh et al., 2011, Environmental Research Letters (2011)
- "2011 Highlights", Diffenbaugh et al., Environmental Research Letters (2011)
- AGU Research Spotlight, Diffenbaugh and Ashfaq, GRL, American Geophysical Union (2010)
- "2009 Highlights," Ahmed et al., Environmental Research Letters (ERL) (2009)
- Fifth Anniversary Collection, Jackson et al., Environmental Research Letters, (2008)
- NSF Highlight of significant achievement toward strategic outcome goals, Trapp et al., 2007, National Science Foundation (2008)
- "Best of 2008," Diffenbaugh et al., Environmental Research Letters (ERL) (2008)

- "Best of 2008," Jackson et al, Environmental Research Letters (2008)
- Purdue President's Nominee - Packard Fellowship for Science and Engineering, Purdue University (2007)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editor-in-Chief, Environmental Research: Climate (2021 - present)
- Editor, Earth's Future (2020 - present)
- Member, University Budget Group, Stanford University (2019 - present)
- Member, Sustainability School planning team, Stanford University (2019 - 2022)
- AB 2800 Climate Safe Infrastructure Working Group, State of California (2017 - 2018)
- Earth Council, School of Earth, Energy and Environmental Sciences (2016 - 2022)
- Editor-in-Chief, Geophysical Research Letters (2015 - 2019)
- Undergraduate Advisory Council, Vice Provost for Undergraduate Education, Stanford University (2014 - 2018)
- Earth Sciences Council, School of Earth Sciences, Stanford University (2014 - 2015)
- Undergraduate Teaching Recognition, School of Earth Sciences, Stanford University (2014 - 2014)
- Faculty Advisory Board, Introductory Seminar Program, Stanford University (2013 - 2016)
- Dean's Teaching Task Force, School of Earth Sciences, Stanford University (2013 - 2014)
- Search Committee (co-Chair), Coastal Human-Environment Systems, Stanford University (2013 - 2014)
- Faculty Committee, Sustainable Urban Systems initiative, Stanford University (2013 - 2013)
- Director, Goldman Honors Program in Environmental Science, Technology and Policy, Stanford University (2012 - 2015)
- Member, Science Advisory Board, Climate Change Science Institute, Oak Ridge National Laboratory (2012 - 2015)
- Academic Guidance Committee, Emmett Interdisciplinary Program in Environment and Resources (E-IPER), Stanford University (2012 - 2013)
- Faculty Mentor, MUIR Woods Undergraduate Research Program, Stanford University (2012 - 2012)
- Faculty Mentor, Stanford Leland Scholars Program, Stanford University (2012 - 2012)
- Committee on the Effects of Provisions in the Internal Revenue Code on Greenhouse Gas Emissions, National Academy of Sciences (2011 - 2013)
- Member, Sustainability 2.0 faculty committee, Stanford University (2011 - 2012)
- Climate Science Day on Capitol Hill, February 16-17, 2011, American Geophysical Union (2011 - 2011)
- Organizing Committee, Simulating the Spatial-Temporal Patterns of Anthropogenic Climate Change, Los Alamos Institute for Advanced Studies Workshop (2011 - 2011)
- Co-Term Advisor, Earth Systems Program, Stanford University (2010 - present)
- Pre-Major Advisor, Stanford University (2010 - present)
- Scientific Research Computing Facility Faculty Committee, Stanford University (2010 - present)
- Stanford University Member Representative, University Corporation for Atmospheric Research (2010 - present)
- Lead Author, Working Group II, Intergovernmental Panel on Climate Change (2010 - 2014)
- Graduate Admissions Committee, E-IPER, Stanford University (2010 - 2013)
- Undergraduate Education Committee, School of Earth Sciences, Stanford University (2010 - 2013)
- Faculty Mentor, School of Earth Sciences High School Intern Program, Stanford University (2010 - 2012)
- Environmental Forum Organizing Committee, Woods Institute for the Environment, Stanford University (2010 - 2011)
- Co-Director, Fifth ICTP Workshop on the Theory and Use of Regional Climate Models, May, 2010, Trieste, Italy, International Centre for Theoretical Physics (2010 - 2010)
- Organizing Committee, Climate Change Modeling and Scaling Workshop, U.S. National Climate Assessment (2010 - 2010)
- Adjunct Associate Professor of Earth and Atmospheric Sciences, Purdue University (2009 - present)

- Affiliated Faculty, Emmett Interdisciplinary Program in Environment and Resources (E-IPER), Stanford University (2009 - present)
- Committee of the Whole, Earth Systems Program, Stanford University (2009 - present)
- Editor, Geophysical Research Letters (2009 - 2014)
- Graduate Admissions Committee, Department of Environmental Earth System Science, Stanford University (2009 - 2013)
- Co-Chair, Paleooceanography and Paleoclimatology General Contributions, 2009 Joint Assembly, May 24-29, Toronto, Canada, American Geophysical Union (2009 - 2009)
- DOE Climate Change Science: Focus Group, July 27-28, Washington, D.C., Department of Energy (2009 - 2009)
- Executive Committee, Atmospheric Sciences Section, American Geophysical Union (2008 - present)
- Atmospheric Science Section Representative, Eos Advisory Board, American Geophysical Union (2008 - 2009)
- Interim Director, Purdue Climate Change Research Center, Purdue University (2008 - 2009)
- Co-Chair, Regional-Scale Forcing of Climate, AGU Fall Meeting, San Francisco, CA, December 15-19, American Geophysical Union (2008 - 2008)
- Co-Chair, Transitioning Out of the Mid-Holocene Climate: An Evaluation of Land-Ocean Proxy Records and Model Simulations, AGU Fall Meeting, San Francisco, CA, December 15-19, American Geophysical Union (2008 - 2008)
- Coordinating Lead Author, Climate Change in Indiana: Initial Analyses of Impacts and Opportunities, an analysis of S.2191, U.S. Senator Richard Lugar's office (2008 - 2008)
- Proposal Panelist – DOE (National Lab Climate Change Scientific Focus Areas; Regional Models for Climate Change Integrated Assessment); NASA (Modeling, Analysis, and Prediction); NOAA (Climate Prediction Program for the Americas); NSF (CDI-II); U.S. CLIVAR (Drought in Coupled Models Project), DOE, NASA, NOAA, NSF, U.S. CLIVAR (2007 - present)
- Member, Terrestrial Ecosystems and Climate Policy Working Group, National Center for Ecological Analysis and Synthesis (2007 - 2010)
- Contributing Author, CCSP Synthesis and Assessment Product 3.4, Abrupt Climate Change, Hydrologic Variability and Change, Chapter 3, U.S. Geological Survey (2007 - 2008)
- Book Chapter Referee – Climate Impact Hotspots: Key Vulnerable Regions and Climate Change, Publishing (2007 - 2007)
- Report Referee, California Energy Commission, State of Washington (2007 - 2007)
- Short Term Visitor, Abdus Salam International Centre for Theoretical Physics (2006 - present)
- Co-Guest Editor, Glacial-Interglacial Climate of the Past 160,000 Years: New Insights from Data and Models, Special Issue, Palaeogeography, Palaeoclimatology, Palaeoecology (2006 - 2006)
- Contributor, Agency Technical Working Group, Potential Effects of Climate Change on New Mexico, State of New Mexico (2006 - 2006)
- Journal Manuscript Referee, Proceedings of the National Academy of Sciences, Quaternary International, Quaternary Research, Quaternary Science Reviews, Theoretical and Applied Climatology, Water Resources Management (2003 - present)
- Journal Manuscript Referee, Agricultural and Forest Meteorology, Atmospheric Research, Climate Dynamics, Climate Research, Climatic Change, Earth Interactions, Eos, Geology, Geophysical Research Letters, Global and Planetary Change (2003 - present)
- Journal Manuscript Referee, International Journal of Climatology, International Journal of Environmental Research and Public Health, Journal of Applied Meteorology and Climatology, Journal of Climate (2003 - present)
- Journal Manuscript Referee, Journal of Geophysical Research – Atmospheres, Journal of Hydrometeorology, Limnology and Oceanography, Meteorological Applications, Nature, Paleooceanography (2003 - present)
- Co-Chair, Climate of the Last Glacial-Interglacial Cycle: New Insights From Models and Data, AGU Fall Meeting, San Francisco, CA, December 8-12, American Geophysical Union (2003 - 2003)

PROFESSIONAL EDUCATION

- Ph.D., University of California, Santa Cruz , Earth Sciences (2003)
- M.S., Stanford University , Earth Systems (1997)
- B.S., Stanford University , Earth Systems (1997)

LINKS

- Climate and Earth System Dynamics Group: <https://pangea.stanford.edu/researchgroups/cesd/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Climate and Earth System Dynamics Group is led by Prof. Noah S. Diffenbaugh. Our research takes an integrated approach to understanding climate dynamics and climate impacts by probing the interface between physical processes and natural and human vulnerabilities. This interface spans a range of spatial and temporal scales, and a number of climate system processes. Much of the group's work has focused on the role of fine-scale processes in shaping climate change impacts, including studies of extreme weather, water resources, agriculture, human health, and poverty vulnerability.

We use the present vulnerabilities of natural and human systems to identify the climate phenomena that exert the most direct and acute influence on climate-sensitive systems. We then employ a suite of numerical modeling and data analysis techniques to understand why those physical phenomena occur in the current climate, by what mechanisms those physical phenomena are likely to respond to changes in climate "forcing", and how those physical responses could impact humanity and other life. Employing this approach across a range of climate-sensitive systems has led to insights about (1) the importance of fine-scale climate processes in shaping the pattern and magnitude of climate change, (2) the importance of interactions between physical processes and human dimensions in shaping the impacts of climate change, and (3) the likelihood that high-impact climate change will occur locally and regionally at different levels of global warming.

Our ongoing research activities are directed at answering a suite of specific questions about the interaction of physical climate processes and climate-sensitive systems. These questions include:

- What are the climate phenomena that most impact natural and human systems?

- What physical processes control the frequency and severity of those phenomena at present?

- How do those physical processes respond to changes in forcing of the climate system (such as from changes in greenhouse gas concentrations or variations in Earth's orbit)?

- How are natural and human systems likely to be impacted by changes in those physical processes?

Teaching

COURSES

2025-26

- Climate 101: SUSTAIN 101C (Spr)
- Climate Change & Extreme Weather: ESS 267 (Aut)
- Earth System Perspectives II: ESS 306 (Win)

2024-25

- Climate 101: SUSTAIN 101C (Spr)
- Earth System Perspectives I: ESS 305 (Aut)
- Policy Practicum: Assessing Whether Fossil Fuel Companies Have Disseminated Disinformation: LAW 809V (Aut)
- Policy Practicum: Assessing Whether Fossil Fuel Companies Have Disseminated Disinformation: SUSTAIN 213 (Aut)

2023-24

- Climate 101: SUSTAIN 101C (Aut)
- Climate Change & Extreme Weather: ESS 267 (Spr)

2022-23

- Climate and Society: SUSTAIN 2 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Peidong Wang

Doctoral Dissertation Advisor (AC)

June Choi, Jared Trok

Doctoral (Program)

June Choi, Jared Trok

Publications

PUBLICATIONS

- **Machine learning predictions of summertime warming jumps on decadal timescales** *ENVIRONMENTAL RESEARCH-CLIMATE*
Gordon, E. M., Diffenbaugh, N. S.
2026; 5 (2)
- **Extreme climate events and transboundary effects of global crop trade** *ENVIRONMENTAL RESEARCH-CLIMATE*
Hedlund, J., Diffenbaugh, N. S.
2026; 5 (1)
- **Quantifying climate loss and damage consistent with a social cost of carbon.** *Nature*
Burke, M., Zahid, M., Diffenbaugh, N. S., Hsiang, S.
2026; 651 (8107): 959-966
- **Valuing wildfire smoke-related mortality benefits from climate mitigation.** *Proceedings of the National Academy of Sciences of the United States of America*
Qiu, M., Callahan, C. W., Higuera-Mendieta, I., Rennels, L., Parthum, B., Diffenbaugh, N. S., Burke, M.
2026; 123 (8): e2533772123
- **Committed acceleration of climate stresses in the coming decades** *ENVIRONMENTAL RESEARCH-CLIMATE*
Diffenbaugh, N. S.
2025; 4 (4)
- **Quantifying the contributions of climate change and adaptation to mortality from unprecedented extreme heat events.** *Proceedings of the National Academy of Sciences of the United States of America*
Callahan, C. W., Trok, J. T., Wilson, A. J., Gould, C. F., Heft-Neal, S., Burke, M., Diffenbaugh, N. S.
2025; 122 (51): e2503577122
- **Integrating climate extremes with key biodiversity areas for improved biodiversity risk analysis and protected area planning** *CONSERVATION SCIENCE AND PRACTICE*
Ly, A., Diffenbaugh, N. S.
2025
- **Increasing risk of mass human heat mortality if historical weather patterns recur** *NATURE CLIMATE CHANGE*
Callahan, C. W., Trok, J., Wilson, A. J., Gould, C. F., Heft-Neal, S., Diffenbaugh, N. S., Burke, M.
2025

- **Wildfire smoke exposure and mortality burden in the US under climate change.** *Nature*
Qiu, M., Li, J., Gould, C. F., Jing, R., Kelp, M., Childs, M. L., Wen, J., Xie, Y., Lin, M., Kiang, M. V., Heft-Neal, S., Diffenbaugh, N. S., Burke, et al
2025
- **Effect of Recent Prescribed Burning and Land Management on Wildfire Burn Severity and Smoke Emissions in the Western United States** *AGU ADVANCES*
Kelp, M., Burke, M., Qiu, M., Higuera-Mendieta, I., Liu, T., Diffenbaugh, N. S.
2025; 6 (3)
- **Exposure to compound climate hazards transmitted via global agricultural trade networks** *ENVIRONMENTAL RESEARCH LETTERS*
Keys, P. W., Barnes, E. A., Diffenbaugh, N. S., Hertel, T. W., Baldos, U. L. C., Hedlund, J.
2025; 20 (4)
- **Identifying a Pattern of Predictable Decadal North Pacific SST Variability in Historical Observations** *GEOPHYSICAL RESEARCH LETTERS*
Gordon, E. M., Diffenbaugh, N. S.
2025; 52 (5)
- **Increasing Hydroclimatic Whiplash Can Amplify Wildfire Risk in a Warming Climate.** *Global change biology*
Swain, D. L., Abatzoglou, J. T., Albano, C. M., Brunner, M. I., Diffenbaugh, N. S., Kolden, C., Prein, A. F., Singh, D., Skinner, C. B., Swetnam, T. W., Touma, D.
2025; 31 (2): e70075
- **Combining climate models and observations to predict the time remaining until regional warming thresholds are reached** *ENVIRONMENTAL RESEARCH LETTERS*
Barnes, E. A., Diffenbaugh, N. S., Seneviratne, S.
2025; 20 (1)
- **Hydroclimate volatility on a warming Earth** *NATURE REVIEWS EARTH & ENVIRONMENT*
Swain, D. L., Prein, A. F., Abatzoglou, J. T., Albano, C. M., Brunner, M., Diffenbaugh, N. S., Singh, D., Skinner, C. B., Touma, D.
2025; 6 (1): 35-50
- **Data-Driven Predictions of Peak Warming Under Rapid Decarbonization** *GEOPHYSICAL RESEARCH LETTERS*
Diffenbaugh, N. S., Barnes, E. A.
2024; 51 (23)
- **TC-GEN: Data-Driven Tropical Cyclone Downscaling Using Machine Learning-Based High-Resolution Weather Model** *JOURNAL OF ADVANCES IN MODELING EARTH SYSTEMS*
Jing, R., Gao, J., Cai, Y., Xi, D., Zhang, Y., Fu, Y., Emanuel, K., Diffenbaugh, N. S., Bendavid, E.
2024; 16 (10)
- **Machine learning-based extreme event attribution.** *Science advances*
Trok, J. T., Barnes, E. A., Davenport, F. V., Diffenbaugh, N. S.
2024; 10 (34): ead13242
- **The Effect of Flood Exposure on Insurance Adoption Among US Households** *EARTHS FUTURE*
Choi, J., Diffenbaugh, N. S., Burke, M.
2024; 12 (7)
- **Tree species explain only half of explained spatial variability in plant water sensitivity.** *Global change biology*
Konings, A. G., Rao, K., McCormick, E. L., Trugman, A. T., Williams, A. P., Diffenbaugh, N. S., Yebra, M., Zhao, M.
2024; 30 (7): e17425
- **Subnational biodiversity reporting metrics for mountain ecosystems** *NATURE SUSTAINABILITY*
Ly, A., Geschke, J., Snethlage, M. A., Stauffer, K. L., Nussbaumer, J., Schweizer, D., Diffenbaugh, N. S., Fischer, M., Urbach, D.
2023
- **More Frequent and Persistent Heatwaves Due To Increased Temperature Skewness Projected by a High-Resolution Earth System Model** *GEOPHYSICAL RESEARCH LETTERS*
Gao, Y., Wu, Y., Guo, X., Kou, W., Zhang, S., Leung, L., Chen, X., Lu, J., Diffenbaugh, N. S., Horton, D. E., Yao, X., Gao, H., Wu, et al
2023; 50 (18)

- **The influence of natural variability on extreme monsoons in Pakistan** *NPJ CLIMATE AND ATMOSPHERIC SCIENCE*
Ashfaq, M., Johnson, N., Kucharski, F., Diffenbaugh, N. S., Abid, M., Horan, M. F., Singh, D., Mahajan, S., Ghosh, S., Ganguly, A. R., Evans, K. J., Islam, S.
2023; 6 (1)
- **Drought impacts on the electricity system, emissions, and air quality in the western United States.** *Proceedings of the National Academy of Sciences of the United States of America*
Qiu, M., Ratledge, N., Azevedo, I. M., Diffenbaugh, N. S., Burke, M.
2023; 120 (28): e2300395120
- **Using Machine Learning With Partial Dependence Analysis to Investigate Coupling Between Soil Moisture and Near-Surface Temperature** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
Trok, J. T. T., Davenport, F. V. V., Barnes, E. A. A., Diffenbaugh, N. S. S.
2023; 128 (12)
- **Exploring the Influence of Summer Temperature on Human Mobility During the COVID-19 Pandemic in the San Francisco Bay Area.** *GeoHealth*
Ly, A., Davenport, F. V., Diffenbaugh, N. S.
2023; 7 (6): e2022GH000772
- **Data-driven predictions of the time remaining until critical global warming thresholds are reached.** *Proceedings of the National Academy of Sciences of the United States of America*
Diffenbaugh, N. S., Barnes, E. A.
2023; 120 (6): e2207183120
- **Attributing Past Carbon Fluxes to CO2 and Climate Change: Respiration Response to CO2 Fertilization Shifts Regional Distribution of the Carbon Sink** *Global Biogeochemical Cycles*
Quentin, G. R., Famiglietti, C. A., et al
2023
- **Quantifying the Relationship Between Atmospheric River Origin Conditions and Landfall Temperature** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
Gonzales, K. R., Swain, D. L., Roop, H. A., Diffenbaugh, N. S.
2022; 127 (20)
- **Potential for perceived failure of stratospheric aerosol injection deployment.** *Proceedings of the National Academy of Sciences of the United States of America*
Keys, P. W., Barnes, E. A., Diffenbaugh, N. S., Hurrell, J. W., Bell, C. M.
2022; 119 (40): e2210036119
- **Plant-water sensitivity regulates wildfire vulnerability.** *Nature ecology & evolution*
Rao, K., Williams, A. P., Diffenbaugh, N. S., Yebra, M., Konings, A. G.
2022
- **COVID-19 and the Environment: Short-Run and Potential Long-Run Impacts** *ANNUAL REVIEW OF ENVIRONMENT AND RESOURCES*
Diffenbaugh, N. S.
2022; 47: 65-90
- **Atmospheric variability contributes to increasing wildfire weather but not as much as global warming.** *Proceedings of the National Academy of Sciences of the United States of America*
Diffenbaugh, N. S., Konings, A. G., Field, C. B.
2021; 118 (46)
- **On the impossibility of extreme event thresholds in the absence of global warming** *ENVIRONMENTAL RESEARCH LETTERS*
Diffenbaugh, N. S., Davenport, F.
2021; 16 (11)
- **Using Machine Learning to Analyze Physical Causes of Climate Change: A Case Study of US Midwest Extreme Precipitation** *GEOPHYSICAL RESEARCH LETTERS*
Davenport, F., Diffenbaugh, N. S.
2021; 48 (15)

- **Historical warming has increased US crop insurance losses** *ENVIRONMENTAL RESEARCH LETTERS*
Diffenbaugh, N. S., Davenport, F., Burke, M.
2021; 16 (8)
- **The Atlantic Jet Response to Stratospheric Events: A Regime Perspective** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
Goss, M., Lindgren, E. A., Sheshadri, A., Diffenbaugh, N. S.
2021; 126 (7)
- **Contribution of historical precipitation change to US flood damages.** *Proceedings of the National Academy of Sciences of the United States of America*
Davenport, F. V., Burke, M., Diffenbaugh, N. S.
2021; 118 (4)
- **Quantifying the Effect of Precipitation on Landslide Hazard in Urbanized and Non-Urbanized Areas** *Geophysical Research Letters*
Johnston, E. C., Davenport, F. V., Wang, L., Caers, J. K., Muthukrishnan, S., Burke, M., Diffenbaugh, N. S.
2021; 48 (16)
- **Moisture- Versus Wind-Dominated Flavors of Atmospheric Rivers** *GEOPHYSICAL RESEARCH LETTERS*
Gonzales, K. R., Swain, D. L., Barnes, E. A., Diffenbaugh, N. S.
2020; 47 (23)
- **Climate change is increasing the likelihood of extreme autumn wildfire conditions across California** *ENVIRONMENTAL RESEARCH LETTERS*
Goss, M., Swain, D. L., Abatzoglou, J. T., Sarhadi, A., Kolden, C. A., Williams, A., Diffenbaugh, N. S.
2020; 15 (9)
- **The COVID-19 lockdowns: a window into the Earth System** *NATURE REVIEWS EARTH & ENVIRONMENT*
Diffenbaugh, N. S., Field, C. B., Appel, E. A., Azevedo, I. L., Baldocchi, D. D., Burke, M., Burney, J. A., Ciais, P., Davis, S. J., Fiore, A. M., Fletcher, S. M., Hertel, T. W., Horton, et al
2020; 1 (9): 470-481
- **Landfalling Droughts: Global Tracking of Moisture Deficits From the Oceans Onto Land** *WATER RESOURCES RESEARCH*
Herrera-Estrada, J. E., Diffenbaugh, N. S.
2020; 56 (9)
- **Attributing Extreme Events to Climate Change: A New Frontier in a Warming World** *ONE EARTH*
Swain, D. L., Singh, D., Touma, D., Diffenbaugh, N. S.
2020; 2 (6): 522-527
- **Doubling of US Population Exposure to Climate Extremes by 2050** *EARTHS FUTURE*
Batibenz, F., Ashfaq, M., Diffenbaugh, N. S., Key, K., Evans, K. J., Turuncoglu, U., Onol, B.
2020; 8 (4)
- **Verification of extreme event attribution: Using out-of-sample observations to assess changes in probabilities of unprecedented events.** *Science advances*
Diffenbaugh, N. S.
2020; 6 (12): eaay2368
- **Flood Size Increases Nonlinearly Across the Western United States in Response to Lower Snow-Precipitation Ratios** *WATER RESOURCES RESEARCH*
Davenport, F. V., Herrera-Estrada, J. E., Burke, M., Diffenbaugh, N. S.
2020; 56 (1)
- **Variations in the Intensity and Spatial Extent of Tropical Cyclone Precipitation** *GEOPHYSICAL RESEARCH LETTERS*
Touma, D., Stevenson, S., Camargo, S. J., Horton, D. E., Diffenbaugh, N. S.
2019
- **Recent Warming of Landfalling Atmospheric Rivers Along the West Coast of the United States** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
Gonzales, K. R., Swain, D. L., Nardi, K. M., Barnes, E. A., Diffenbaugh, N. S.

2019; 124 (13): 6810–26

- **Disentangling the influence of local and remote anthropogenic aerosols on South Asian monsoon daily rainfall characteristics** *CLIMATE DYNAMICS*
Singh, D., Bollasina, M., Ting, M., Diffenbaugh, N. S.
2019; 52 (9-10): 6301–20
- **Global warming has increased global economic inequality.** *Proceedings of the National Academy of Sciences of the United States of America*
Diffenbaugh, N. S., Burke, M.
2019
- **Reply to Rosen: Temperature-growth relationship is robust.** *Proceedings of the National Academy of Sciences of the United States of America*
Diffenbaugh, N. S., Burke, M. n.
2019
- **Strengthened scientific support for the Endangerment Finding for atmospheric greenhouse gases.** *Science (New York, N.Y.)*
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