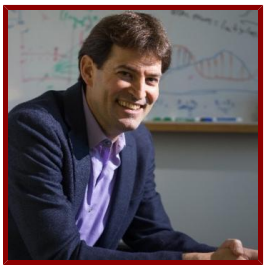
Stanford



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, Paleoceanography 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, Paleoceanography (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

- **Increasing tropical cyclone rainfall and landslide risk in Southern California** *NATURE CLIMATE CHANGE*
  Zhu, L., Wang, Y., Emanuel, K., Tolstoff, S. N., Diffenbaugh, N. S.
  2026
- **Machine learning predictions of summertime warming jumps on decadal timescales** *ENVIRONMENTAL RESEARCH-CLIMATE*
  Gordon, E. M., Diffenbaugh, N. S.
  2026; 5 (2)
- **Extreme precipitation, exacerbated by anthropogenic climate change, drove Peru's record-breaking 2023 dengue outbreak** *ONE EARTH*
  Harris, M. J., Trok, J. T., Martel, K. S., Borbor-Cordova, M. J., Diffenbaugh, N. S., Munayco, C. V., Lescano, A. G., Mordecai, E. A.
  2026; 9 (4)
- **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
- **Extreme climate events and transboundary effects of global crop trade** *ENVIRONMENTAL RESEARCH-CLIMATE*
  Hedlund, J., Diffenbaugh, N. S.
  2026; 5 (1)
- **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): eadl3242
- **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
- **The Effect of Flood Exposure on Insurance Adoption Among US Households** *EARTHS FUTURE*
  Choi, J., Diffenbaugh, N. S., Burke, M.
  2024; 12 (7)
- **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
- **Probability of continued local-scale warming and extreme events during and after decarbonization** *ENVIRONMENTAL RESEARCH-CLIMATE*
  Diffenbaugh, N. S., Barnes, E. A., Keys, P. W.
  2023; 2 (2)
- **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*
  Batibeniz, 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.)*
  Duffy, P. B., Field, C. B., Diffenbaugh, N. S., Doney, S. C., Dutton, Z., Goodman, S., Heinzerling, L., Hsiang, S., Lobell, D. B., Mickley, L. J., Myers, S., Natali, S. M., Parmesan, et al
  2018
- **Response of electricity sector air pollution emissions to drought conditions in the western United States** *ENVIRONMENTAL RESEARCH LETTERS*
  Herrera-Estrada, J. E., Diffenbaugh, N. S., Wagner, F., Craft, A., Sheffield, J.
  2018; 13 (12)
- **Multidimensional risk in a nonstationary climate: Joint probability of increasingly severe warm and dry conditions.** *Science advances*
  Sarhadi, A., Ausin, M. C., Wiper, M. P., Touma, D., Diffenbaugh, N. S.
  2018; 4 (11): eaau3487
- **Can ENSO-Like Convection Force an ENSO-Like Extratropical Response on Subseasonal Time Scales?** *JOURNAL OF CLIMATE*
  Goss, M., Lee, S., Feldstein, S. B., Diffenbaugh, N. S.
  2018; 31 (20): 8339–49
- **Characterizing the Spatial Scales of Extreme Daily Precipitation in the United States** *JOURNAL OF CLIMATE*
  Touma, D., Michalak, A. M., Swain, D. L., Diffenbaugh, N. S.
  2018; 31 (19): 8023–37
- **Large potential reduction in economic damages under UN mitigation targets** *NATURE*
  Burke, M., Davis, W., Diffenbaugh, N. S.
  2018; 557 (7706): 549-+
- **Unprecedented climate events: Historical changes, aspirational targets, and national commitments.** *Science advances*
  Diffenbaugh, N. S., Singh, D., Mankin, J. S.
  2018; 4 (2): eaao3354
- **Widespread persistent changes to temperature extremes occurred earlier than predicted** *SCIENTIFIC REPORTS*
  Li, C., Fang, Y., Caldeira, K., Zhang, X., Diffenbaugh, N. S., Michalak, A. M.
  2018; 8: 1007

- **Remote Linkages to Anomalous Winter Atmospheric Ridging Over the Northeastern Pacific** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Swain, D. L., Singh, D., Horton, D. E., Mankin, J. S., Ballard, T. C., Diffenbaugh, N. S.
  2017; 122 (22): 12194–209

- **Quantifying the influence of global warming on unprecedented extreme climate events** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Diffenbaugh, N. S., Singh, D., Mankin, J. S., Horton, D. E., Swain, D. L., Touma, D., Charland, A., Liu, Y., Haugen, M., Tsiang, M., Rajaratnam, B.
  2017; 114 (19): 4881-4886

- **The Role of Plant CO2 Physiological Forcing in Shaping Future Daily-Scale Precipitation** *JOURNAL OF CLIMATE*
  Skinner, C. B., Poulsen, C. J., Chadwick, R., Diffenbaugh, N. S., Fiorella, R. P.
  2017; 30 (7): 2319-2340

- **Influence of internal variability on population exposure to hydroclimatic changes.** *Environmental research letters : ERL [Web site]*
  Mankin, J. S., Viviroli, D., Mekonnen, M. M., Hoekstra, A. Y., Horton, R. M., Smerdon, J. E., Diffenbaugh, N. S.
  2017; 12 (4): 044007

- **Influence of internal variability on population exposure to hydroclimatic changes** *ENVIRONMENTAL RESEARCH LETTERS*
  Mankin, J. S., Viviroli, D., Mekonnen, M. M., Hoekstra, A. Y., Horton, R. M., Smerdon, J. E., Diffenbaugh, N. S.
  2017; 12 (4)

- **Drought and immunity determine the intensity of West Nile virus epidemics and climate change impacts** *PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
  Paull, S. H., Horton, D. E., Ashfaq, M., Rastogi, D., Kramer, L. D., Diffenbaugh, N. S., Kilpatrick, A. M.
  2017; 284 (1848)

- **Probability of emergence of novel temperature regimes at different levels of cumulative carbon emissions** *FRONTIERS IN ECOLOGY AND THE ENVIRONMENT*
  Diffenbaugh, N. S., Charland, A.
  2016; 14 (8): 418-423

- **Regional atmospheric CO2 inversion reveals seasonal and geographic differences in Amazon net biome exchange.** *Global change biology*
  Alden, C. B., Miller, J. B., Gatti, L. V., Gloor, M. M., Guan, K., Michalak, A. M., van der Laan-Luijkx, I. T., Touma, D., Andrews, A., Basso, L. S., Correia, C. S., Domingues, L. G., Joiner, et al
  2016; 22 (10): 3427-3443

- **Recent amplification of the North American winter temperature dipole.** *Journal of geophysical research. Atmospheres : JGR*
  Singh, D., Swain, D. L., Mankin, J. S., Horton, D. E., Thomas, L. N., Rajaratnam, B., Diffenbaugh, N. S.
  2016; 121 (17): 9911-9928

- **Recent amplification of the North American winter temperature dipole** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Singh, D., Swain, D. L., Mankin, J. S., Horton, D. E., Thomas, L. N., Rajaratnam, B., Diffenbaugh, N. S.
  2016; 121 (17): 9911-9928

- **Dislocated interests and climate change** *ENVIRONMENTAL RESEARCH LETTERS*
  Davis, S. J., Diffenbaugh, N.
  2016; 11 (6)

- **Trends in atmospheric patterns conducive to seasonal precipitation and temperature extremes in California.** *Science advances*
  Swain, D. L., Horton, D. E., Singh, D., Diffenbaugh, N. S.
  2016; 2 (4)

- **Observed and projected climate trends and hotspots across the National Ecological Observatory Network regions** *FRONTIERS IN ECOLOGY AND THE ENVIRONMENT*
  Anderegg, W. R., Diffenbaugh, N. S.
  2015; 13 (10): 547-552

- **Debunking the climate hiatus** *CLIMATIC CHANGE*
  Rajaratnam, B., Romano, J., Tsiang, M., Diffenbaugh, N. S.

2015; 133 (2): 129-140

- **The potential for snow to supply human water demand in the present and future** *ENVIRONMENTAL RESEARCH LETTERS*
  Mankin, J. S., Viviroli, D., Singh, D., Hoekstra, A. Y., Diffenbaugh, N. S.
  2015; 10 (11)
- **Future property damage from flooding: sensitivities to economy and climate change** *CLIMATIC CHANGE*
  Liu, J., Hertel, T. W., Diffenbaugh, N. S., Delgado, M. S., Ashfaq, M.
  2015; 132 (4): 741-749
- **Evaluation of Nonhydrostatic Simulations of Northeast Pacific Atmospheric Rivers and Comparison to in Situ Observations** *MONTHLY WEATHER REVIEW*
  Swain, D. L., Lebassi-Habtezion, B., Diffenbaugh, N. S.
  2015; 143 (9): 3556-3569
- **Rate and velocity of climate change caused by cumulative carbon emissions** *ENVIRONMENTAL RESEARCH LETTERS*
  LoPresti, A., Charland, A., Woodard, D., Randerson, J., Diffenbaugh, N. S., Davis, S. J.
  2015; 10 (9)
- **Influence of temperature and precipitation variability on near-term snow trends** *CLIMATE DYNAMICS*
  Mankin, J. S., Diffenbaugh, N. S.
  2015; 45 (3-4): 1099-1116
- **A multi-model and multi-index evaluation of drought characteristics in the 21st century** *JOURNAL OF HYDROLOGY*
  Touma, D., Ashfaq, M., Nayak, M. A., Kao, S., Diffenbaugh, N. S.
  2015; 526: 196-207
- **Contribution of changes in atmospheric circulation patterns to extreme temperature trends.** *Nature*
  Horton, D. E., Johnson, N. C., Singh, D., Swain, D. L., Rajaratnam, B., Diffenbaugh, N. S.
  2015; 522 (7557): 465-469
- **Anthropogenic warming has increased drought risk in California.** *Proceedings of the National Academy of Sciences of the United States of America*
  Diffenbaugh, N. S., Swain, D. L., Touma, D.
  2015; 112 (13): 3931-3936
- **Projecting changes in annual hydropower generation using regional runoff data: An assessment of the United States federal hydropower plants** *ENERGY*
  Kao, S., Sale, M. J., Ashfaq, M., Martinez, R. U., Kaiser, D. P., Wei, Y., Diffenbaugh, N. S.
  2015; 80: 239-250
- **Joint bias correction of temperature and precipitation in climate model simulations** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Li, C., Sinha, E., Horton, D. E., Diffenbaugh, N. S., Michalak, A. M.
  2014; 119 (23): 13153-13162
- **THE EXTRAORDINARY CALIFORNIA DROUGHT OF 2013/2014: CHARACTER, CONTEXT, AND THE ROLE OF CLIMATE CHANGE** *BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY*
  Swain, D. L., Tsiang, M., Haugen, M., Singh, D., Charland, A., Rajaratnam, B., Diffenbaugh, N. S.
  2014; 95 (9): S3-S7
- **SEVERE PRECIPITATION IN NORTHERN INDIA IN JUNE 2013: CAUSES, HISTORICAL CONTEXT, AND CHANGES IN PROBABILITY** *BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY*
  Singh, D., Horton, D. E., Tsiang, M., Haugen, M., Ashfaq, M., Mei, R., Rastogi, D., Johnson, N. C., Charland, A., Rajaratnam, B., Diffenbaugh, N. S.
  2014; 95 (9): S58-S61
- **Occurrence and persistence of future atmospheric stagnation events** *NATURE CLIMATE CHANGE*
  Horton, D. E., Skinner, C. B., Singh, D., Diffenbaugh, N. S.
  2014; 4 (8): 698-703
- **Occurrence and persistence of future atmospheric stagnation events.** *Nature climate change*

Horton, D. E., Skinner, C. B., Singh, D., Diffenbaugh, N. S.
2014; 4: 698-703

- **Uncertainties in the timing of unprecedented climates.** *Nature*
  Hawkins, E., Anderson, B., Diffenbaugh, N., Mahlstein, I., Betts, R., Hegerl, G., Joshi, M., Knutti, R., McNeall, D., Solomon, S., Sutton, R., Syktus, J., Vecchi, et al
  2014; 511 (7507): E3-5

- **Observed changes in extreme wet and dry spells during the South Asian summer monsoon season** *NATURE CLIMATE CHANGE*
  Singh, D., Tsiang, M., Rajaratnam, B., Diffenbaugh, N. S.
  2014; 4 (6): 456-461

- **Market-oriented ethanol and corn-trade policies can reduce climate-induced US corn price volatility** *ENVIRONMENTAL RESEARCH LETTERS*
  Verma, M., Hertel, T., Diffenbaugh, N.
  2014; 9 (6)

- **Projected changes in African easterly wave intensity and track in response to greenhouse forcing** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Skinner, C. B., Diffenbaugh, N. S.
  2014; 111 (19): 6882-6887

- **Transient twenty-first century changes in daily-scale temperature extremes in the United States** *CLIMATE DYNAMICS*
  Scherer, M., Diffenbaugh, N. S.
  2014; 42 (5-6): 1383-1404

- **Near-term acceleration of hydroclimatic change in the western US** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Ashfaq, M., Ghosh, S., Kao, S., Bowling, L. C., Mote, P., Touma, D., Rauscher, S. A., Diffenbaugh, N. S.
  2013; 118 (19): 10676-10693

- **Nonhydrostatic nested climate modeling: A case study of the 2010 summer season over the western United States** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Lebassi-Habtezion, B., Diffenbaugh, N. S.
  2013; 118 (19): 10944-10962

- **Robust increases in severe thunderstorm environments in response to greenhouse forcing** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Diffenbaugh, N. S., Scherer, M., Trapp, R. J.
  2013; 110 (41): 16361-16366

- **EXPLAINING EXTREME EVENTS OF 2012 FROM A CLIMATE PERSPECTIVE** *BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY*
  Peterson, T. C., Hoerling, M. P., Stott, P. A., Herring, S. C., Alexander, L. V., Allen, M. R., Anel, J., Barriopedro, D., Black, M. T., Carey-Smith, T., Castillo, R., Cattiaux, J., Chen, et al
  2013; 94 (9)

- **Changes in Ecologically Critical Terrestrial Climate Conditions** *SCIENCE*
  Diffenbaugh, N. S., Field, C. B.
  2013; 341 (6145): 486-492

- **Precipitation extremes over the continental United States in a transient, high-resolution, ensemble climate model experiment** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Singh, D., Tsiang, M., Rajaratnam, B., Diffenbaugh, N. S.
  2013; 118 (13): 7063-7086

- **MONITORING AND UNDERSTANDING CHANGES IN HEAT WAVES, COLD WAVES, FLOODS, AND DROUGHTS IN THE UNITED STATES: State of Knowledge** *BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY*
  Peterson, T. C., Heim, R. R., Hirsch, R., Kaiser, D. P., Brooks, H., Diffenbaugh, N. S., Dole, R. M., Giovannettone, J. P., Guirguis, K., Karl, T. R., Katz, R. W., Kunkel, K., Lettenmaier, et al
  2013; 94 (6): 821-834

- **The contribution of African easterly waves to monsoon precipitation in the CMIP3 ensemble** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*

Skinner, C. B., Diffenbaugh, N. S.
2013; 118 (9): 3590-3609

- **Response of snow-dependent hydrologic extremes to continued global warming** *NATURE CLIMATE CHANGE*
  Diffenbaugh, N. S., Scherer, M., Ashfaq, M.
  2013; 3 (4): 379-384
- **Response of snow-dependent hydrologic extremes to continued global warming.** *Nature climate change*
  Diffenbaugh, N. S., Scherer, M., Ashfaq, M.
  2013; 3: 379-384
- **Using climate impacts indicators to evaluate climate model ensembles: temperature suitability of premium winegrape cultivation in the United States** *CLIMATE DYNAMICS*
  Diffenbaugh, N. S., Scherer, M.
  2013; 40 (3-4): 709-729
- **Human well-being, the global emissions debt, and climate change commitment** *SUSTAINABILITY SCIENCE*
  Diffenbaugh, N. S.
  2013; 8 (1): 135-141
- **Near-term acceleration of hydroclimatic change in the western U.S.** *Journal of Geophysical Research Atmospheres*
  Ashfaq, M., Ghosh, S., Kao, S., Bowling, L., Mote, P., Touma, D., Rauscher, S., Diffenbaugh, N.
  2013; 118: 10,676–10,693
- **Nonhydrostatic nested climate modeling: A case study of the 2010 summer season over the western United States** *Journal of Geophysical Research Atmospheres*
  Lebassi-Habtezion, B., Diffenbaugh, N. S.
  2013; 118: 10,944–10,962
- **Transient 21st century changes in daily-scale temperature extremes in the United States** *Climate Dynamics*
  Scherer, M., Diffenbaugh, N. S.
  2013: 1829
- **Effects of U.S. Tax Policy on Greenhouse Gas Emissions**
  Norhaus, W. D., Cropoper, M. L., de la Chesnaye, F., Diffenbaugh, N., Hawkins, D. G., Mann, R. F., Murray, B. C., Reilly, J. M., Shindell, D., Toder, E., Williams, R. C., Wolfram, C.
  The National Academies Press.2013
- **Response of air stagnation frequency to anthropogenically enhanced radiative forcing** *ENVIRONMENTAL RESEARCH LETTERS*
  Horton, D. E., Harshvardhan, Diffenbaugh, N. S.
  2012; 7 (4)
- **Climate change hotspots in the CMIP5 global climate model ensemble** *CLIMATIC CHANGE*
  Diffenbaugh, N. S., Giorgi, F.
  2012; 114 (3-4): 813-822
- **Out of the Tropics: The Pacific, Great Basin Lakes, and Late Pleistocene Water Cycle in the Western United States** *SCIENCE*
  Lyle, M., Heusser, L., Ravelo, C., Yamamoto, M., Barron, J., Diffenbaugh, N. S., Herbert, T., Andreasen, D.
  2012; 337 (6102): 1629-1633
- **Agriculture and Trade Opportunities for Tanzania: Past Volatility and Future Climate Change** *REVIEW OF DEVELOPMENT ECONOMICS*
  Ahmed, S. A., Diffenbaugh, N. S., Hertel, T. W., Martin, W. J.
  2012; 16 (3): 429-447
- **Response of corn markets to climate volatility under alternative energy futures** *NATURE CLIMATE CHANGE*
  Diffenbaugh, N. S., Hertel, T. W., Scherer, M., Verma, M.
  2012; 2 (7): 514-518
- **Response of corn markets to climate volatility under alternative energy futures.** *Nature climate change*
  Diffenbaugh, N. S., Hertel, T. W., Scherer, M., Verma, M.
  2012; 2: 514-518

- **Amplification of wet and dry month occurrence over tropical land regions in response to global warming** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Lintner, B. R., Biasutti, M., Diffenbaugh, N. S., Lee, J., Niznik, M. J., Findell, K. L.
  2012; 117
- **Influence of Twenty-First-Century Atmospheric and Sea Surface Temperature Forcing on West African Climate** *JOURNAL OF CLIMATE*
  Skinner, C. B., Ashfaq, M., Diffenbaugh, N. S.
  2012; 25 (2): 527-542
- **Climate change hotspots in the CMIP5 global climate model ensemble.** *Climatic change*
  Diffenbaugh, N. S., Giorgi, F.
  2012; 114 (3-4): 813-822
- **Response of air stagnation frequency to anthropogenically enhanced radiative forcing.** *Environmental research letters : ERL [Web site]*
  Horton, D. E., , Diffenbaugh, N. S.
  2012; 7 (4)
- **Transient regional climate change: analysis of the summer climate response in a high-resolution, century-scale, ensemble experiment over the continental United States.** *Journal of geophysical research*
  Diffenbaugh, N. S., Ashfaq, M., Scherer, M.
  2011; 116 (D24)
- **Transient regional climate change: Analysis of the summer climate response in a high-resolution, century-scale ensemble experiment over the continental United States** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Diffenbaugh, N. S., Ashfaq, M., Scherer, M.
  2011; 116
- **Higher Hydroclimatic Intensity with Global Warming** *JOURNAL OF CLIMATE*
  Giorgi, F., Im, E., Coppola, E., Diffenbaugh, N. S., Gao, X. J., Mariotti, L., Shi, Y.
  2011; 24 (20): 5309-5324
- **Regional climate of hazardous convective weather through high-resolution dynamical downscaling** *CLIMATE DYNAMICS*
  Trapp, R. J., Robinson, E. D., Baldwin, M. E., Diffenbaugh, N. S., Schwedler, B. R.
  2011; 37 (3-4): 677-688
- **Observational and model evidence of global emergence of permanent, unprecedented heat in the 20(th) and 21(st) centuries.** *Climatic change*
  Diffenbaugh, N. S., Scherer, M.
  2011; 107 (3-4): 615-624
- **Observational and model evidence of global emergence of permanent, unprecedented heat in the 20th and 21st centuries** *CLIMATIC CHANGE*
  Diffenbaugh, N. S., Scherer, M.
  2011; 107 (3-4): 615-624
- **Biophysical considerations in forestry for climate protection** *FRONTIERS IN ECOLOGY AND THE ENVIRONMENT*
  Anderson, R. G., Canadell, J. G., Randerson, J. T., Jackson, R. B., Hungate, B. A., Baldocchi, D. D., Ban-Weiss, G. A., Bonan, G. B., Caldeira, K., Cao, L., Diffenbaugh, N. S., Gurney, K. R., Kueppers, et al
  2011; 9 (3): 174-182
- **Climate adaptation wedges: a case study of premium wine in the western United States** *ENVIRONMENTAL RESEARCH LETTERS*
  Diffenbaugh, N. S., White, M. A., Jones, G. V., Ashfaq, M.
  2011; 6 (2)
- **Influence of SST biases on future climate change projections** *CLIMATE DYNAMICS*
  Ashfaq, M., Skinner, C. B., Diffenbaugh, N. S.
  2011; 36 (7-8): 1303-1319
- **Climate volatility and poverty vulnerability in Tanzania** *GLOBAL ENVIRONMENTAL CHANGE-HUMAN AND POLICY DIMENSIONS*
  Ahmed, S. A., Diffenbaugh, N. S., Hertel, T. W., Lobell, D. B., Ramankutty, N., Rios, A. R., Rowhani, P.

2011; 21 (1): 46-55

- **Implications of the permanent El Nino teleconnection "blueprint" for past global and North American hydroclimatology** *CLIMATE OF THE PAST*
  Goldner, A., Huber, M., Diffenbaugh, N., Caballero, R.
  2011; 7 (3): 723-743
- **Pleistocene water cycle and eastern boundary current processes along the California continental margin** *PALEOCEANOGRAPHY*
  Lyle, M., Heusser, L., Ravelo, C., Andreasen, D., Lyle, A. O., Diffenbaugh, N.
  2010; 25
- **Temperature and equivalent temperature over the United States (1979-2005)** *INTERNATIONAL JOURNAL OF CLIMATOLOGY*
  Fall, S., Diffenbaugh, N. S., Niyogi, D., Pielke, R. A., Rochon, G.
  2010; 30 (13): 2045-2054
- **Intensification of hot extremes in the United States** *GEOPHYSICAL RESEARCH LETTERS*
  Diffenbaugh, N. S., Ashfaq, M.
  2010; 37
- **Influence of climate model biases and daily-scale temperature and precipitation events on hydrological impacts assessment: A case study of the United States** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Ashfaq, M., Bowling, L. C., Cherkauer, K., Pal, J. S., Diffenbaugh, N. S.
  2010; 115
- **Rapid, time-transgressive, and variable responses to early Holocene midcontinental drying in North America** *GEOLOGY*
  Williams, J. W., Shuman, B., Bartlein, P. J., Diffenbaugh, N. S., Webb, T.
  2010; 38 (2): 135-138
- **Rapid, time-transgressive, and variable responses to end-Pleistocene/early Holocene midcontinental drying in North America** *Geology*
  Williams, J. W., Shuman, B. N., Bartlein, P. J., Diffenbaugh, N. S., Webb, T.
  2010; 38: 135-138
- **Geophysical Research Letters: New Policies Improve Top-Cited Geosciences Journal** *Eos Transactions American Geophysical Union*
  Calais, E., Diffenbaugh, N., D'Odorico, P., Harris, R., Knorr, W., Lavraud, B., Mueller, A., Peterson, W., Rignot, E., Srokosz, M., Strutton, P., Tyndall, G., Wysession, et al
  2010; 91: 337
- **Influence of modern land cover on the climate of the United States** *CLIMATE DYNAMICS*
  Diffenbaugh, N. S.
  2009; 33 (7-8): 945-958
- **Evaluation of high-resolution simulations of daily-scale temperature and precipitation over the United States** *CLIMATE DYNAMICS*
  Walker, M. D., Diffenbaugh, N. S.
  2009; 33 (7-8): 1131-1147
- **Land surface coupling in regional climate simulations of the West African monsoon** *CLIMATE DYNAMICS*
  Steiner, A. L., Pal, J. S., Rauscher, S. A., Bell, J. L., Diffenbaugh, N. S., Boone, A., Sloan, L. C., Giorgi, F.
  2009; 33 (6): 869-892
- **Climate volatility deepens poverty vulnerability in developing countries** *ENVIRONMENTAL RESEARCH LETTERS*
  Ahmed, S. A., Diffenbaugh, N. S., Hertel, T. W.
  2009; 4 (3)
- **Suppression of south Asian summer monsoon precipitation in the 21st century** *GEOPHYSICAL RESEARCH LETTERS*
  Ashfaq, M., Shi, Y., Tung, W., Trapp, R. J., Gao, X., Pal, J. S., Diffenbaugh, N. S.
  2009; 36 (1)
- **Transient response of severe thunderstorm forcing to elevated greenhouse gas concentrations** *GEOPHYSICAL RESEARCH LETTERS*
  Trapp, R. J., Diffenbaugh, N. S., Gluhovsky, A.
  2009; 36 (1)

- **Land surface coupling in regional climate simulations of the west African monsoon** *Climate Dynamics*
  Steiner, A. L., Pal, J. S., Rauscher, S. A., Bell, J. L., Diffenbaugh, N. S., Giorgi, F., Sloan, L. C.
  2009
- **Evaluation of high-resolution simulations of daily-scale temperature and precipitation over the United States** *Climate Dynamics*
  Walker, M. D., Diffenbaugh, N. S.
  2009
- **Influence of modern land cover on the climate of the United States** *Climate Dynamics*
  Diffenbaugh, N. S.
  2009
- **Transient response of severe thunderstorm forcing to elevated greenhouse gas concentrations** *Geophysical Research Letters*
  Trapp, R. J., Diffenbaugh, N. S., Gluhovsky, A.
  2009; 36 (1)
- **Influence of modern land cover on the climate of the United States** *Climate Dynamics*
  Diffenbaugh, N. S.
  2009
- **Transient response of severe thunderstorm forcing to elevated greenhouse gas concentrations** *Geophysical Research Letters*
  Trapp, R. J., Diffenbaugh, N. S., Gluhovsky, A.
  2009; 36 (1)
- **Protecting climate with forests** *ENVIRONMENTAL RESEARCH LETTERS*
  Jackson, R. B., Randerson, J. T., Canadell, J. G., Anderson, R. G., Avissar, R., Baldocchi, D. D., Bonan, G. B., Caldeira, K., Diffenbaugh, N. S., Field, C. B., Hungate, B. A., Jobbagy, E. G., Kueppers, et al
  2008; 3 (4)
- **Global warming presents new challenges for maize pest management** *ENVIRONMENTAL RESEARCH LETTERS*
  Diffenbaugh, N. S., Krupke, C. H., White, M. A., Alexander, C. E.
  2008; 3 (4)
- **Extension and Intensification of the Meso-American mid-summer drought in the twenty-first century** *CLIMATE DYNAMICS*
  Rauscher, S. A., Giorgi, F., Diffenbaugh, N. S., Seth, A.
  2008; 31 (5): 551-571
- **Climate change hotspots in the United States** *GEOPHYSICAL RESEARCH LETTERS*
  Diffenbaugh, N. S., Giorgi, F., Pal, J. S.
  2008; 35 (16)
- **Future changes in snowmelt-driven runoff timing over the western US** *GEOPHYSICAL RESEARCH LETTERS*
  Rauscher, S. A., Pal, J. S., Diffenbaugh, N. S., Benedetti, M. M.
  2008; 35 (16)
- **Developing regional climate change scenarios for use in assessment of effects on human health and disease** *CLIMATE RESEARCH*
  Giorgi, F., Diffenbaugh, N.
  2008; 36 (2): 141-151
- **Global warming presents new challenges for maize pest management** *Environmental Research Letters*
  Diffenbaugh, N. S., Krupke, C. H., White, M. A., Alexander, C. E.
  2008
- **Hydrological variability and change** *Abrupt Climate Change. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research*
  Cook, E. R., Bartlein, P. J., Diffenbaugh, N., Seager, R., Shuman, B. N., Webb, R. S., Williams, J. W., Woodhouse, C.
  U.S. Geological Survey, Reston, VA.2008: 143–257
- **Extension and intensification of the Meso-American mid-summer drought in the 21st century** *Climate Dynamics*
  Rauscher, S. A., Giorgi, F., Diffenbaugh, N. S., Seth, A.

2008

- **Developing regional climate change scenarios for use in assessment of effects on human health and disease** *Climate Research*
  Giorgi, F., Diffenbaugh, N.
  2008; 36: 141-151

- **Future changes in runoff timing over the western United States** *Geophysical Research Letters*
  Rauscher, S. A., Pal, J. S., Diffenbaugh, N. S., Benedetti, M.
  2008; 35

- **The regional climate change hyper-matrix framework** *Eos*
  Giorgi, F., Diffenbaugh, N. S., Gao, X. J., Coppola, E., Dash, S. K., Frumento, O., Sanda, I. S., Rauscher, S., Remedio, A., Steiner, A., Sylla, B., Zakey, A.
  2008; 89: 445-446

- **Does global warming influence tornado activity?** *Eos*
  Diffenbaugh, N. S., Trapp, R. J., Brooks, H. E.
  2008; 89: 553-554

- **Climate change hotspots in the United States** *Geophysical Research Letters*
  Diffenbaugh, N. S., Giorgi, F., Pal, J. S.
  2008; 35

- **Indicators of 21st century socioclimatic exposure** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Diffenbaugh, N. S., Giorgi, F., Raymond, L., Bi, X.
  2007; 104 (51): 20195-20198

- **Changes in severe thunderstorm environment frequency during the 21st century caused by anthropogenically enhanced global radiative forcing** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Trapp, R. J., Diffenbaugh, N. S., Brooks, H. E., Baldwin, M. E., Robinson, E. D., Pal, J. S.
  2007; 104 (50): 19719-19723

- **Telescoping, multimodel approaches to evaluate extreme convective weather under future climates** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
  Trapp, R. J., Halvorson, B. A., Diffenbaugh, N. S.
  2007; 112 (D20)

- **Regional climate modeling for the developing world - The ICTP RegCM3 and RegCNET** *BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY*
  Pal, J. S., Giorgi, F., Bi, X., Elguindi, N., Solmon, F., Gao, X., Rauscher, S. A., Francisco, R., Zakey, A., Winter, J., Ashfaq, M., Syed, F. S., Bell, et al
  2007; 88 (9): 1395-?

- **Response of California Current forcing to mid-Holocene insolation and sea surface temperatures** *PALEOCEANOGRAPHY*
  Diffenbaugh, N. S., Ashfaq, M.
  2007; 22 (3)

- **Heat stress intensification in the Mediterranean climate change hotspot** *GEOPHYSICAL RESEARCH LETTERS*
  Diffenbaugh, N. S., Pal, J. S., Giorgi, F., Gao, X.
  2007; 34 (11)

- **Changes in severe thunderstorm environment frequency in the 21st century due to anthropogenically enhanced global radiative forcing** *Proceedings of the National Academy of Sciences*
  Trapp, R. J., Diffenbaugh, N. S., Brooks, H. E., Baldwin, M., Robinson, E. D., Pal, J. S.
  2007; 104: 19719-19723

- **Diffenbaugh Receives 2006 James R. Holton Junior Scientist Award** *Eos Transactions American Geophysical Union*
  Harshvardhan, G., Diffenbaugh, N.
  2007; 111: 111

- **Heat stress intensification in the Mediterranean climate change hotspot** *Geophysical Research Letters*

Diffenbaugh, N. S., Pal, J. S., Giorgi, F., Gao, X.
2007; 34

- **Response of California Current forcing to mid-Holocene changes in insolation and sea surface temperature** *Paleoceanography*
  Diffenbaugh , N. S., Ashfaq, M.
  2007; 22
- **Regional climate modeling for the developing world: The ICTP RegCM3 and RegCNET** *Bulletin of the American Meteorological Society*
  Pal, J. S., Giorgi, F., Bi, X., Elguindi, N., Solmon, F., Gao, X., Rauscher, S. A., Francisco, R., Zakey, A., Winter, J., Ashfaq, M., Syed, F. S., , et al
  2007; 88: 1395-1409
- **Telescoping, multi-model approaches to evaluate extreme convective weather under future climates** *Journal of Geophysical Research-Atmospheres*
  Trapp, R. J., Halvorson, B. A., Diffenbaugh, N. S.
  2007; 112
- **Indicators of 21st century socioclimatic exposure** *Proceedings of the National Academy of Sciences*
  Diffenbaugh, N. S., Giorgi, F., Raymond, L., Bi, X.
  2007; 104: 20195-20198
- **Summer aridity in the United States: Response to mid-Holocene changes in insolation and sea surface temperature** *GEOPHYSICAL RESEARCH LETTERS*
  Diffenbaugh, N. S., Ashfaq, M., Shuman, B., Williams, J. W., Bartlein, P. J.
  2006; 33 (22)
- **Extreme heat reduces and shifts United States premium wine production in the 21st century** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  White, M. A., Diffenbaugh, N. S., Jones, G. V., Pal, J. S., Giorgi, F.
  2006; 103 (30): 11217-11222
- **Simulated changes in extreme temperature and precipitation events at 6 ka** *PALAEOGEOGRAPHY PALAEOCLIMATOLOGY PALAEOECOLOGY*
  Diffenbaugh, N. S., Bell, J. L., Sloan, L. C.
  2006; 236 (1-2): 151-168
- **Summer aridity in the United States: Response to mid-Holocene changes in insolation and sea surface temperature** *Geophysical Research Letters*
  Diffenbaugh, N. S., Ashfaq, M., Shuman, B., Williams, J. W., Bartlein, P. J.
  2006; 33
- **Introduction to the special issue "Glacial-Interglacial Climate of the Past 160,000 Years: New Insights from Data and Models"** *Palaeogeography, Palaeoclimatology, Palaeoecology*
  Diffenbaugh, N. S., Eakin, C. M., Otto-Bliesner, B. L., Zhao, M.
  2006; 236: 1-4
- **Extreme heat reduces and shifts United States premium wine production in the 21st century** *Proceedings of the National Academy of Sciences*
  White, M. A., Diffenbaugh, N. S., Jones, G. V., Pal, J. S., Giorgi, F.
  2006; 103: 11217-11222
- **Simulated changes in extreme temperature and precipitation events at 6 ka** *Palaeogeography, Palaeoclimatology, Palaeoecology*
  Diffenbaugh, N. S., Bell, J. L., Sloan, L. C.
  2006; 236: 151-168
- **Fine-scale processes regulate the response of extreme events to global climate change** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Diffenbaugh, N. S., Pal, J. S., Trapp, R. J., Giorgi, F.
  2005; 102 (44): 15774-15778
- **Response of large-scale eastern boundary current forcing in the 21st century** *GEOPHYSICAL RESEARCH LETTERS*
  Diffenbaugh, N. S.

2005; 32 (19)

- **Sensitivity of extreme climate events to CO2-induced biophysical atmosphere-vegetation feedbacks in the western United States** *GEOPHYSICAL RESEARCH LETTERS*
  Diffenbaugh, N. S.
  2005; 32 (7)
- **Atmosphere-land cover feedbacks alter the response of surface temperature to CO2 forcing in the western United States** *CLIMATE DYNAMICS*
  Diffenbaugh, N. S.
  2005; 24 (2-3): 237-251
- **Response of large-scale eastern boundary current forcing in the 21st century** *Geophysical Research Letters*
  Diffenbaugh, N. S.
  2005; 32
- **Sensitivity of extreme climate events to CO2-induced biophysical atmosphere-vegetation feedbacks in the western United States** *Geophysical Research Letters*
  Diffenbaugh, N. S.
  2005; 32
- **Fine-scale processes regulate the response of extreme events to global climate change** *Proceedings of the National Academy of Sciences*
  Diffenbaugh, N. S., Pal, J. S., Trapp, R. J., Giorgi, F.
  2005; 102: 15774-15778
- **Atmosphere-land cover feedbacks alter the response of surface temperature to CO2 forcing in the western United States** *Climate Dynamics*
  Diffenbaugh, N. S.
  2005; 24: 237-251
- **Mid-Holocene orbital forcing of regional-scale climate: A case study of western North America using a high-resolution RCM** *JOURNAL OF CLIMATE*
  Diffenbaugh, N. S., Sloan, L. C.
  2004; 17 (15): 2927-2937
- **The effects of late Quaternary climate and pCO(2) change on C-4 plant abundance in the south-central United States** *PALAEOGEOGRAPHY PALAEOCLIMATOLOGY PALAEOECOLOGY*
  Koch, P. L., Diffenbaugh, N. S., Hoppe, K. A.
  2004; 207 (3-4): 331-357
- **Could CO2-induced land-cover feedbacks alter near-shore upwelling regimes?** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Diffenbaugh, N. S., Snyder, M. A., Sloan, L. C.
  2004; 101 (1): 27-32
- **Mid-Holocene orbital forcing of regional-scale climate: a case study of western North America using a high-resolution RCM** *Journal of Climate*
  Diffenbaugh, N. S., Sloan, L. C.
  2004; 17: 2927-2937
- **Could CO2-induced land cover feedbacks alter near-shore upwelling regimes?** *Proceedings of the National Academy of Sciences*
  Diffenbaugh, N. S., Snyder, M. A., Sloan, L. C.
  2004; 101: 27-31
- **Future climate change and upwelling in the California Current** *GEOPHYSICAL RESEARCH LETTERS*
  Snyder, M. A., Sloan, L. C., Diffenbaugh, N. S., Bell, J. L.
  2003; 30 (15)
- **Orbital suppression of wind-driven upwelling in the California Current at 6 ka** *PALEOCEANOGRAPHY*
  Diffenbaugh, N. S., Sloan, L. C., Snyder, M. A.
  2003; 18 (2)

- **Vegetation sensitivity to global anthropogenic carbon dioxide emissions in a topographically complex region** *GLOBAL BIOGEOCHEMICAL CYCLES*
  Diffenbaugh, N. S., Sloan, L. C., Snyder, M. A., Bell, J. L., Kaplan, J., Shafer, S. L., Bartlein, P. J.
  2003; 17 (2)
- **Orbital suppression of wind driven upwelling in the California Current at 6 ka** *Paleoceanography*
  Diffenbaugh, N. S., Sloan, L. C., Snyder, M. A.
  2003; 18: 1051
- **Future climate change and upwelling in the California Current** *Geophysical Research Letters*
  Snyder, M. A., Sloan, L. C., Diffenbaugh, N. S., Bell, J. L.
  2003; 30: 1823
- **Vegetation sensitivity to global anthropogenic carbon dioxide emissions in a topographically complex region** *Global Biogeochemical Cycles*
  Diffenbaugh, N. S., Sloan, L. C., Snyder, M. A., Bell, J. L., Kaplan, J. O., Shafer, S. L., Bartlein, P. J.
  2003; 18: 1067
- **Global climate sensitivity to land surface change: The Mid Holocene revisited** *GEOPHYSICAL RESEARCH LETTERS*
  Diffenbaugh, N. S., Sloan, L. C.
  2002; 29 (10)
- **Global climate sensitivity to land surface change: The Mid Holocene revisited** *Geophysical Research Letters*
  Diffenbaugh, N. S., Sloan, L. C.
  2002; 29: 1476