

Daniel L. Swain

Assistant Researcher, Institute of the Environment & Sustainability
University of California, Los Angeles, CA

Research Fellow, Capacity Center for Climate and Weather Extremes
National Center for Atmospheric Research, Boulder, CO

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The Nature Conservancy of California, San Francisco, CA

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Research interests

Dynamics & impacts of regional climate change, hydrological extremes, extreme event detection/attribution, tropical/Arctic teleconnections, natural hazard risk, climate adaptation, science writing & communication

Education

- Ph.D., Earth System Science, Stanford University** 2016
Dissertation: “Character and causes of changing North Pacific climate extremes”
Advisor: Dr. Noah Diffenbaugh
- B.S., Atmospheric Science, University of California, Davis (Highest Honors)** 2011

Publications

- Abatzoglou, J., Smith, C., **Swain, D.L.**, and C. Kolden. “Population exposure to pro-active power outages aimed at averting wildfires in Northern California” (*in press, Environmental Research Letters*) 2020
- Huang, X., **Swain, D.L.**, and A. Hall. Large ensemble downscaling of extreme atmospheric river storms in California reveals large increase in fine-scale precipitation” (*in press, Science Advances*) 2020
- Goss, M., **Swain, D.L.**, Sarhadi, A., Kolden, C.A., Abatzoglou, J.T., Williams, A.P., and N.S. Diffenbaugh. Climate change is increasing the risk of extreme autumn wildfire conditions across California (*in press, Environmental Research Letters*) 2020
- Brunner, M.I., Gilleland, E., Wood, A., **Swain, D.L.**, and M. Clark. Spatial dependence of floods shaped by spatiotemporal variations in meteorological and land-surface processes. *Geophysical Research Letters*, 47, e2020GL088000, doi: 10.1029/2020GL088000, 2020.
- †**Swain, D.L.**, Singh, D., Touma, D., and N.S. Diffenbaugh. Attributing extreme events to climate change: A new frontier in a warming world, *One Earth*, 2, 522-527, doi: 10.1016/j.oneear.2020.05.011, 2020.
- Huang, X., **Swain, D.L.**, Walton, D.B., Berg, N., and A. Hall, Simulating and Evaluating Atmospheric River-Induced Precipitation Extremes along the U.S. Pacific Coast: Case Studies from 1980-2017, *Journal of Geophysical Research: Atmospheres*, 125, e2019JD031554, doi: 10.1029/2019JD031554, 2020.
- Gibson, P.B., Waliser, D.E., Guan, B., DeFlorio, M.J., and **D.L. Swain**, Ridging associated with drought in western and southwestern United States: characteristics, trends and predictability, *Journal of Climate*, 33, 2485-2408, doi: 10.1175/JCLI-D-19-0439.1, 2020.

- Gonzales, K.R., **Swain, D.L.**, Barnes, E.A., K. Nardi, and N.S. Diffenbaugh, Recent warming of landfalling atmospheric rivers along the West Coast of the United States, *Journal of Geophysical Research: Atmospheres*, 124, 6810-6826, doi: 10.1029/2018JD029860, 2019.
- †**Swain, D.L.**, 2019. Weather: Is society ready for precipitation whiplash?, In: “Toward a Resilient Global Society: Air, Sea Level, Earthquakes, and Weather,” *Earth's Future*, 7, 854-864, doi: 10.1029/2019EF001242, 2019.
- Thackeray, C.W., A.M. DeAngelis, A. Hall, **D.L. Swain**, and X. Qu, On the Connection Between Global Hydrologic Sensitivity and Regional Wet Extremes, *Geophysical Review Letters*, 45, doi: 10.1029/2018GL079698, 2018.
- Touma, D., A. M. Michalak, **D.L. Swain**, and N.S. Diffenbaugh, Characterizing the spatial characteristics of extreme precipitation over the United States, *Journal of Climate*, 31, 8023-8037, doi: 10.1175/JCLI-D-18-0019.1, 2018.
- ***Swain, D.L.**, B. Langenbrunner, J.D. Neelin, and A. Hall, Increasing precipitation volatility in twenty-first-century California, *Nature Climate Change*, 8, 427-433, doi: 10.1038/s41558-018-0140-y, 2018.
- Swain, D.L.**, D. Singh, D.E. Horton, J.S. Mankin, T. Ballard, and N.S. Diffenbaugh, Remote linkages to anomalous winter atmospheric ridging over the northeastern Pacific, *Journal of Geophysical Research: Atmospheres*, 122, 12,194-12,209, doi: 10.1002/2017JD026575, 2017.
- *Diffenbaugh, N.S., Singh, D., Mankin, J.S., Charland, A., Horton, D.E., Haugen, M., **Swain, D.L.**, Rajaratnam, B., Touma, D., Quantifying the influence of global warming on unprecedented extreme climate events, *Proceedings of the National Academy of Sciences*, 114, 4881-4886, doi: 10.1073/pnas.1618082114, 2017.
- Singh, D., **D. L. Swain**, J.S. Mankin, D.E. Horton, L.N. Thomas, B. Rajaratnam, and N.S. Diffenbaugh, Recent amplification of the North American winter temperature dipole, *Journal of Geophysical Research: Atmospheres*, 121, 9911-9928, doi: 10.1002/2016JD025116, 2016.
- ***Swain, D. L.**, Horton, D.E., Singh, D., and N.S. Diffenbaugh, Trends in atmospheric patterns conducive to seasonal precipitation and temperature extremes in California, *Science Advances*, 2, e1501344, doi: 10.1126/sciadv.1501344, 2016.
- Swain, D.L.**, Lebassi-Habtezion, B., and N.S. Diffenbaugh, Evaluation of non-hydrostatic simulations of Northeast Pacific atmospheric rivers and comparison to in-situ observations, *Monthly Weather Review*, 143, 3556-3569, doi: 10.1175/MWR-D-15-0079.1, 2015.
- *Horton, D.E., N.C. Johnson, D. Singh, **D.L. Swain**, B. Rajaratnam and N.S. Diffenbaugh, Contribution of changes in atmospheric circulation patterns to extreme temperature trends, *Nature*, 522, 465–469, doi: 10.1038/nature14550, 2015.
- *Diffenbaugh, N.S., **D.L. Swain** and D. Touma, Anthropogenic warming has increased drought risk in California, 112, 3931-3936, *Proceedings of the National Academy of Sciences*, doi: 10.1073/pnas.1422385112, 2015.
- †**Swain, D.L.**, A tale of two California droughts: Lessons amidst record warmth and dryness in a region of complex physical and human geography, *Geophysical Review Letters*, doi:10.1002/2015GL066628, 2015.

***Swain, D.L.**, M. Tsiang, M. Haugen, D. Singh, A. Charland, B. Rajaratnam and N.S. Diffenbaugh, 2014
The extraordinary California drought of 2013-2014: character, context, and the role of climate change [in "Explaining Extremes of 2013 from a Climate Perspective"], *Bulletin of the American Meteorological Society*, 95 (9), S3–S7, 2014.

* = ISI Highly Cited Paper

† = Perspective, commentary, or subject matter primer

Publications submitted/in preparation

Persad, G.G., **Swain, D.L.**, Kouba, C., and J.P.O. Partida, “Strong Model Agreement on Projected Shifts in California Hydroclimate Characteristics Critical to Water Management” (*in revision*) 2020

Goldenson, N., Thackeray, C.W., **Swain, D.L.**, Hall, A., and N. Berg, “Using large ensembles to identify regions of systematic biases in moderate to heavy daily precipitation” (*in review*) 2020

Fish, M.A., Done, J., Wilson, A.M. and **Swain, D.L.**, “Large-scale drivers of successive atmospheric river events in California” (*in review*) 2020

Swain, D.L., Wing, O., Bates, P., Johnson, K., Christopher, S., Done, J., and D.R. Cameron, “Timescale dependence of increases in extreme precipitation and associated flood risk across the continental United States” (*in review*) 2020

Gonzales, K.R., **Swain, D.L.**, Barnes, E.A., and N.S. Diffenbaugh, “Moisture vs. Wind-Dominated Flavors of Atmospheric Rivers” (*in prep*) 2020

Kalashnikov, D., Singh, D., Schnell, J., Abatzoglou, J., and **D.L. Swain**. “Increasing exposure to co-occurrence of particulate matter and ozone extremes in the western United States” (*in prep*) 2020

Brunner, M.I., **Swain, D.L.**, Gilleland, E., and A. Wood, “Increasing importance of temperature as a driver of streamflow drought spatial extent” (*in prep*) 2020

Published reports

Persad, G.G., **Swain, D.L.**, Kouba, C., and J.P.O. Partida, “Climate Change Breaking Points for California’s Water Future,” *Union of Concerned Scientists*, 2020 (*in review*) 2020

Mount, J., **Swain, D.L.**, and P. Ullrich, “Just the Facts: Climate Change and California’s Water,” *Public Policy Institute of California*, 2019. 2019

Hanak, E. et al., “California’s Water”, *Public Policy Institute of California*, 2018. 2018

Mount, J. et al., “Managing Drought in a Changing Climate: Four Essential Reforms,” *Public Policy Institute of California*, 2018. 2018

Selected honors and awards

National Academy of Sciences Kavli Fellow	2019
Finalist, AAAS Early Career Award for Public Engagement with Science	2018
NatureNet Postdoctoral Fellowship, Nature Conservancy/University of California	2016-2018
ARCS Fellowship, Achievement Rewards for College Scientists Foundation	2015-2016
Switzer Environmental Fellowship, Robert and Patricia Switzer Foundation	2015-2016
Graduate Student Award for Scholarly & Research Achievement, Stanford University	2015
“Ten under 30: Young leaders changing the American West,” <i>High Country News</i>	2015
Fellow, Rising Environmental Leaders Program, Stanford Woods Inst. for the Environment	2013
Centennial Teaching Assistant Award, School of Earth Sciences, Stanford University	2013
College Medal, College of Agricultural & Environmental Sciences, Univ. of California, Davis	2011
Departmental Citation, Atmospheric Science, University of California, Davis	2011
Winner, Prized Writing Competition, Scientific & Technical Writing, Univ. of California, Davis	2010, 2008
Guillermo Salazar Rodriguez Undergraduate Scholarship, American Meteorological Society	2010
Regents Scholarship, University of California, Davis	2009-2011
American Meteorological Society Undergraduate Scholar	2007-2009
Henry A. Jastro Recruitment Scholarship, University of California, Davis	2007-2009
NASA Ames/AIAA Galileo Memorial Scholarship	2007

Grants

Co-Principal Investigator, National Science Foundation Prediction of and Resilience against Extreme Events (NSF PREEVENTS) Program, Track 2: “COEXIST: Connected EXTremes In Space and Time,” Award ID: 1854761, Award total: \$345,446 (UCLA portion) 2019-2021

Science communication and science writing

Author & founder, Weather West blog (www.weatherwest.com) 2006-Present

Write regular articles focusing on a wide range of California/western North America weather and climate topics; answer questions from public, decision-makers, and scientists regarding meteorology/climatology/general science/science policy. Strong emphasis on making scientific and technical topics accessible to a broad audience (>1 million visitors each year).

Climate science engagement via social media 2014-Present

Weather, climate, Earth science, and public policy discussion and outreach via Twitter as @Weather_West (>10 million views each year). Direct engagement with public, scientists, wildland firefighters, water managers, local & regional government, members of U.S. Congress

Atmospheric and climate science media liaison 2013-present

Frequent, sustained engagement with local, national, and international news media on weather & climate-related issues. ~100 interviews each year with a wide range of outlets:

Newspaper: New York Times, Washington Post, USA Today, Wall Street Journal, Bloomberg, Los Angeles Times, San Francisco Chronicle, Sacramento Bee & local outlets

Long-form/magazine: Time, The Economist, Newsweek, The Atlantic, Wired, Scientific American, Popular Science, National Geographic, Vogue, Outside Magazine, Sunset Magazine, Bay Nature Magazine, Mother Jones

Radio: NPR/Science Friday (and numerous local affiliates), BBC World Service ABC & CBS national radio (and local affiliates), various local and university stations

Television: CNN, ABC, NBC, PBS, Democracy Now, Al Jazeera, Global National Canada, HBO, German and Danish public television, numerous local news affiliates

Web outlets: Vox, Slate Magazine, Vice Magazine, BuzzFeed, Mashable, The Verge

Climate/weather-focused: Climate Central, Climate Nexus, InsideClimate News, Generation Anthropocene podcast, The Weather Channel, Wunderground, The Weather Network

Science writing for broad audiences

Occasional contributor of invited popular science/current event-related perspective pieces in print and online media, including selected publications below. 2010-present

Swain, D.L., Kolden, C., and J. Abatzoglou, “The era of megafires: the crisis facing California and what will happen next,” article in *The Guardian*, 08 August 2018 2018

Swain, D.L., *Outside Magazine* contributor, various articles 2015-2016

Swain, D.L., *KQED Public Media* contributor, various articles 2015-2016

Swain, D.L., and N.S. Diffenbaugh, “Viewpoints: Climate change is increasing the chances of drought,” *Sacramento Bee* Op-Ed, 30 September 2014. 2014

Swain, D.L., 2010, “Of Ice and Men: How changes in Arctic sea ice affect our climate, our weather, and our ways of life,” *Prized Writing 2009-2010*, P. Demory, Ed., Univ. of California, Davis, 210-217. 2010

Invited scientific presentations

“Regional downscaling of large ensemble simulations as a tool for understanding changing hydroclimatic extremes in a warming climate,” *CLIVAR Large Ensembles Workshop*, Boulder, CO (*invited speaker*) Jul 2019

“Hydroclimatic intensification in a warming world: is society ready for increasing precipitation whiplash?” *American Geophysical Union Fall Meeting*, Washington, D.C. (*invited speaker*) Dec. 2018

“Thinking about climate risk in an era of extremes: California’s increasingly wide swings between drought and flood,” *Department of Geography Seminar*, University of California, Berkeley (*invited lecturer*) Oct. 2018

“Atmospheric rivers as a scientific (and conversational) bridge between weather and climate,” *International Atmospheric Rivers Conference*, Scripps Institute of Oceanography, La Jolla, CA (*invited speaker*) Jun. 2018

“California’s increasingly extreme climate future,” Rusch Honors Colloquium, Viterbi School of Engineering, Univ. of Southern California, Los Angeles, CA (*invited lecturer*) Nov. 2017

- “Causes and impacts of climate change—a California perspective,”
Climate and Law Policy Seminar, UCLA School of Law, Los Angeles, CA (*invited lecturer*) Sep. 2017
- “Teleconnections and regional impacts under anthropogenic
forcing” & “Global warming influence on extreme events,” *US Climate Variability and
Predictability Program (CLIVAR) Summit*, Baltimore, MD (*invited speaker and panelist*) Aug. 2017
- “Trends in persistent seasonal-scale atmospheric circulation patterns responsible for
precipitation and temperatures extremes in California,” *American Geophysical Union Fall
Meeting*, San Francisco, CA (*invited speaker*) Dec. 2015
- “Drought causes,” *American Geophysical Union Chapman Conf. on California Drought:
Causes, Impacts, & Policy*, Univ. of California, Irvine (*invited panelist*) Apr. 2015
- “The extraordinary 2012-2015 drought in California and its context in a warming world,”
Water Scarcity in the West: Past, Present, Future Conference, Univ. of California, Davis
(*invited speaker and panelist*) Apr. 2015
- “Persistent atmospheric patterns and the ongoing California drought: the role of
the Ridiculously Resilient Ridge,” *NASA Earth Science Seminar*, NASA Ames, Mountain
View, CA (*invited speaker*) Mar. 2015
- “The extraordinary California drought of 2012-2015: Historical context and the
role of climate change,” *PACCLIM Pacific Climate Workshop 2015*, Pacific Grove, CA
(*invited speaker*) Mar. 2015
- “The extraordinary California drought of 2012-2015: Historical context and the role
of climate change,” *Atmosphere and Energy Departmental Seminar*, Stanford University,
Stanford, CA (*invited speaker*) Mar. 2015

Professional experience

Scientific research appointments

- Climate Scientist** 2018-Present
Inst. of Environment & Sustainability, University of California, Los Angeles
Lead research on dynamics & impacts of regional climate change and serve as
primary media point of contact on weather/climate-related topics.
- California Climate Fellow** 2018-Present
The Nature Conservancy
Lead interdisciplinary research aimed at understanding of dynamics of future
climate changes (including extreme events) and implications for human infrastructure and
ecosystems; evaluate risk-reduction interventions & co-benefits to society & natural systems.
- Capacity Center for Weather & Climate Extremes Fellow** 2018-Present
National Center for Atmospheric Research
Lead research into atmospheric/Earth system dynamics of hydrologic cycle extremes.
- Postdoctoral Fellow** 2016-2018
Inst. of Environment & Sustainability, University of California, Los Angeles
Investigate the character and causes of changes in hydrological cycle extremes in California.
- Graduate Research Assistant**

Climate and Earth System Dynamics Group, Stanford University 2011-2016
Develop and conduct scientific investigations of climate variability and change in the North Pacific/western North America region, with a focus on extreme meteorological events and persistent circulation patterns.

Intern 2010
NASA/National Center for Suborbital Research, University of California, Irvine
Obtain “ground truth” measurements for comparison to NASA overflights with hyperspectral imager as part of agricultural evapotranspiration study.

Teaching
Teaching Assistant, Department of Earth System Science, Stanford University 2013
Course: “Atmosphere, Ocean & Climate Dynamics: The Atmospheric Circulation.” Give guest lectures, develop and implement practical laboratory sessions, hold office hours, and evaluate student performance.

Invited Guest Lecturer
University of California, Los Angeles 2016-2020
Courses: Advanced Topics in Environment and Sustainability; Climate Law and Policy; The Blue Planet: Introduction to Oceanography

Stanford University 2013-2016
Courses: Atmosphere, Ocean & Climate Dynamics I & II; Stanford Pre-Collegiate Institutes

Public and community outreach

Climate Feedback expert reviewer, assessing national/international media coverage on climate change and extreme weather as member of accredited fact-checking organization Sep. 2016-present

Member, Public Policy Institute of California Water Policy Research Network Apr. 2018-present

Invited Plenary Speaker, “Climate Change in California: A Tale of Shifting Baselines, Sharpening Seasonality, and Increasing Precipitation Whiplash,” Interagency Ecological Program Annual Workshop, Folsom, CA* Oct. 2020

Invited Speaker, “Role of the scientist-communicator in an era of social media and climate change,” The Nature Conservancy of California special seminar, San Francisco, CA* Mar. 2020

Invited Speaker, “Climate change in California: A tale of fire and flood,” Water Education Foundation “Water Leaders” Orientation, Sacramento, CA* Jan. 2020

Invited Expert, “Extremes in a warming climate: Knowns, unknowns, and emerging evidence,” Science briefing for United States Senator Sheldon Whitehouse, National Center for Atmospheric Research, Boulder, CO Oct. 2019

Invited Speaker, “Wetter, drier, or both? Increasing hydroclimatic variability in 21st century California,” University of California Agriculture & Natural Resources Water Strategic Initiative meeting, Davis, CA* May 2019

Invited Speaker, “Is California ready for increasing precipitation whiplash?,” American River Operations Work Group meeting, Folsom, CA* May 2019

Invited Speaker, “Forces of Nature: H2-Uh-Oh,” First Fridays event at Natural History May 2019

Museum of Los Angeles, Los Angeles, CA

Invited Speaker, "The Wild West of Online Science Communication," University of Washington Program on Climate Change, Seattle, WA* Apr. 2019

Invited Panelist, "LA's New Abnormal: Megafires," UCLA Institute of the Environment and Sustainability & The Nature Conservancy, Los Angeles, CA Feb. 2019

Invited Speaker, "Fire & Water from the 30,000-Foot Level," Water Education Foundation "Water Leaders" Orientation, Sacramento, CA* Jan. 2019

Invited Keynote Speaker, "Drought, flood, and wildfire amidst increasing climate whiplash: the challenging road ahead for water management in the West," Water Education Foundation Water Summit, Sacramento, CA Sep. 2018

Invited Interactive Speaker, "Climate Change Cliff Notes," A Climate Series for the Ages, hosted by UCLA Institute of Environment and Sustainability & Natural History Museum of Los Angeles, Los Angeles, CA Oct. 2017

Invited Speaker, "Change in a land of extremes: what we know (and don't know) about California's climate future," Krotone Institute/Ojai Valley Conservancy, Ojai, California May 2017

Featured Speaker, Stanford Connects 2016: "The Rise of the Ridiculously Resilient Ridge and the Future of California Drought," Stanford University, Stanford, CA May 2016

Project Mentor, Stanford University course: "International Climate Negotiations (COP 21)" Dec. 2015

Invited Speaker, "Flood in a time of drought? Effects of a powerful El Niño in the midst of California's record dry spell," Association of Bay Area Governments, Oakland, CA Sep. 2015

Invited Speaker, "Climate Change in a Land of Extremes: Drought and Flood in California's Past, Present, and Future," U.S. National Park Service Parsons Memorial Lodge Lecture Series, Yosemite National Park, CA Aug. 2015

Invited Speaker and Panelist, "California Drought Panel," Water in the West/Woods Institute for the Environment, Stanford University, Stanford, CA Mar. 2015

Invited Panelist, "Earth Matters/A Matter of Degrees," Stanford Continuing Studies Program, Stanford University, Stanford, CA Feb. 2015

Invited Science Speaker, "Stanford to the Sea" Science Hike, "The Ridiculously Resilient Ridge in Context: Climate Variability of California's Past, Present, and Future," Bill Lane Center for the American West, Stanford University, Stanford, CA May 2014

Invited Speaker and Panelist, "Current Drought: Causes, how bad is it, and will we see more?" University of California Drought Summit, California State Capitol, Sacramento, CA Apr. 2014

Invited Speaker and Panelist, "The California Drought: Causes, Context, and Response," Bill Lane Center for the American West/Woods Institute for the Environment, Stanford University, Stanford, CA Feb. 2014

Founder and leader, Aggie Forecasting Team at University of California, Davis 2008-2011

Co-leader, Atmospheric Profiling & Stratospheric Photography Project, Univ. of Calif., Davis 2009-2011

*Denotes remote attendance via teleconference software or telephone

Other awards and recognitions

“Must Follow” Social Media Meteorologist/Climatologist, Forbes Magazine 2016

Best Talk Award, Environmental Science, SES Research Review, Stanford University 2016

Oakland Museum of California “Agent of Change” 2015

“Research as Art” competition winner, School of Earth Sciences, Stanford University 2015, 2012

ThinkSwiss Award, Swiss National Science Foundation, “NCCR Climate Summer School,” Grindelwald, Switzerland 2013

Invitee, NCAR Undergraduate Leadership Workshop, Boulder, CO 2010

UC Davis Integrated Studies Honors Program International Education Award 2008

UC Davis International Relations Study Abroad Award 2008

Edward Kraft Prize, University of California, Davis 2008

Profiles in science communication

“Will It Ever Rain Again? The Models Say ‘Whoa,’” *Bay Nature Magazine*, 2018
<https://baynature.org/2018/11/01/will-it-ever-rain-again-the-models-say-whoa>

“Writing About Weather In The West: Interview with Daniel Swain, Climate Scientist & Blogger,” *COMPASS Science Communication*, <https://www.compasscomm.org/post/writing-about-weather-in-the-west-interview-with-daniel-swain-climate-scientist-blogger> 2017

“This is What It’s Like To Be a Young Climate Scientist,” *Climate Central*, 2016
<https://www.climatecentral.org/news/young-climate-scientists-interviews-20799>

“Young leaders changing the American West,” *High Country News*, 2015
<https://www.hcn.org/articles/ten-people-under-30-changing-the-west>

“A young climate scientist: Daniel Swain,” *Yale Climate Connections*, 2015
<https://www.yaleclimateconnections.org/2015/11/a-young-climate-scientist-daniel-swain>

“Watching the weather with Daniel Swain,” *Bay Nature Magazine*, 2015
<https://baynature.org/article/watching-the-weather-with-daniel-swain>

Other scientific presentations

Oral presentations

“Dynamics of and precursors to California megafloods, present and future,” *American Meteorological Society Annual Meeting*, Phoenix, AZ Jan. 2019

“Increasing climate whiplash in 21st century California,” *American Geophysical Union Fall Meeting*, New Orleans, LA Dec. 2017

“California precipitation extremes in a warming world,” *Sustainable LA Water Research* Nov. 2017

Grand Challenge Research Symposium, Los Angeles, CA

Poster presentations

- “Is society ready for increasing climate whiplash?” *2019 Israeli-American Kavli Frontiers of Science Symposium*, Jerusalem, Israel Sep. 2019
- “Connections between the tropical Pacific Ocean, Arctic sea ice, and anomalous northeastern Pacific ridging,” *American Geophysical Union Fall Meeting*, San Francisco, CA Dec. 2016
- “Character and causes of changing Pacific climate extremes: Special focus on the extraordinary 2012-2015 California drought,” *Young Environmental Scholars Conference*, Stanford, CA Dec. 2015
- “The Extraordinary California Drought of 2013-2014: Character, Context, and the Role of Climate Change,” *American Geophysical Union Fall Meeting*, San Francisco, CA Dec. 2014
- “The Extraordinary California Drought of 2013-2014: Character, Context, and the Role of Climate Change,” *Graduate Climate Conference*, Seattle, WA Nov. 2014
- “The Extraordinary California Drought of 2013-2014: Character, Context, and the Role of Climate Change,” *Fourth Workshop on understanding Climate Change from Data*, National Center for Atmospheric Research, Boulder, CO Jun. 2014
- “Evaluation of high-resolution simulations of Northeast Pacific atmospheric rivers,” *American Geophysical Union Fall Meeting*, San Francisco, CA Dec. 2013
- “Mid-Latitude Precipitation Extremes: Latitudinal Linkages and Climate Change,” *Swiss National Center for Competence in Research (NCCR Climate)*, Grindelwald, Switzerland Sep. 2013
- “High-resolution seasonal simulations of Northeast Pacific atmospheric rivers and comparison to in-situ observations,” *American Geophysical Union Fall Meeting*, San Francisco, CA Dec. 2012

Professional affiliations and service activities

- AGU Outstanding Student Presentation Award Judge 2019
- Expert Reviewer, United Nations International Strategy for Disaster Reduction (UNISDR) Global Assessment Report on Disaster Risk Reduction (GAR) 2019 2019
- Expert Reviewer, California's Fourth Climate Change Assessment 2018
- Journal Manuscript Referee (*Nature*, *Nature Climate Change*, *Proceedings of the National Academy Of Sciences*, *Climatic Change*, *Geophysical Research Letters*, *Journal of Climate*, *Bulletin of the American Meteorological Society*, *Science Advances*, *Scientific Reports*, *Advances in Water Resources*, *Journal of Geophysical Research: Atmospheres*) 2013-present
- Member, American Association for the Advancement of Science (AAAS) 2017-present
- Member, American Geophysical Union (AGU) 2010-present
- Member, American Meteorological Society (AMS) 2007-present
- President, American Meteorological Society Student Chapter, UC Davis 2009-2011

AGU Fall Meeting session co-convener: “Bridging the Gap from Climate to Extreme Weather: Observations, Theory and Modeling” (2019), “Tropical Cyclones in the Global Climate System” (2010)

2019, 2010