

Xingying Huang, Ph.D.

CONTACT INFORMATION	National Center for Atmospheric Research 320b Mesa Lab Boulder, CO 80305	Email: xyhuang@ucar.edu Tel: (530)400-7638 Web: xingyhuang.github.io
RESEARCH INTERESTS	Climate change and extremes, climate modeling, global and regional climate impacts Climate variability and dynamics, Machine learning, Remote sensing, Geospatial data	
PROFESSIONAL APPOINTMENTS	Project Scientist, National Center for Atmospheric Research 5/2021 - now Climate and Global Dynamics Lab Atmospheric Modeling & Predictability Section Postdoctoral Researcher, UC Santa Barbara 10/2019 - 4/2021 Earth Research Institute Bren School of Environmental Science & Management Postdoctoral Researcher, UC Los Angeles 1/2017 - 9/2019 Department of Atmospheric and Oceanic Sciences Center of Climate Science	
EDUCATION BACKGROUND	Ph.D., Atmospheric Science, University of California, Davis 12/2016 Minor in M.S. of Statistics with coursework completed Graduate researcher, UC Davis & Berkeley Lab. (2013 - 2016) Committee: Paul Ullrich (Chair, Advisor), Terry Nathan, Richard Grotjahn Travis O'Brien, Daniel Feldman Dissertation: Studying regional climate with variable-resolution CESM M.S., Remote Sensing, Beijing Normal University 6/2013 Advisor: Xiaowen Li (Academician of the Chinese Academy of Sciences) Honored graduate (Awarded by the College and Beijing city) Thesis: The evaluation and hotspot research focused on AMBRALS models B.S., Geographical Information System, Wuhan University 6/2010 Graduated with honor (Top one of the program) Thesis: Development & application of a land-use database management system	
HONORS AND AWARDS	University of California, Davis Graduate program fellowship in Atmospheric Science (2013-2014) Beijing Normal University National Scholarship, Outstanding Graduate Award (2012, 2013) Academic Excellence Award (2011, 2012) Wuhan University Excellent Student of College Award (2007, 2008, 2009) National Inspirational Award (2007, 2008)	
CURRENT GRANTS AND PROPOSALS	Co-PI , funding for initial phase ARkStorm 2.0 project (portion ~\$90K), California Yuba Water Agency & Department of Water Resource. 2021-2022. Awardee, Azure Compute Credit Grant , Microsoft. \$15,000. (2020-2021)	

Investigator, Mechanisms of Pacific decadal variability in ESMs: the roles of stochastic forcing, feedbacks & external forcing, DOE BER, DE-SC0019418. (2019-2021)

PUBLICATIONS IN REVISION/PREP [4] **Huang, X.**, and Stevenson, S., 2022. ENSO's modulating effect on projected future precipitation extremes in California. *Geophysical Research Letters*. In revision.

[3] Stevenson, S.*, **Huang, X.***, Lorenzo E.Di., et al., 2022. Role of Decadal Ocean State vs. Atmospheric Initial Condition Perturbations in Single-Model Large Ensembles: Insights from the Energy Exascale Earth System Model version 1. (* equal contribution). In prep.

[2] **Huang, X.**, Swain, D.L., 2022. Climate Change is Increasing the Risk of a California Megaflood. In review.

[1] **Huang, X.**, Gettelman, A., Skamarock, B., Curry, M., Lauritzen P.H., et al., 2022. Advancing precipitation prediction using CESM-MPAS - a new generation storm-resolving model: case study over western US. In prep.

PUBLISHED PEER-REVIEWED ARTICLES [11] Touma, D., Stevenson S., Swain D.L., Singh D., Kalashnikov D., and **Huang X.**, 2022. Climate change increases risk of extreme rainfall following wildfire in the western United States. *Science Advances*. In press.

[10] **Huang, X.**, and Stevenson, S., 2021. Connections between mean North Pacific circulation and western US precipitation extremes in a warming climate. *Earth's Future*, 9(6), p.e2020EF001944.

[9] **Huang, X.**, Stevenson, S. and Hall, A.D., 2020. Future warming and intensification of precipitation extremes: A “double whammy” leading to increasing flood risk in California. *Geophysical Research Letters*, 47, e2020GL088679. doi:10.1029/2020GL088679

[8] **Huang, X.**, Swain, D. L., and Hall, A. D., 2020. Future precipitation increase from very high resolution ensemble downscaling of extreme atmospheric river storms in California, *Science Advances*, 6(29). doi:10.1126/sciadv.aba1323 (2020 CYWater Young Scientist Best Paper Award)

[7] **Huang, X.**, Swain, D.L., Walton, D.B., Stevenson, S. and Hall, A.D., 2020. Simulating and Evaluating Atmospheric River-Induced Precipitation Extremes Along the US Pacific Coast: Case Studies From 1980-2017. *Journal of Geophysical Research: Atmospheres*, 125(4). doi: 10.1029/2019JD031554

[6] **Huang, X.**, Hall, A.D. and Berg, N., 2018. Anthropogenic warming impacts on today's Sierra Nevada snowpack and flood risk. *Geophysical Research Letters*, 45(12), pp.6215-6222. doi: 10.1029/2018GL077432

[5] **Huang, X.** and Ullrich, P.A., 2017. The changing character of twenty-first-century precipitation over the western United States in the variable-resolution CESM, *Journal of Climate*, 30(18), pp.7555-7575. doi: 10.1175/JCLI-D-16-0673.1

[4] **Huang, X.** and Ullrich, P.A., 2016. Irrigation impacts on California's climate with the variable-resolution CESM, *Journal of Advances in Modeling Earth Systems*, 8(3),

pp.1151-1163. doi: 10.1002/2016MS000656

[3] **Huang, X.**, Rhoades, A.M., Ullrich, P.A. and Zarzycki, C.M., 2016. An evaluation of the variable-resolution CESM for modeling California's climate, *Journal of Advances in Modeling Earth Systems*, 8(1), pp.345-369. doi: 10.1002/2015MS000559

[2] Rhoades, A.M., **Huang, X.**, Ullrich, P.A., and Zarzycki, C.M., 2016. Characterizing Sierra Nevada snowpack using variable-resolution CESM, *Journal of Applied Meteorology and Climatology*, 55(1), pp.173-196. doi: 10.1175/JAMC-D-15-0156.1

[1] **Huang, X.**, Jiao, Z., Dong, Y., Zhang, H. and Li, X., 2013. Analysis of BRDF and albedo retrieved by kernel-driven models using field measurements, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 6(1), pp.149-161. doi: 10.1109/JSTARS.2012.2208264

OTHER
PUBLICATIONS

Reich, K.D., Berg, N., Walton, D.B., Schwartz, M., Sun, F., **Huang, X.** and Hall, A., 2018. Climate change in the Sierra Nevada: California's water future. *UCLA Center for Climate Science*.

Huang, X., Jiao, Z., Dong, Y., Li, X. and Zhang, H., BRDF modeling comparison in hotspot effect with modified kernel-driven models. Geoscience and Remote Sensing Symposium (IGARSS), 2012. *IEEE International*. 22-27 July Page(s): 4248-4251.

SOFTWARE

Huang, X., software copyright "V_AMBRALS" V1.0, 2012SR052708

TEACHING
EXPERIENCES

Guest Lecturer, Intro to Climate Modeling, UC Santa Barbara, Fall 2020

Teaching Assistant, Vegetation Remote Sensing, Beijing Normal Univ., Spring 2011

Lab Assistant, GIS Platform Programming course using C++, Wuhan University, Spring 2009

SELECTED ORAL
PRESENTATIONS

Huang, X., Extreme Atmospheric River Scenarios in ARkStorm 2.0: Connected Storm Events and Impacts in California, *AMS 102nd Annual Meeting*, Virtual, Jan. 26, 2022.

Huang, X., Advancing the understanding and improvement of precipitation biases using a new storm-resolving model: a case study of precipitation extremes over the western united states, *AGU Fall Meeting*, Virtual, Dec. 17, 2021.

Huang, X., Climate modeling for extreme storm events over California, *GS3 Simulation Series for the Summer*, UC Santa Barbara, 2020.

Huang, X., Exploration of solving downscaling problem using deep learning-based image super-resolution techniques, *AGU Fall Meeting*, San Francisco, CA, 2019.

Huang, X. (invited). How Warming Impacts Precipitation Extremes, Snowpack and Flood risks over California with High-resolution Modeling, *PNNL*, WA, June, 2019.

Hall, A.D., Goldenson, N.L., **Huang, X.**, and Thackeray, C.W., Can GCMs produce credible projections of changes in extreme precipitation? (**invited lecture**). *AGU Fall Meeting*, San Francisco, CA, 2019.

Huang, X. (invited). Regional climate modeling and applications over the western United States. *Seminar talk, Department of Physics, University of Toronto*, Toronto, Canada, November, 2018.

Huang, X. (invited). Characterizing the Changes of the Top Atmospheric River

Events over California in the Future. *Lightning talk at the Earth and Environmental System Modeling PI Meeting*, Potomac, Maryland, November, 2018.

Huang, X., Hall, A.D., and Berg N. Anthropogenic Warming Impacts on Today's Sierra Nevada Snowpack and Flood Severity. *2017 AGU Fall Meeting*, New Orleans.

Huang, X., (**invited**). Studying Regional Climate with Variable-Resolution CESM. *Seminar talk, Lawrence Berkeley National Laboratory*, Berkeley, CA, August 2017.

SELECTED POSTER PRESENTATIONS **Huang, X.**, and Stevenson, S. Future changes to north Pacific mean-state and the connections to the western US precipitation extremes from multiple GCM large-ensembles. *AGU Fall Meeting*, Virtually, 2020.

Huang, X., Hall, A.D., and Swain, D.L. Future Warming Impacts on Orographic Precipitation Extremes over Sierra Nevada: Linking Large-scale Forcing from CESM-LENS to Fine-scale Climate Features. *CESM Large Ensembles Workshop*, Boulder, Colorado. July, 2019.

Huang, X., Walton, D.B., Swain, D.L., and Hall, A.D. The Modeling and Evaluation of the Extreme Historical Atmospheric Rivers Over the U.S. West Coast. 2018 International Atmospheric Rivers Conference, *Scripps Institution of Oceanography*, San Diego, California. June, 2018.

Huang, X., and Ullrich, P.A. The changing character of twenty-first-century precipitation over the western United States in the variable-resolution CESM. *AGU Fall Meeting*, San Francisco, California, 2016.

SELECTED WORKSHOPS CESM Tutorial, NCAR, Boulder, Colorado, Aug. 2015 (Travel support granted)
1st WCRP Summer School on Climate Model Development: Atmospheric Moist Processes, MPI, Hamburg, Germany, June, 2015 (Travel support granted)

MEDIA AND OUTREACH Coverage in multiple news outlets including the Weather Channel, Phys.org, Climate Signals, New York Times, UCLA Newsroom, etc.

PROFESSIONAL SERVICES **Journal referee:** Science Advances, Nature Communications, Water Resources Research, Journal of Climate, Climate Dynamics, Journal of Hydrometeorology, JGR-Atmos.

Proposal review panelist: NASA's ROSES solicitation.

Conference session organizer: Co-convening and co-chairing sessions (Bridging the Gap from Climate to Extreme Weather), AGU Fall Meeting, San Francisco, CA, 2019.

PROFESSIONAL SKILLS **Earth System Modeling:** WRF, CESM, E3SM, Noah-MP LSM
Programming/Software: C/C++, R, Python, Matlab, NCAR Command Language (NCL), L^AT_EX, JavaScript, OpenGL, Unix/Linux, ArcGIS, ENVI, PyTorch
Language: English, Mandarin (Native)

SOCIETIES AND AFFILIATIONS American Geophysical Union, American Meteorological Society
Earth Science Women's Network, Women in GeoSpatial+