Xingying Huang, Ph.D.

CONTACT INFORMATION

National Center for Atmospheric Research
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Google scholar profile

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 **2021/05 - now**
Climate and Global Dynamics Lab
Atmospheric Modeling & Predictability Section

Postdoctoral Researcher, UC Santa Barbara **2019/10 - 2021/04**
Earth Research Institute, Bren School of Env. Sci. & Management

Postdoctoral Researcher, UC Los Angeles **2017 - 2019**
Department of Atmospheric and Oceanic Sciences

EDUCATION BACKGROUND

Ph.D., Atmospheric Science, University of California, Davis **2016/12**
Coursework completed for M.S. degree in Statistics
Graduate researcher, UC Davis & Berkeley National Lab. (affiliated)
Advisor: Paul Ullrich (Advisor)
Dissertation: Studying regional climate with variable-resolution CESM

M.S., Remote Sensing, Beijing Normal University (Wiki) **2013/06**
Advisor: Xiaowen Li; Graduated with honors (Top rank)

B.S., Geographical Information System, Wuhan University (Wiki) **2010/06**
Graduated with honors (Top rank #1)

HONORS AND AWARDS

University of California, Davis
Ph.D. graduate fellowship (2013-2014)

Beijing Normal University
M.S. National scholarship, Outstanding graduate award (2012, 2013)
Academic excellence award (2011, 2012)

Wuhan University
B.S. Excellent student of College award (2007, 2008, 2009)
National inspirational award (2007, 2008)

RECENT GRANTS AND AWARD

Co-PI, Initial phase for ARkStorm 2.0 project, California Yuba Water Agency & Department of Water Resource.2021-2022.Collaborate with PI Daniel Swain. $\sim \$200K$

Awardee, United States Geological Survey (USGS) task order. $\sim \$15,000$. 2022

Awardee, Azure Cloud Compute Credit Grant, Microsoft. $15,000. 2020-2021

Co-Investigator, Collaborative research "EarthWorks" project led by CSU and NCAR. NSF funded, ~ 5 *million*, $2020 - 2025$

PUBLICATIONS IN REVISION

[15] **Huang, X.**, and Stevenson, S., 2022. ENSO's modulating effect on projected future precipitation extremes in California. In revision.

[14] 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 revision.

PUBLISHED PEER-REVIEWED ARTICLES

[13] **Huang, X.**, Gettelman, A., Skamarock, B., Lauritzen P.H., et al., 2022. Advancing Precipitation Prediction Using a New Generation Storm-resolving Model Framework â SIMA-MPAS (V1.0): a Case Study over the Western United States. *Geoscientific Model Development*, 15(21), pp.8135-8151. (DOI)

[12] **Huang, X.** and Swain, D.L., 2022. Climate change is increasing the risk of a California megaflood. *Science Advances*, 8(31), p.eabq0995.(DOI) **(Featured at hundreds of media outlets: e.g. New York Times cover story** on Aug. 14th 2022 issue) (**top 3‰** (21th of 9,849) of all *Science Advances* research outputs scored by Altmetric)

[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*. 8(13), p.eabm0320.(DOI)

[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.(DOI)

[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)

[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)(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)

[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)

[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)

[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)

[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)

[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)

[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)

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, 2012

TEACHING EXPERIENCES

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

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

Lab Assistant, GIS Platform Programming, Wuhan University, Spring 2009

SELECTED TALK

Invited."ARkStorm 2.0: A new and improved extreme storm & flood scenario for California in the climate change era" *FEMA Region 9 meeting*, Virtual, Oct 25, 2022.

Invited."Changes in the precipitation extremes and challenging hydroclimate impacts over the Western US" *University of Colorado, Boulder, Boase Seminar Series in Hydrology and Water Resources Engineering, Dept. of Civil. Env. and Archit. Eng.*, Virtual, Oct 19, 2022.

Invited."ARkStorm 2.0: A new and improved extreme storm & flood scenario for California in the climate change era" *FEMA Regional meeting*, Virtual, Oct 12, 2022.

"Linking the large-scale processes and the landfalling features of atmospheric rivers in non-hydrostatic CESM simulations". *27th Annual CESM Workshop*, Virtual, June 14, 2022.

Invited."Future changes and hydroclimate impacts for the precipitation extremes over the Western US." *University of Illinois at Urbana-Champaign, special seminar, Dept. of Atmos. Sci.*, March 21, 2022.

"Extreme Atmospheric River Scenarios in ARkStorm2.0: Connected Storm presentations Events and Impacts in California". *AMS 102nd Annual Meeting*, Virtual, Jan. 26, 2022.

"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.

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

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

Invited."How Warming Impacts Precipitation Extremes, Snowpack and Flood risks over California with High-resolution Modeling", *Pacific Northwest National Laboratory*, 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.

Invited."Regional climate modeling and applications over the western United States". *Seminar talk, Department of Physics, University of Toronto*, Toronto, Canada, November, 2018.

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.

"Anthropogenic Warming Impacts on Today's Sierra Nevada Snowpack and Flood Severity". *2017 AGU Fall Meeting*, New Orleans.

Invited."Studying Regional Climate with Variable-Resolution CESM". *Seminar talk, Lawrence Berkeley National Laboratory*, Berkeley, CA, August 2017.

Selected tutorials

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

Research covered in hundreds of news outlets including New York Times, Washington Post, Washington Times, Los Angeles Times, Telegraph, CNN News, USA Today, SF Chronicle, Phys.org, the Weather Channel, etc.

Professional services

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

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), LaTeX, Unix/Linux Shell

Language: English, Mandarin (Native)

societies and affiliations

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