Xingying Huang, Ph.D.

CONTACT INFORMATION	UC Santa Barbara 3308 Bren Hall Santa Barbara, CA 93106	Email: xyhuang@ucsb.edu Tel: (530)400-7638 Web: xingyhuang.github.io

RESEARCH INTERESTS

Global and regional climate modeling, Climate change, Extremes and impacts
Climate variability, Atmospheric dynamics, Numerical modeling, Machine learning
Image processing and analysis, Remote sensing of environment, Geospatial statistics

PROFESSIONAL APPOINTMENTS

Postdoctoral Researcher, UC Santa Barbara **Fall 2019 - present**
Earth Research Institute
Bren School of Environmental Science & Management

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

EDUCATION BACKGROUND

Ph.D., Atmospheric Science, University of California, Davis **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 **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 **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

Pending, NSF Disaster Resilience Research Grants (NSF 20-581): ARkStorm 2.0: Extreme storm scenarios for disaster resilience planning and emergency response exercises. $400,000. **(Co-PI)**

Pending, RFP: AI for Earth Innovation: "High-resolution climate information retrieval using deep-learning-based network over the CONUS". $100,000. **(Leader)**

Pending, DOE DE-FOA 0002230: Improving understanding of post-fire vegetation dynamics and risk of wildfire reoccurrence. $880,302. **(Co-I)**

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

Main Investigator, Mechanisms of Pacific decadal variability in ESMs: the roles of stochastic forcing, feedbacks external forcing, DOE BER, DE-SC0019418

PUBLICATIONS UNDER REVIEW AND TO SUBMIT

[11] **Huang, X.**, and Stevenson, S., 2020. The impact of future North Pacific mean-state changes on western US precipitation extremes: insights from multiple GCM large-ensembles. Submitted.

[10] **Huang, X.**, 2020. Deep-learning based climate downscaling using the super-resolution method: a case study over western US, *Geoscientific Model Development*, In revision. https://doi.org/10.5194/gmd-2020-214

PUBLISHED PEER-REVIEWED ARTICLES

[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

[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., Climate modeling for extreme storm events over California, *GS^ 3 Simulation Series for the Summer of 2020*, UCSB.

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*, Pasco, Washington, 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. *AGU Fall Meeting*, New Orleans, Louisiana, 2017.

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

Huang, X., and Ullrich, P.A. Future changes of precipitation over the western United States using variable-resolution CESM. *21st Annual CESM Workshop*, Breckenridge, Colorado. June, 2016.

SELECTED POSTER PRESENTATIONS	**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.

Swain, D., **Huang, X.**, and Langenbrunner, B. Dynamics of and Precursors to California Megafloods, Present and Future. *99th AMS Annual Meeting*, Phoenix, Arizona. Jan., 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

Huang, X., and Ullrich, P.A. Irrigation impacts on California's climate with the variable-resolution CESM. *21st Annual CESM Workshop*, Breckenridge, Colorado. June, 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: Journal of Climate, Climate Dynamics, Journal of Hydrometeorology, JGR-Atmos., Water Resources Research, and NPJ Climate and Atmos. Sci.

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

Online Climate Research Radio: Climate Research Radio. *(Link)*.

PROFESSIONAL SKILLS

Earth System Modeling: WRF, CESM, E3SM, Noah-MP LSM

Programming/Software: C/C++, R, Python, Matlab, NCAR Command Language (NCL), LaTeX, JavaScript, OpenGL, Unix/Linux, ArcGIS, ENVI, PyTorch

Language: English, Mandarin

SOCIETIES AND AFFILIATIONS

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