

Huanping Huang

Assistant Professor

Department of Geography and Anthropology, Louisiana State University
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RESEARCH INTERESTS & OBJECTIVES

My research focuses on explaining and predicting extreme weather, such as extreme precipitation and tropical cyclones. I use big data and numerical models to understand the effects of climate variability and anthropogenic climate change on extreme events, as well as the physical processes through which they are linked. My research objectives are to improve the predictive understanding of extreme events and increase societal resilience to future climate change. Specific areas of my research portfolio include:

- Weather and climate extremes
- Climate change and variability
- Climate dynamics
- Atmosphere–ocean interactions
- Global and regional climate modeling
- Climate change impact assessments and adaptation

EDUCATION & TRAINING

- | | |
|---|-----------|
| Postdoc , Climate Science, Lawrence Berkeley National Laboratory , Berkeley, CA
Advisors: William D. Collins & Christina M. Patricola | 2019–2022 |
| Ph.D. , Earth Sciences, Dartmouth College , Hanover, NH
Dissertation: “Assessing Precipitation Changes and Mechanisms Over the Northeastern United States”
Advisors: Jonathan M. Winter & Erich C. Osterberg | 2014–2019 |
| M.S. , Meteorology, Chinese Academy of Agricultural Sciences , Beijing, China
Thesis: “Simulating and Comparing the Impacts of Climate Change on Corn Productivity in China and Europe: A Case Study at Yulin and Bari”
Advisor: Erda Lin | 2010–2013 |
| B.S. , Geographical Information System, China Agricultural University , Beijing, China
Thesis: “Remote Sensing Analysis of Spatiotemporal Variations in Grassland Enclosures in Central Inner Mongolia”
Advisors: Wei Zhang & Rongqun Zhang | 2006–2010 |

ACADEMIC APPOINTMENTS

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|--|------------------------------|
| Louisiana State University , Baton Rouge, LA
Assistant Professor , Department of Geography and Anthropology
Fellow , Coastal Studies Institute | 2022–Present
2025–Present |
| Lawrence Berkeley National Laboratory , Berkeley, CA
Affiliate Faculty , Climate and Ecosystem Sciences Division
Postdoctoral Scholar , Climate and Ecosystem Sciences Division | 2022–2025
2019–2022 |
| Dartmouth College , Hanover, NH
Graduate Assistant , Department of Earth Sciences | 2014–2019 |
| Chinese Academy of Agricultural Sciences , Beijing, China
Research Assistant , Center for Research on Agriculture and Climate Change
Research Assistant , Institute of Agri-environment and Sustainable Development | 2013–2014
2010–2013 |

PUBLICATIONS

Manuscript Submitted or in Preparation:

1. Gilford, D.M., Toumi, R., Sparks, N., Bourdin, S., **Huang, H.**, Ginesta, M., Faranda, D., Uppu, H. & Bercos-Hickey, E. Intercomparing Attribution Methods for Hurricane Milton's Intensity. In preparation.

Peer-reviewed Articles (20 in total, 9 as the first-author, >880 citations per [Google Scholar](#)):

20. **Huang, H.**, Uppu, H. Assessing the intensity decay of US landfalling tropical cyclones: Long term trends and predictive model evaluations. (2025). [Journal of Applied Meteorology and Climatology](#), 64(10), 1489–1504.

19. Li, F., Zhu, Q., Yuan, K., **Huang, H.**, Radeloff, V.C., & Chen, M. (2025). Exacerbating risk in human-ignited large fires over western United States due to lower flammability thresholds and greenhouse gas emissions. [PNAS Nexus](#), 4(2), pgaf012.

18. Roberts, M.J., et al., including **Huang, H.** High Resolution Model Intercomparison Project phase 2 (HighResMIP2) towards CMIP7. (2025). [Geoscientific Model Development](#), 18, 1307–1332.

17. Risser, M.D., Collins, W.D., Wehner, M.F., O'Brien, T.A., **Huang, H.**, & Ullrich, P.A. (2024). Anthropogenic aerosols mask increases in US rainfall by greenhouse gases. [Nature Communications](#), 15, 1318.

16. **Huang, H.**, Collins, W.D., Patricola, C.M., Ruprich-Robert, Y., Ullrich, P.A., & Baker, A.J. (2023). Contrasting responses of Atlantic and Pacific tropical cyclone activity to Atlantic Multidecadal Variability. [Geophysical Research Letters](#), 50, e2023GL102959.

15. Risser, M.D., Collins, W.D., Wehner, M.F., O'Brien, T.A., Paciorek, C.J., O'Brien, J.P., Patricola, C.M., **Huang, H.**, Ullrich, P.A., & Loring B. (2023). A method for detection and attribution of regional precipitation change using Granger causality: Application to the United States historical record. [Climate Dynamics](#), 60, 705–741

14. Bercos-Hickey, E., O'Brien, T. A., Wehner, M. F., Zhang, L., Patricola, C. M., **Huang, H.**, & Risser, M. (2022). Anthropogenic and meteorological contributions to the 2021 Pacific Northwest heatwave. [Geophysical Research Letters](#), 49, e2022GL099396.

13. O'Brien, T. A., Wehner, M. F., Payne, A. E., Shields, C. A., Rutz, J. J., Leung, L.-R., Ralph, F. M., Collow, A., Gorodetskaya, I., Guan, B., Lora, J. M., McClenny, E., Nardi, K. M., Ramos, A. M., Tomé, R., Sarangi, C., Shearer, E., Ullrich, P. A., Zarzycki, C., Loring, B., **Huang, H.**, Inda Díaz, H. A., Rhoades, A. M., & Zhou, Y. (2022). Increases in future AR count and size: Overview of the ARTMIP Tier 2 CMIP5/6 experiment. [Journal of Geophysical Research: Atmospheres](#), 127, e2021JD036013.

12. **Huang, H.**, Patricola, C.M., & Collins, W.D. (2021). The influence of ocean coupling on simulated and projected tropical cyclone precipitation in the HighResMIP-PRIMAVERA simulations. [Geophysical Research Letters](#), 48, e2021GL094801.

11. **Huang, H.**, Patricola, C.M., Winter, J.M., Osterberg, E.C., & Mankin, J.S. (2021). Rise in northeast US extreme precipitation caused by Atlantic variability and climate change. [Weather and Climate Extremes](#), 33, 100351. (*Media coverage: New Hampshire Public Radio, WMUR (ABC 9), Concord Monitor, Valley News, Earth.com, Dartmouth News*)

10. **Huang, H.**, Patricola, C.M., Bercos-Hickey, E., Zhou, Y., Rhoades, A., Risser, M., & Collins, W.D. (2021). Sources of subseasonal-to-seasonal predictability of atmospheric rivers and precipitation in the western United States. [Journal of Geophysical Research: Atmospheres](#), 126, e2020JD034053.

9. Risser, M.D., Wehner, M.F., O'Brien, J.P., Patricola, C.M., O'Brien, T.A., Collins, W.D., Paciorek, C.J., & **Huang, H.** (2021). Detection and attribution for observed precipitation over the contiguous United States - Part I: quantifying the influence of natural climate variability on in situ measurements of seasonal total and extreme daily precipitation. [Climate Dynamics](#), 56, 3205–3230.

8. Hanrahan, J., Langlois, J., Cornell, L., **Huang, H.**, Winter, J.M., Clemens, P., Beckage, B., & Bruyère, C. (2021).

Examining the impacts of Great Lakes' temperature perturbations on simulated precipitation in the northeastern United States. [Journal of Applied Meteorology and Climatology](#), 60(7), 935–949.

7. **Huang, H.**, Winter, J.M., Hanrahan, J., Bruyère, C.L., Clemens, P., & Beckage, B.D. (2020). Simulating temperature and precipitation in the Lake Champlain basin using a regional climate model: limitations and uncertainties. [Climate Dynamics](#), 54, 69–84.

6. Rhoades, A.M., Jones, A.D., Srivastava, A., **Huang, H.**, O'Brien, T.A., Patricola, C.M., Ullrich, P.A., Wehner, M., & Zhou, Y. (2020). The shifting scales of western US landfalling atmospheric rivers under climate change. [Geophysical Research Letters](#), 47(17), e2020GL089096.

5. Winter, J.M., **Huang, H.**, Osterberg E.C., & Mankin J.S. (2020). Anthropogenic impacts on the exceptional precipitation of 2018 in the mid-Atlantic United States [in "Explaining Extremes of 2018 from a Climate Perspective"]. [Bulletin of the American Meteorological Society](#), 101(1), S15–S19.

4. **Huang, H.**, Winter, J.M., & Osterberg, E.C. (2018). Mechanisms of abrupt extreme precipitation change over the northeastern United States. [Journal of Geophysical Research: Atmospheres](#), 123, 7179–7192. (Media coverage: AccuWeather, NBC5, New Hampshire Public Radio, Vermont Public Radio, WeatherNation TV, Concord Monitor, Valley News, The Sentinel, SmartBrief, Dartmouth News)

3. **Huang, H.**, Winter, J.M., Osterberg, E.C., Horton, R.M., & Beckage, B.D. (2017). Total and extreme precipitation changes over the northeastern United States. [Journal of Hydrometeorology](#), 18(6), 1783–1798. (Media coverage: U.S. News & World Report, New England Cable News, New Hampshire Public Radio, Concord Monitor, Union Leader, Valley News, Yale Environment 360, Dartmouth News)

2. Li, Y., **Huang, H.**, Ju, H., Lin, E., Xiong, W., Han, X., Wang, H., Peng, Z., Wang, Y., Xu, J., Cao, Y., & Hu, W. (2015). Assessing vulnerability and adaptive capacity to potential drought for winter-wheat under the RCP 8.5 scenario in the Huang-Huai-Hai Plain. [Agriculture, Ecosystems & Environment](#), 209, 125–131.

1. **Huang, H.**, Ma, S., Lin, E., Li, Y., & Zhuang, H. (2013). Benefits comparison analysis of different rice and wheat cropping patterns to adapt to climate change. [Advances in Climate Change Research](#), 4(3), 182–189.

Book Chapters:

2. Ma, Z., Wang, H., & **Huang, H.** (2015). Chapter 6: Building low carbon villages. In: *Low carbon agriculture and forestry* [Lin, E., Guo, L., Han, X., & Li, Y. (Eds.)]. China Environmental Science Press, pp.142–175.

1. McDermid, S.P., Ruane, A.C., Rosenzweig, C., et al. including **Huang, H.** (2015). Chapter 8: The AgMIP Coordinated Climate-Crop Modeling Project (C3MP): Methods and Protocols. In: *Handbook of Climate Change and Agroecosystems: The Agricultural Model Intercomparison and Improvement Project (AgMIP) Integrated Crop and Economic Assessments*. ICP Series on Climate Change Impacts, Adaptation, and Mitigation Vol. 3 [Rosenzweig, C., and Hillel, D. (Eds.)]. Imperial College Press, pp.191–220.

Other:

Huang, H. Try, try again. [Science](#), 377(6606), 682.

GRANTS

Funded Grants:

3. Title: Developing an empirical model for estimating landfalling hurricane wind speeds in a changing climate
Sponsor: Louisiana Board of Regents

Role: PI

Amount: \$170,301

Period: June 2024 to June 2027

2. Title: Climate-Resilient Buildings for Tomorrow's Efficient, Equitable, and Sustainable Communities
Sponsor: LSU Provost's Fund for Innovation in Research – 2024-2025 Big Ideas in STEM and Social & Behavioral Sciences
Role: co-PI (PI: Zhihong Pang)
Amount: \$50,000
Period: Jan 2025 to Dec 2025

1. Title: Characterizing the wind speed decays of US landfalling hurricanes over time and space
Sponsor: LSU Provost's Fund for Innovation in Research
Role: PI
Amount: \$10,000
Period: Jan 2023 to Dec 2023

Pending Grants:

3. Title: Partnership: Extreme Weather, Crop Yields, and the Role of Trade Networks in Strengthening the U.S. Agricultural System
Sponsor: U.S. Department of Agriculture
Role: co-PI (PI: Raghav Goyal)
Amount: \$800,000 over three years

2. Title: CAREER: Tropical Cyclone Precipitation in the Contiguous United States: Unraveling Patterns and Multiscale Drivers of Its Variability and Change
Sponsor: National Science Foundation
Role: PI
Amount: \$576,449 over five years

1. Title: Assessing and predicting salinity changes over the Lake Pontchartrain and Borgne region for water resources planning and management
Sponsor: USGS South Central Climate Adaptation Science Center
Role: PI
Amount: \$399,986 over three years

TEACHING EXPERIENCE

Louisiana State University (instructor):

GEOG 2050 (Physical Geography: The Atmosphere): Fall 2022 to present (*student evaluations: 4.5/5*)
GEOG 4014 (Climatology): Spring 2023 & Fall 2024 (*student evaluations: 4.8/5*)
GEOG 4016 (Methods of Climatological Analysis): Fall 2023 (*student evaluations: 4.3/5*)
GEOG 4997 (Global Water Crisis and Climate Change): Spring 2024 (*student evaluations: 4.7/5*)
GEOG 7921 (Research and Field Work in Geography): Fall 2023 & Spring 2025

Other institutions (guest lecturer or teaching assistant):

GGY 130 (Intro to Physical Geography), University of North Carolina Wilmington, Spring 2022
Meteorology, Crossroads Academy, Fall 2018
EARS 6 (Environmental Change), Dartmouth College, Fall 2016

STUDENT MENTORING

Brad Jennings (Doctoral advisee at LSU, Fall 2025 to present)
Vishal Juneja (Doctoral advisee at LSU, Spring 2025 to present)
Harish Uppu (Doctoral advisee at LSU, Fall 2023 to present)
Zoe Whitton (Thesis student at LSU, Summer 2025 to present)
Hector J Mendoza Lagos (Dissertation student at LSU, Spring 2025 to present)
Robert Forney (Dissertation student at LSU, graduated in Fall 2024)
Georgia Davis (Thesis student at LSU, graduated in Spring 2025)
Sadé Miller (Teaching assistant at LSU, Spring 2025)
Gabiella Boodhoo (Teaching assistant at LSU, Spring 2023)
Erika C. Ornouski (Teaching assistant at LSU, Fall 2022)

HONORS & AWARDS

Rainmaker Award (Emerging Scholar), Louisiana State University 2025 (Nominated)
- Awarded annually to faculty who show outstanding research, scholarship and creative activity

Best Student Publication, Department of Earth Sciences, Dartmouth College 2019

Outstanding Graduate Student Teacher, Dartmouth Center for the Advancement of Learning 2019

1st Place, STEPS 4th Annual Science and Technology Policy Brief Competition, Dartmouth College 2018

Gary Malone Award, Department of Earth Sciences, Dartmouth College 2016
- Awarded annually to a Dartmouth geologist who best exemplifies the spirit of the department

PROFESSIONAL SERVICE

Director, Undergraduate Program in Disaster Science and Management at LSU 2024–Present

Member, Social Media Committee, Department of Geography & Anthropology at LSU 2023–Present

Member, Speakers Committee, Department of Geography & Anthropology at LSU 2022–Present

Coordinator, High Resolution Model Intercomparison Project Phase 2 (HighResMIP2) 2022–Present

Convener, Global Environmental Change Section, American Geophysical Union Fall Meetings 2021–Present

Convener, Natural Hazards Section, 2021 American Geophysical Union (AGU) Fall Meeting 2021

Ambassador, Admissions Ambassador Program, Dartmouth College 2021

Rapporteur, NOAA-DOE Precipitation Processes and Predictability Workshop 2020

Judge, Outstanding Student Presentation Awards Program, 2020 AGU Fall Meeting 2020

Reviewer 2019–Present
IPCC Sixth Assessment Report, Bulletin of the American Meteorological Society (3), Journal of Climate (3), Geophysical Research Letters (4), Environmental Research Letters (3), Earth's Future, Scientific Reports (2), Journal of Geophysical Research: Atmospheres, Journal of Hydrometeorology, Journal of Applied Meteorology and Climatology (2), International Journal of Climatology (2), Theoretical and Applied Climatology, Frontiers In Water, Meteorology and Atmospheric Physics, Advances in Statistical Climatology, Meteorology and Oceanography (2)

Co-leader, EESA Social Planning Committee, Lawrence Berkeley National Laboratory 2019–2022

President , Chinese Students and Scholars Association, Dartmouth College	2017–2018
Graduate Liaison , Science Technology and Engineering Policy Society, Dartmouth College	2016–2017
Department Representative , Graduate Student Council, Dartmouth College	2016

PRESENTATIONS

Invited Talks:

9. Department of Earth and Environmental Sciences, Tulane University (New Orleans, LA) 2024
Title: “Explaining and Predicting Climate Extremes in a Warming Earth”
8. South-Central Climate Adaptation Science Center 2022 Fall Science Meeting (Baton Rouge, LA) 2022
Title: “Understanding Changes in Climate Extremes to Inform Climate Adaptation”
7. Department of Earth and Ocean Sciences, University of North Carolina Wilmington (Wilmington, NC) 2022
Title: “Extreme Precipitation & Tropical Cyclones in a Changing Climate”
6. Department of Geography and Anthropology, Louisiana State University (Baton Rouge, LA) 2022
Title: “Extreme Precipitation & Tropical Cyclones in a Changing Climate”
5. Department of Earth Sciences, Southern Methodist University (Dallas, TX) 2022
Title: “Explaining & Predicting Climate Extremes with Climate Models & Big Data”
4. Department of Geosciences, Mississippi State University (virtual) 2020
Title: “Drivers of Extreme Precipitation Change Over the Northeastern United States”
3. AVA Gallery and Art Center (Lebanon, NH) 2019
Title: “Bridging the Gap between Changing Climate and Art”
2. Lawrence Berkeley National Laboratory (Berkeley, CA) 2019
Title: “Assessing Extreme Precipitation Changes and Mechanisms Over the Northeastern United States”
1. NOAA NWS Northeast River Forecast Center (Norton, MA) 2017
Title: “Total and Extreme Precipitation Changes Over the Northeastern United States”

Conference Presentations:

19. **Huang, H.**, Bercos-Hickey, E., & Uppu, H. Human Influence on the Earliest-forming Category 5 Hurricane Beryl. 2025 AMS Annual Meeting, New Orleans, 14 January 2025.
18. Uppu, H., **Huang, H.** Assessing the intensity decay of US landfalling tropical cyclones: Long term trends and predictive model evaluations. 2025 AMS Annual Meeting, New Orleans, 13 January 2025.
17. **Huang, H.**, Bercos-Hickey, E., & Uppu, H. Human Influence on the Earliest-forming Category 5 Hurricane Beryl. 2024 AGU Fall Meeting, Washington D.C., 11 December 2024.
16. **Huang, H.** & Uppu, H. An Empirical Model for Estimating Landfalling Hurricane Wind Speeds in a Changing Climate. 2023 AGU Fall Meeting, San Francisco, 14 December 2023.
15. **Huang, H.**, Patricola, C.M., & Collins, W.D. Ruprich-Robert, Y., Ullrich, P.A., & Baker, A.J. Contrasting responses of Atlantic and Pacific tropical cyclone activity to Atlantic Multidecadal Variability. 2022 AGU Fall Meeting, Chicago, 12 December 2022.
14. **Huang, H.**, Patricola, C.M., & Collins, W.D. The influence of ocean coupling on simulated and projected tropical cyclone precipitation in the HighResMIP-PRIMAVERA simulations. 2022 U.S. Department of Energy

Regional & Global Model Analysis Program's Climate Extremes Monthly Meeting (virtual), 3 February 2022.

13. **Huang, H.**, Patricola, C.M., & Collins, W.D. The influence of ocean coupling on simulated and projected tropical cyclone precipitation in the HighResMIP-PRIMAVERA simulations. 2021 AGU Fall Meeting (virtual), 16 December 2021.

12. **Huang, H.**, Patricola, C.M., Winter, J.M., Osterberg, E.C., & Mankin, J.S. Causes of extreme precipitation change over the Northeastern US. 2021 U.S. Department of Energy Regional & Global Model Analysis Program's Climate Extremes Monthly Meeting (virtual), 7 October 2021.

11. **Huang, H.**, Patricola, C.M., Winter, J.M., Osterberg, E.C., & Mankin, J.S. Rise in northeast US extreme precipitation caused by Atlantic variability and climate change. WCRP workshop on attribution of multi-annual to decadal changes in the climate system (virtual), 22 September 2021.

10. **Huang, H.**, Patricola, C.M., Bercos-Hickey, E., Zhou, Y., Collins, W.D., Rhoades, A., & Risser, M. Sources of subseasonal-to-seasonal predictability of atmospheric rivers and precipitation in the western US. 2020 AGU Fall Meeting (virtual), 15 December 2020.

9. **Huang, H.**, Patricola, C.M., Bercos-Hickey, E., Zhou, Y., Collins, W.D., Rhoades, A., & Risser, M. Sources of subseasonal-to-seasonal predictability of atmospheric rivers and precipitation in the western US. 2020 U.S. Department of Energy Regional & Global Model Analysis Program Area PI Meeting (virtual), 13 October 2020.

8. **Huang, H.**, Patricola, C.M., Bercos-Hickey, E., Zhou, Y., Collins, W.D., Rhoades, A., & Risser, M. Sources of subseasonal-to-seasonal predictability of atmospheric rivers and precipitation in the western US. 2020 International Atmospheric Rivers Conference (virtual), 7 October 2020.

7. **Huang, H.**, Winter, J.M., Osterberg, E.C., Mankin, J.S., & Patricola, C.M. Assessing the causes of the post-1996 shift in extreme precipitation over the northeastern United States. 2019 AGU Fall Meeting, San Francisco, 12 December 2019.

6. **Huang, H.**, Winter, J.M., Osterberg, E.C., & Mankin, J.S. Anthropogenic impacts on the exceptional precipitation of 2018 in the mid-Atlantic US. 2019 U.S. Department of Energy Regional & Global Model Analysis Program's Climate Extremes Monthly Meeting (virtual), 5 December 2019.

5. **Huang, H.**, Winter, J.M., Hanrahan, J., Bruyère, C.L., Clemins, P., & Beckage, B. Simulating extreme precipitation in the Lake Champlain basin using a regional climate model: Limitations and uncertainties. 2018 AGU Fall Meeting, Washington D.C., 11 December 2018.

4. **Huang, H.**, Winter, J.M., The Calibration and Evaluation of WRF Model Over Lake Champlain Basin. Vermont EPSCoR All Hands Meeting, Burlington, VT, 12 June 2018.

3. **Huang, H.**, Winter, J.M., & Osterberg, E.C. Mechanisms of the extreme precipitation jump in the northeastern United States after 1996. 2017 AGU Fall Meeting, New Orleans, 14 December 2017.

2. **Huang, H.**, Winter, J.M., Osterberg, E.C., Horton, R.M., & Beckage, B. Total and extreme precipitation changes over the northeastern United States. 2016 AGU Fall Meeting, San Francisco, 12 December 2016.

1. **Huang, H.**, Ma, S., Lin, E., Li, Y., & Zhuang, H. Benefits Comparison of Different Rice and Wheat Cropping Patterns to Adapt to Climate Change. UK-China Sustainable Agriculture Innovation Network Outreach Conference, Beijing, China, 21 November 2012.