

JIAQI ZHANG, PhD

School of Natural Resources and the Environment
University of Arizona, Tucson
Email: cassiezhang@arizona.edu

CURRENT POSITION

Assistant Research Professor at the University of Arizona (Jan, 2024-Present)

Tucson, AZ

PREVIOUS APPOINTMENT

Postdoctoral Researcher at the University of Oklahoma (Jan, 2022-Dec, 2023)

Norman, OK

Postdoctoral Researcher at the University of Texas at Arlington (Sep, 2020-Jan, 2022)

Arlington, TX

EDUCATION

University of Texas at Arlington

Arlington, TX

Ph. D., Civil Engineering – Water Resources Engineering (Overall GPA: 3.92/4.0)

Aug, 2014 – Aug, 2020

Nankai University

Tianjin (China)

B.S., Environmental Science

Sep, 2010 – Jun, 2014

RESEARCH AREAS AND EXPERTISE

Hydrologic and hydraulic modeling/design, watershed modeling, floodplain delineation, GIS, rainfall/flood frequency analysis, radar hydrology, urban hydrology, flood warning systems, remote sensing, fully-distributed process-based hydrologic modeling, climate change and extreme weather impacts on food-water-energy systems.

PUBLICATIONS

Peer Reviewed Journal Papers, Dissertation, Dataset and Software

2023

1. **Zhang, J.**, Chen, M., Gao, S., Li, Z., Vörösmarty, C., Fekete, B. M., Miara, A., & Hong, Y. (2023). Examining impacts of policy, technology, and climate extremes on thermoelectric power production and river thermal pollution in the Midwest and Northeast of the United States. *Frontiers in Environmental Science*, 11, 1212211. <https://doi.org/10.3389/fenvs.2023.1212211>
2. **Zhang, J.**, Gao, S., & Fang, Z. (2023). Investigation of Infiltration Loss in North Central Texas by Retrieving Initial Abstraction and Constant Loss from Observed Rainfall and Runoff Events. *Journal of Hydrologic Engineering*, 28(5), 04023013. <https://doi.org/10.1061/JHYEFF.HEENG-5883>
3. Jiang, H., **Zhang, J.***, Liu, Y., Li, J., & Fang, Z. N. (2023). Does Flooding Get Worse with Subsiding Land? Investigating the Impacts of Land Subsidence on Flood Inundation from Hurricane Harvey. *Science of the total environment*, 865, 161072. <https://doi.org/10.1016/j.scitotenv.2022.161072>
4. Kicklighter, D. W., Lin, T. S., **Zhang, J.**, Chen, M., Vörösmarty, C. J., Jain, A. K., & Melillo, J. M. (2023). Influence of forest infrastructure on the responses of ecosystem services to climate extremes in the Midwest and Northeast United States from 1980 to 2019. *Frontiers in Environmental Science*, 11, 1069451. <https://doi.org/10.3389/fenvs.2023.1069451>

*Co-first authorship

5. Fekete, B. M., Bacskó, M., **Zhang, J.**, & Chen, M. (2023). Storage Requirements to Mitigate Intermittent Renewable Energy Sources: Analysis for the US Northeast. *Frontiers in Environmental Science*, 11, 1076830. <https://doi.org/10.3389/fenvs.2023.1076830>
6. Gao, S., Wen, Y., Fishbein, E., Lambrigtsen, B., **Zhang, J.**, Van Dang, H., & Galli, C. (2023). Ground - Validation and Error Attribution of Near-Surface Air Temperature From AIRS in North America. *Earth and Space Science*, 10(6), e2022EA002658. <https://doi.org/10.1029/2022EA002658>
7. Li, Z., Tsoodle, T., Chen, M., Gao, S., **Zhang, J.**, Wen, Y., ... & Hong, Y. (2023). Future Heavy rainfall and flood risks for Native America under climate and demographic changes: A case study in Oklahoma. *Weather, Climate, and Society*. <https://doi.org/10.1175/WCAS-D-23-0005.1>
8. Vörösmarty, C. J., Melillo, J. M., Wuebbles, D. J., Jain, A. K., Ando, A. W., Chen, M., ..., **Zhang, J.**, Vignoles, D. (2023). The C-FEWS framework: Supporting studies of climate-induced extremes on food, energy, and water systems at the regional scale. *Frontiers in Environmental Science*, 11, 13. <https://doi.org/10.3389/fenvs.2023.1069613>
9. Vörösmarty, C. J., Melillo, J. M., Wuebbles, D. J., Jain, A. K., Ando, A. W., Chen, M., ..., & **Zhang, J.** (2023). Applying the framework to study climate-induced extremes on food, energy, and water systems (C-FEWS): The role of engineered and natural infrastructures, technology, and environmental management in the United States Northeast and Midwest. *Frontiers in Environmental Science*, 11, 186. <https://doi.org/10.3389/fenvs.2023.1070144>
10. Li, Z., Xue, X., Clark, R., Vergara, H., Gourley, J., Tang, G., Shen, X., Kan, G., ..., **Zhang, J.**, ..., & Hong, Y. (2023). A decadal review of the CREST model family: Developments, applications, and outlook. *Journal of Hydrology X*, p.100159. <https://doi.org/10.1016/j.hydroa.2023.100159>

2022

11. Asquith, W.H., Cleveland, T.G., Yesildirek, M.V., **Zhang, J.**, Fang, Z.N., & Otto, L.D. (2022). scNIDarcgis- Geospatial processing of dams in the United States from the National Inventory of Dams with a state-level aggregation scheme, demonstrated for selected dams in eight states in south-central region of the United States, and post-processing features for basin-specific tabulation: *U.S. Geological Survey software release*, Reston, Va., <https://doi.org/10.5066/P90NJVB9>
12. Chen, M., Huang, Y., Li, Z., Larico, A.J.M., Xue, M., Hong, Y., Hu, X.M., Novoa, H.M., Martin, E., McPherson, R., **Zhang, J.**, Gao, S., Wen, Y., ... (2022). Cross-Examining Precipitation Products by Rain Gauge, Remote Sensing, and WRF Simulations over a South American Region across the Pacific Coast and Andes. *Atmosphere*, 13(10), 1666. <https://doi.org/10.3390/atmos13101666>

2021

13. Gao, S., **Zhang, J.**, Li, D., Jiang, H., & Fang, Z. (2021). Evaluation of Multiradar Multisensor and Stage IV Quantitative Precipitation Estimates during Hurricane Harvey. *Natural Hazards Review*, 22(1), 04020057. [https://doi.org/10.1061/\(ASCE\)NH.1527-6996.0000435](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000435)
14. Yesildirek, M.V., McDowell, J.S., **Zhang, J.**, & Asquith, W.H. (2021). Geospatial data of watershed characteristics for select U.S. Geological Survey streamgaging stations in New Mexico, Oklahoma, and Texas useful for statistical study of annual peak streamflows in and near Texas: *U.S. Geological Survey data release*, <https://doi.org/10.5066/P9A91W4Z>

2020 and earlier

15. **Zhang, J.**, Lin, P., Gao, S., & Fang, Z. (2020). Understanding the Re-infiltration Process to Simulating Streamflow in North Central Texas using the WRF-Hydro Modeling System. *Journal of Hydrology*, 124902. <https://doi.org/10.1016/j.jhydrol.2020.124902>
16. **Zhang, J.** (2020). Advancing Hydrologic and Hydraulic Understanding and Application through Inundation Mapping and Estimation of Losses. *Doctoral Dissertation*.
17. Fang, Z. N., Shultz, M. J., Wienhold, K. J., **Zhang, J.**, & Gao, S. (2019). Case Study: Comparative Analysis of Hydrologic Simulations with Areal-Averaging of Moving Rainfall. *Hydrology*, 6(1), 12. <https://doi.org/10.3390/hydrology6010012>
18. **Zhang, J.**, Munasinghe, D., Huang, Y.F., Fang, Z., Cohen, S., & Tsang, Y.P. (2018). Comparative Analysis of Inundation Mapping Approaches for the 2016 Flood in the Brazos River, Texas. *JAWRA Journal of the American Water Resources Association* 1–14. <https://doi.org/10.1111/1752-1688.12623>
19. Munasinghe, D., Cohen, S., Huang, Y.F., Tsang, Y.P., **Zhang, J.**, & Fang, Z. (2018). Inter-comparison of Satellite Remote Sensing Techniques of Flood Inundation Mapping. *JAWRA Journal of the American Water Resources Association* 1–12. <https://doi.org/10.1111/1752-1688.12626>.
20. Cohen S., Brakenridge G.R., Kettner A., Bates B., Nelson J., McDonald R., Huang, Y.F., Munasinghe, D., & **Zhang, J.** (2018). Estimating flood water depths from flood inundation maps and topography. *JAWRA Journal of the American Water Resources Association*, 54(4), 847-858. <https://doi.org/10.1111/1752-1688.12609>

TEACHING EXPERIENCE

Teaching Assistant

University of Texas at Arlington

CE 4326/5349, Advanced GIS and Hydrologic/Hydraulic Modeling	2015, 2016
CE 4328, Water System Design	2017, 2018
CE 3342, Water Resources Engineering	2016, 2017, 2018

CONFERENCE PRESENTATIONS

1. **Zhang, J.**, Munasinghe, D., Huang, Y.F., Fang, Z., Cohen, S., and Tsang, Y.P (2016). “Comparison of Flood Inundation Mapping Techniques between Different Modeling Approaches and Satellite Imagery”, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) 2016 Biennial Symposium on Water Science, Shepherdstown, WV, July 24 – 27.
2. **Zhang, J.**, Munasinghe, D., Huang, Y.F., Fang, Z., Cohen, S., and Tsang, Y.P (2016). “Comparison of Flood Inundation Mapping Techniques between Different Modeling Approaches and Satellite Imagery”, American Geophysical Union (AGU) 2016 Fall Meeting, San Francisco, CA, December 11-15.
3. **Zhang, J.**, and Fang, Z. (2017). “Evaluate the Effects of Various Precipitation Forcings on Flood Forecasting Potential Using WRF-Hydro Modeling”. AGU 2017 Fall Meeting, New Orleans, LA, December 11-15.
4. **Zhang, J.**, and Fang, Z. (2018). “Investigate the Loss-related Variables to the Simulated Runoff Response in Upper Trinity River Basin using WRF-Hydro”. Texas Weather Conference, Arlington, TX, September 21-22.
5. **Zhang, J.**, and Fang, Z. (2018). “Investigate the Spatial Pattern of Loss-related Variables to the Simulated Runoff Response”. AGU 2018 Fall Meeting, Washington D.C., December 10-14.
6. **Zhang, J.**, Lin, P., Gao, S., and Fang, Z. (2019). “Advancing the understanding of re-infiltration process in the WRF-Hydro modeling system”. AGU 2019 Fall Meeting, San Francisco, CA, December 9-13.

7. **Zhang J.**, Chen, M., Gao, S., Li, Z., Fekete, B., Corsi, F., Vörösmarty, C., Hong, Y. (2022). “Investigate the response of food-energy-water systems to climatic extremes in Northeast and Midwest of US from the perspective of water resources”. OU International WaTER Conference, Norman, OK, September 26-27.
8. **Zhang J.**, Chen, M., Gao, S., Li, Z., Fekete, B., Miara, A., Vörösmarty, C., Hong, Y. (2023). “Examining impacts of climatic extremes on the thermoelectric power production and reiver thermal pollution in the Midwest and Northeast of the United States”. AGU 2023 Fall Meeting, San Francisco, CA, December 11-15.

SERVICES

Conference Convener

- ❖ American Geophysical Union (AGU) 2022 Fall Meeting. Co-convenor. Session: Global Changing Environment and Human Well-being: Impact, Policy, and Scientific Challenges.

Journal Reviewer

- ❖ Nature Scientific Reports
- ❖ Water Resources Research
- ❖ Journal of Hydrology
- ❖ Remote Sensing of Environment
- ❖ Environmental Modelling and Software
- ❖ Environmental Earth Sciences
- ❖ Remote Sensing
- ❖ Water
- ❖ Hydrology
- ❖ Climate
- ❖ Sustainability
- ❖ Atmosphere
- ❖ Applied Sciences