

Curriculum Vitae

Zexuan Xu

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Education

05/2016 **Ph.D.** in Geology (hydrology modeling), Florida State University (FSU)
06/2012 **B.Sc.** in Geo-information Sci. & Tech., Zhejiang University (ZJU), China

Research Experience

08/2020 – present **Research Scientist**, Earth & Environmental Science Area
Lawrence Berkeley National Laboratory (LBNL), Berkeley, CA
05/2016 – 07/2020 **Postdoctoral Fellow**, Earth & Environmental Science Area
Lawrence Berkeley National Laboratory (LBNL), Berkeley, CA
09/2017 – 08/2019 **Data Science Fellow**, Berkeley Institute for Data Science (BIDS),
University of California, Berkeley, CA
08/2012 – 05/2016 **Graduate Research Assistant**, Dept. of EOAS, FSU, Tallahassee, FL

Research Projects

- Advanced Long-Term Environmental Monitoring Systems (ALTEMIS), U.S. Department of Energy, Office of Environmental Management (LBNL PI, \$800,000)
- Development Framework for Climate Resiliency Assessment for the US Department of Energy Office of Legacy Management (co-PI, \$350,000)
- Systematic Studies to Characterize Errors in Atmospheric Forcing on Mountainous Watersheds (co-PI, \$150,000, supported by LBNL)
- BIDS Research Project Award (2018-2019): “Improved Hydrological Forecasting and the Water/Energy Nexus” (co-PI, \$75,000, 2017-2018, supported by UC Berkeley)
- BIDS Data Science Fellowship (\$85,000, 2017-2019)

Research Interests

- Dynamical downscaling of global and regional climate models
- Multi-scale mechanistic integrated hydrology and reactive transport modeling
- Numerical simulation of flow and solute transport in porous and fracture media
- Coastal dynamics and biogeochemical processes
- Uncertainty quantification and sensitivity analysis

Selected Publications

- Xu, Z.**, et al., Reactive transport modeling for supporting climate resilience at groundwater contamination sites, *Hydrology and Earth System Sciences*, 2021-338.
- Xu, Z.**, Di Vittorio, A, Hydrological analysis in watersheds with a variable-resolution global climate model (VR-CESM), *Journal of Hydrology* 601, 126647
- Xu, Z.**, Di Vittorio, A., Zhang, J., Rhoades, A., Xin, X., Xu, H., Xiao, C., Evaluating fine-resolution, regional outputs of a variable resolution global climate model, submitted to *Journal of Geophysical Research – Atmosphere*, 126(15), e2020JD034361
- Xu, Z.** and B. Hu, 2002, Decadal exploration of karst hydrogeology in the Woodville Karst Plain (WKP): a review of field investigation and modeling development, *Journal of Hydrology*, 594, 125937.
- Xu, Z., Hu, B.X., **Xu, Z.***, Wu, X, Numerical study of groundwater flow and salinity distribution cycling controlled by seawater/freshwater interaction in the Woodville Karst Plain, *Journal of Hydrology*, 124171 (Corresponding author).
- Xu, Z., Hu, B.X., **Xu, Z.***, Wu, X., Simulating seawater intrusion in a coastal karst aquifer with complex conduit structures using an improved VDFST-CFP model, *Hydrogeology Journal*, 2019, 27 (4), 1277-1289 (Corresponding author).
- Ullrich, P., **Xu, Z.**, Rhoades, A.M., et al., 2018, California's droughts of the future: A Midcentury recreation of the exceptional conditions of 2012-2017, *Earth's Future*, 2018, 1568-1587.
- Xu, Z.**, Rhoades, A.M., Johansen, H., Ullrich, P.A. and Collins, W.D., 2018, An intercomparison of GCM and RCM dynamical downscaling for characterizing the hydroclimatology of California and Nevada, *Journal of Hydrometeorology*, 19 (9), 1485-1506.
- Xu, Z.**, Massei, N., Padilla, I., Hartmann, A., Hu, B.X., 2018, Characterization, modeling, and remediation of karst in a changing environment, *Environmental Earth Science*, 77, 476.
- Xu, Z.**, Hu, B.X. and Ye, M., 2018, Numerical modeling and sensitivity analysis of seawater intrusion in a dual-permeability coastal karst aquifer with conduits, *Hydrology and Earth System Sciences*, 22(1), 221-239.
- Xu, Z.** and Hu, B.X., 2017, Development of a discrete-continuum VDFST-CFP numerical model for simulating seawater intrusion to a coastal karst aquifer with a conduit system, *Water Resources Research*, 53, 688-711.
- Xu, Z.**, Bassett, S., Hu, B.X. and Dyer, S., 2016, Long distance seawater intrusion through a karst conduit network in the Woodville Karst Plain, Florida, *Scientific Reports* 6, 32235.
- Xu, Z.**, Hu, B.X., Davis, H. and Kish, S., 2015, Numerical study of groundwater flow cycling controlled by seawater/freshwater interaction in a coastal karst aquifer through conduit networks using CFPv2, *Journal of Contaminant Hydrology*, 182, 131-145.
- Xu, Z.**, Hu, B.X., Davis, H. and Cao, J., 2015, Simulating long-term nitrate-N contamination processes in the Woodville Karst Plain using CFPv2 with UMT3D, *Journal of Hydrology*, 52(4), 72-88.

Honors and Awards

- CERC-WET Fellow for outstanding contribution to research, Department of Energy (2021)
- Paper of Note (Best 17 of 300+ papers) for the Waste Management Symposium (2021)
- Berkeley Institute of Data Science Fellow, University of California, Berkeley (2017)