PENGFEI XUE, Ph.D.

October 2026

I. PROFESSIONAL AFFILIATION AND CONTACT INFORMATION

Present Position:

Professor, Department of Civil, Environmental, and Geospatial Engineering (CEGE), Michigan Technological University

Associate Director, Great Lakes Research Center (GLRC), Michigan Technological University

Director, Center for Environmental Engineering, Sensing, and Integrated Modeling (CEESIM), Michigan Technological University

Director, Center for Climate-driven Hazard Adaptation, Resilience, and Mitigation (C-CHARM), a DOE Climate Resilience Center, Michigan Technological University

Geophysical Scientist (Joint Appointment), Environmental Science Division, Argonne National Laboratory

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GLRC 208, Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931

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II. PROFESSIONAL PREPARATION

Postdoctoral Associate, Department of Earth, Atmospheric, and Planetary Sciences & Department of Civil and Environmental Engineering, Massachusetts Institute of Technology (MIT), Cambridge, MA 02/2012-09/2013

Ph.D. in Marine Science, University of Massachusetts Intercampus Marine Science Graduate Program, Dartmouth, MA, 09/2006-01/2012

- **Dissertation:** Observing System Simulation Experiments (OSSEs) with Ensemble Kalman Filters for Massachusetts Coastal Waters

B.S. in Applied Mathematics, East China Normal University, Shanghai, China, 09/2000-07/2004

- **Honors Thesis:** 3D Numerical Simulation of Wind-Driven Circulation in an Idealized Lake Using the ADI Method

III. APPOINTMENTS and POSITIONS

Academic and Research Positions

- **August 2023 – Present**: **Professor**, Department of Civil, Environmental, and Geospatial Engineering, Michigan Technological University
- **October 2022 – Present**: **Associate Director**, Great Lakes Research Center (GLRC), Michigan Technological University,

- **August 2020 – Present**: **Geophysical Scientist**, Joint Appointment, Environmental Science Division, Argonne National Laboratory (ANL)
- **July 2025 – Present: Director,** Center for Environmental Engineering, Sensing, and Integrated Modeling (CEESIM), Michigan Technological University
- **September 2023 – Present: Director,** Center for Climate-driven Hazard Adaptation, Resilience, and Mitigation (C-CHARM), a DOE Climate Resilience Center, Michigan Technological University
- **September 2021 – May 2022**: **Visiting Professor**, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology (MIT)
- **August 2019 – July 2023**: **Associate Professor**, Department of Civil and Environmental Engineering, Michigan Technological University
- **October 2013 – July 2019**: **Assistant Professor**, Department of Civil and Environmental Engineering, Michigan Technological University

Postdoctoral and Graduate Research Positions

- **February 2012 – September 2013**: **Postdoctoral Associate**, Joint Appointment, Department of Earth, Atmospheric, and Planetary Sciences & Department of Civil and Environmental Engineering, Massachusetts Institute of Technology (MIT), Cambridge, MA
- **September 2006 – January 2012**: **Research Assistant**, School for Marine Science & Technology, University of Massachusetts, Dartmouth, MA
- **May 2005 – August 2006**: **Visiting Scholar**, School for Marine Science & Technology, University of Massachusetts, Dartmouth, MA
- **September 2004 – April 2005**: **Research Assistant**, State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai, China

IV. RESEARCH AND CREATIVE ACTIVITY

Dr. Xue has participated in 41 externally funded research projects, with a total funding amount of $33.2 million. Of this, $18.9 million was awarded to Michigan Tech, and Dr. Xue's share was $8.9 million (excluding cost share). He has served as a PI or institutional lead for 21 projects totaling $8.8 million, as a Co-PI for 19 projects, and as senior personnel for one project.

Dr. Xue has published 62 peer-reviewed journal articles within his specialty areas. His other publication highlights include 126 conference podium presentations and 27 invited talks.

A. Interests and Specialties:

Development and application of integrated regional earth system model (IRESM) to problems in coastal oceans and the Great Lakes, including coupled atmosphere-ocean (lake) modeling, coupled biophysical ecosystem modeling, regional climate dynamics, coastal hazards, data assimilation, and machine learning.

B. Current Projects **(showing the total $ amount to Michigan Tech and its fraction to Xue):**

1. **Xue, P. (PI, $1,000,000 to MTU, $715,457 to PX)** "CHIRRP: Empowering Climate Resilience (ECR): Confronting Coastal Hazards for Rural and Indigenous Communities (CCHRIC) in the Great Lakes Region" National Science Foundation (NSF). Period: 02/01/2025-01/31/2029

2. **Xue, P (PI, $543,539 to MTU, all to PX)** "Building Coastal Resilience in Georgian Bay: Integrated Modeling and AI Tools for Extreme Water Levels, Flooding, and Coastal Erosion", Georgian Bay Forever. Period: 07/01/2026-06/30/2031

3. **Xue, P. (PI for $950,000, $859,864 to MTU, $473,143 to PX)** "Center for Climate-driven Hazard Adaptation, Resilience, and Mitigation (C-CHARM) in Great Lakes Rural Communities" Department of Energy (DOE). Period: 09/01/2023-08/31/2027

4. **Xue, P.** (**Institutional Lead, $817,782 to MTU, $744,116 to PX**) "Coastal Observations, Mechanisms, and Predictions Across Systems and Scales – Great Lakes Modeling (COMPASS-GLM)" Department of Energy (DOE) pass through National Labs (led by PNNL) Period: 08/03/2021-08/30/2027.

5. **Xue, P.** (**Institutional Lead, $697,000 to MTU, all to PX**) "Great Lakes Earth System AI Modeling (GLEAM)" Department of Energy (DOE) pass through National Labs (led by PNNL). Period: 10/01/2026-09/30/2029.

6. **Xue, P.** (**Institutional Lead, $645,415 to MTU, $505,824 to PX**) "Influences of Future Tropical and Extratropical Storms on Wind Energy over the Eastern United States and Offshore", Department of Energy pass through Argonne National Laboratory. Period: 01/01/2023-12/31/2026.

7. **Xue, P.** (**PI, $792, 279 to MTU, $753, 382 to PX**) "Development of long-term three-dimensional temperature and current information for the Great Lakes open waters" National Oceanic and Atmospheric Administration (NOAA) pass through Cooperative Institute for Great Lakes Research (CIGLR). Period: 06/01/2020-08/31/2027.

8. **Xue, P.** (**PI; $535,886 to MTU, all to PX**) Model Intercomparison of Phytoplankton Dynamics in the Great Lakes. National Oceanic and Atmospheric Administration (NOAA) pass through Cooperative Institute for Great Lakes Research (CIGLR). Period: 10/01/2023-06/30/2027.

9. **Xue, P.** (**PI; $184,000 to MTU, all to PX)** Calibration and Assessment of the Sediment Biogeochemistry and Phosphorus Cycle Modeling Within FVCOM-FABM-ERSEM. National Oceanic and Atmospheric Administration (NOAA) pass through Cooperative Institute for Great Lakes Research (CIGLR). Period: 05/01/2024-06/30/2027.

10. **Xue, P.** (**Co-PI, $1,306,441 to MTU, $303,497 to PX**) Great Lakes Response to Climate Change: Measurement and Modeling of pH and CO2. National Oceanic and Atmospheric Administration (NOAA) Period: 09/01/2024-8/31/2027

11. **Xue, P.** (**Co-PI, $499,314 to MTU, $77,500 to PX**) NSF R2I2: Maximizing resilience to winter weather in future electric power systems. National Science Foundation (NSF). Period: 7/1/2025-6/30/2027

12. **Xue, P. (Co-PI, $831,830 to MTU, $213,848 to PX)** "Disclosure Restriction". Period Covered: 01/01/2026-12/31/2028.

13. **Xue, P. (Co-PI, $510,640 to MTU, $129,934 to PX)** "Disclosure Restriction". Period Covered: 01/01/2025-12/31/2026.

C. Completed Projects:

14. **Xue, P. (Co-PI, $659,681 to MTU, $141,573 to PX)** "Disclosure Restriction". Period Covered: 01/01/2023-12/31/2025

15. **Xue, P. (Co-PI, $521,742 to MTU, $110,254 to PX)** "Disclosure Restriction". Period Covered: 07/29/2022-12/31/2024.

16. **Xue, P.** (**Co-PI, $439,306 to MTU, $18,000 to PX**) "A Risk Informed Decision-Making Framework for Coastal Railroad System Subjected to Storm Hazards and Sea Level Rise", Department of Transportation. Period Covered: 07/01/2022-06/30/2025

17. **Xue, P.** (**PI, $327,927 to MTU, all to PX**) "Evaluating and Advancing the Representation of Lake-Atmosphere Interactions and Resulting Heavy Lake-Effect Snowstorms Across the Laurentian Great Lakes Basin Within the NASA-Unified Weather Research and Forecasting Model." National Aeronautics and Space Administration (NASA). Period Covered: 7/26/2017-7/25/2024. (Collaborated with two other grants to UW-Madison and NASA)

18. **Xue, P.** (**PI, $1,199,877 to MTU, $54,541 to PX**) "Helping Rural Counties to Enhance Flooding and Coastal Disaster Resilience and Adaptation", NSF. Period Covered: 10/01/2020-09/31/2024

19. **Xue, P.** (**PI, $192,987 to MTU, all to PX**) "Developing downscaled climate models to understand and forecast potential recruitment of Lake Michigan fishes" United States Geological Survey (USGS), period Covered: 03/25/2021-12/31/2023

20. **Xue, P.** (**Co-PI, $858,619 to MTU, $202,203 to PX**) "Disclosure Restriction". Period Covered: 05/01/2021-12/31/2022.

21. **Xue, P.** (**Co-PI, $505,696 to MTU, 95,077 to PX),** "Disclosure Restriction". Period Covered: 07/20/2020-05/01/2021.

22. **Xue, P.** (**Co-PI, $953,726 to MTU, $192,212 to PX**) "Disclosure Restriction".Period Covered: 03/01/2020-03/31/2021.

23. **Xue, P.** (**Co-PI, $100,000 to MTU, $54,209 to PX**) "Advancing Coastal Hazard Knowledge on Resiliency Alternatives" Michigan Department of Environment, Great Lakes, and Energy. Period Covered: 1/1/2020-12/31/2020.

24. **Xue, P.** (**PI, $199,870 to MTU, $154,272 to PX**) "Cladophora, Mussels and the Nearshore Phosphorus Shunt in Lake Michigan." Michigan Sea Grant. Period Covered: 2/1/2018-1/31/2021.

25. **Xue, P.** (**Co-PI, $750,590 to MTU, 164,646 to PX**) "Disclosure Restriction". Period Covered: 04/01/2019-03/01/2020.

26. **Xue, P.** (**Co-PI, $200,000 to MTU, $77,176 to PX**) "An Integrated Physical-Social-Community (PSC) Approach for Sustainable Shore Protection, Beach Integrity, and Bluff/Dune Stabilization Along Lake Michigan". Period Covered 2/1/2020-1/31/2023. Collaborative Wisconsin -Michigan-Illinois/Indiana Joint Sea Grant Proposal.

27. **Xue, P.** (**Institutional Lead, $209,912 to MTU, all to PX**) "Linking Process Model and Field Experiments to Forecast Algal Bloom Toxicity in Lake Erie." National Oceanic and Atmospheric Administration (NOAA) ECOHAB Program. Period Covered: 9/1/2017-12/31/2022. A multi-institutional collaborative proposal led by OSU.

28. **Xue, P.** (**PI, $50,781 to MTU, all to PX**) "Seed Fund for the Joint Appointment at Argonne National Lab", Argonne National Laboratory. Period Covered 8/3/2020-8/2/2022.

29. **Xue, P.** (**Co-PI, $531,901 to MTU, $110,582 to PX**) "Disclosure Restriction". Period Covered: 04/01/2021-05/30/2022.

30. **Xue, P.** (**PI**, **$125,199 to MTU, 106,885 to PX**) "Coastal Coupling in Large Lakes for Total Water Prediction" National Oceanic and Atmospheric Administration (NOAA) pass through Cooperative Institute for Great Lakes Research (CIGLR). Period Covered: 07/01/2019-02/28/2022.

31. **Xue, P.** (**Chief Scientist for section B: transport and fate of oil, $756,110 to MTU, $20,000 to PX**), "Independent Risk Analysis for the Straits Pipelines" State of Michigan. Period Covered: 01/12/2018-10/31/2018. (41 scientists participated in the project)

32. **Xue, P.** (**PI, $249,541 to MTU, $99,535 to PX**) "Modeling the Mussel-Phosphorus-Cladophora Dynamic in Lake Ontario." Town of Ajax, Ontario, Canada. Period Covered: 05/01/16-12/31/17.

33. **Xue, P.** (**Co-PI, $220,763 to MTU, $52,612 to PX**) "*Cladophora* Monitoring and Modeling at Ajax, Ontario - Phase 3." Town of Ajax, Ontario, Canada. Period Covered: 8/13/2017-08/17/2018.

34. **Xue, P.** (**Co-PI, $349,932 to MTU, $91,835 to PX**) "Integrated Clean Water Act Planning Evaluation, Northeast Ohio Regional Sewer District, Phases II-III." Northeast Ohio Regional Sewer District. Period Covered: 09/01/2013-04/30/2016.

35. **Xue, P.** (**Co-PI, $226,034 to MTU, $52,134 to PX**) "Phosphorus and Cladophora in Lake Ontario." Town of Ajax, Ontario, Canada. Period Covered: 9/1/2014-12/31/2015.

36. **Xue, P.** (**Co-PI, $63,156 to MTU, $19,779 to PX**) "Lake Erie Phosphorus Modeling." Environmental Protection Agency administered by Battelle Memorial Institute. Period Covered: 8/1/2014-07/15/2015.

37. **Xue, P.** (**SP, $499,887 to MTU, $24,780 to PX**), *et al.* "Category: B.1 Invasive Species Prevention and Control: Arresting the Spread of Eurasian Watermilfoil in Lake Superior. 2014-2015." Environmental Protection Agency. Period Covered: 01/01/2014-10/31/2016

38. **Xue, P.** (**Co-PI, $22,289 to MTU, $10,000 to PX**) "Lake Water Quality Modeling of Consent Decree Scenarios-Phase1". Wade Trim Group, Inc. Period Covered: 08/15/2018 - 10/30/2018.

39. **Xue, P.** (**Institutional Lead, $40,000 to MTU, all to PX**) "Climate Change Adaptation Strategies for Great Lakes Communities-Year 1", Argonne National Laboratory. Period Covered 10/01/2021-09/30/2022.

40. **Xue, P.** (**PI, $30,000 to MTU, all to PX**). "Development of FVCOM model of Sandusky Bay to support restoration design." LimnoTech. Period Covered: 09/01/2017 -08/31/2018.

41. **Xue, P.** (**PI, $25,000 to MTU, all to PX**) "Using Ensemble-based data assimilation to improve hydrodynamic modeling for the Great Lakes" Cooperative Institute for Great Lakes Research (CIGLR). Period Covered 07/01/2021-06/30/2022

D. Articles in Peer-Reviewed Journals (**†student advisee and ♣postdoctoral advisee; †student publications follow the First–Last (*corresponding) Author Emphasis (FLAE) convention)**

1. *Jung, C., ****Xue, P.**, Huang, C., Pringle, W., Biswas, M., Nain, G. and Wang, J., (2026). Fully coupled, high-resolution atmosphere–ocean–wave simulations of the offshore wind energy environment during Hurricane Henri (2021). *Wind Energy Science*, 11(4), pp.1321-1341
2. Tajik, A., Sohrabi, S., Darestani, Y., Pringle, W., Lautala, P., & **Xue, P.** (2026). A Probabilistic Decision-Making Framework for Coastal Railroads. *Journal of Structural Engineering*, *152*(11), 04026157.

3. Jones, D. C., Liu, J., Steinschneider, S., Fry, L. M., Mason, L., Vander Woude, A., ... & **Xue, P.** (2026). A Community-centered Vision for Data-Intensive Great Lakes Research and Management. *Artificial Intelligence for the Earth Systems*, e250096.

4. Chen, Y., & ***Xue, P.** (2025). Dual-transformer deep learning framework for seasonal forecasting of Great Lakes water levels. *Journal of Geophysical Research: Machine Learning and Computation*, *2*(2), e2024JH000519.

5. **Xue, P.,** Huang, C., Zhong, Y., Notaro, M., Kayastha, M. B., Zhou, X., Zhao, C., Peters-Lidard, C., Cruz, C., and Kemp, E. (2025): Enhancing winter climate simulations of the Great Lakes: insights from a new coupled lake–ice–atmosphere (CLIAv1) system on the importance of integrating 3D hydrodynamics with a regional climate model, Geosci. Model Dev., 18, 4293–4316, https://doi.org/10.5194/gmd-18-4293-2025.

6. Meadows, L. A., Theuerkauf, E., Troy, C., **Xue, P.,** Meadows, G., & Wu, C. (2025). Dynamic coasts, resilient futures: Navigating changes in the Great Lakes–Foreword to the special section. *Journal of Great Lakes Research*, *51*(4), 102618.

7. *Woolway, R. I., †Kayastha, M. B., Tong, Y. Feng, L., Shi, H. & ***Xue, P.** (2025). Subsurface heatwaves in lakes. *Nature Climate Change*, *15*(5), 554-559.

8. Pringle, W. J., Huang, C., **Xue, P.,** Wang, J., Sargsyan, K., Kayastha, M. B., Chakraborty, T., Yang, Z., Qian, Y., & Hetland, R. D. (2025). Coupled Lake-Atmosphere-Land Physics Uncertainties in a Great Lakes Regional Climate Model. Journal of Advances in Modeling Earth Systems. doi: https://doi.org/10.1029/2024MS004337

9. Thomas, J., Mohan, S., Mallik, S., Oommen, T., **Xue, P.,** Meadows, G., Thalakkottukara, N.T. and Williams, R., (2025). Development of a HAND-based flood risk assessment tool in Google Earth Engine for a data-scarce region in the US. *Journal of Great Lakes Research*, 102510. https://doi.org/10.1016/j.jglr.2025.102510

10. Abdelhady, H. U., Troy, C. D., Zhu, L., **Xue, P.,** Meadows, G., & Wu, C. H. (2025). Shoreline responses to rapid water level increases in Lake Michigan. *Geomorphology*, 109639. https://doi.org/10.1016/j.geomorph.2025.109639

11. ♣Zhu, L., Meadows, G. A., Kayastha, M. B., & ***Xue, P.** (2024). Sediment transport and budget influenced by harbor jetties in storm events. *Journal of Great Lakes Research*, 102499. https://doi.org/10.1016/j.jglr.2024.102499

12. Huang, H., Qian, Y., Bisht, G., Wang, J., Chakraborty, T., Hao, D., Li, J., Thurber, T., Singh, B., Yang, Z., Liu, Y., **Xue, P.,** Sacks, W. J., Coon, E., and Hetland, R (2025).: WRF-ELM v1.0: a regional climate model to study land–atmosphere interactions over heterogeneous land use regions, Geosci. Model Dev., 18, 1427–1443, https://doi.org/10.5194/gmd-18-1427-2025.

13. Gardner, S.T., Rowe, M.D., **Xue, P.,** Zhou, X., Alsip, P.J., Bunnell, D.B., Collingsworth, P.D., Rutherford, E.S. and Höök, T.O. (2024), Climate-influenced phenology of larval fish transport in a large lake. Limnol. Oceanogr. Lett, 9: 376-387. https://doi.org/10.1002/lol2.10414

14. Wang J., Hendricks E., Rozoff C.M., Churchfield M., Zhu L., Feng S., Pringle W.J., Biswas M., Haupt S.E., Deskos G., Jung C., **Xue P.,** Berg L.K., Bryan G., Kosovic B., Kotamarthi R. (2024) Modeling and observations of North Atlantic cyclones: Implications for U.S. Offshore wind energy. *J. Renewable Sustainable Energy*. 16, 052702, https://doi.org/10.1063/5.0214806

15. †**Kayastha, M. B.**, Huang, C., Wang, J., Qian, Y., Yang, Z., Chakraborty, T., Pringle, W., Hetland, R., ***Xue, P.**,(2024). How could future climate conditions reshape a devastating lake-effect snow storm? *Earth's Future*, 12, e2024EF004622. https://doi.org/10.1029/2024EF004622

16. Yang, Z., Wang, J., Qian, Y., Chakraborty, TC, **Xue, P.,** Pringle, W. J., et al. (2024). Summer convective precipitation changes over the Great Lakes region under a warming scenario. *Journal of Geophysical Research: Atmospheres*, 129, e2024JD041011. https://doi.org/10.1029/2024JD041011

17. Wang, J., Deskos, G., Pringle, W. J., Haupt, S. E., Feng, S., Berg, L. K., Churchfield, M., Biswas, M., Musial, W., Muradyan, P., Hendricks, E., Kotamarthi, R., **Xue, P.**, Rozoff, C. M., & Bryan, G. (2024). Impact of Tropical and Extratropical Cyclones on Future U.S. Offshore Wind Energy. *Bulletin of the American Meteorological Society,* https://doi.org/10.1175/BAMS-D-24-0080.1

18. ♣**Zhu, L.**, ***Xue, P.**, Meadows, G. A., Huang, C., Ge, J., Troy, C. D., & Wu, C. H. (2024). Trends of sediment resuspension and budget in southern Lake Michigan under changing wave climate and hydrodynamic environment. *J. Geophys. Res. Oceans,* 129, e2023JC020180. https://doi.org/10.1029/2023JC020180

19. Chakraborty, T. C., Wang, J., Qian, Y., Pringle, W., Yang, Z., **Xue, P**. (2023). Urban Versus Lake Impacts on Heat Stress and Its Disparities in a Shoreline City. GeoHealth, 7, e2023GH000869, 15(17). https://doi.org/10.1029/2023GH000869

20. †**Kayastha, M. B.**, Liu, T., Titze, D., Havens, T. C., Huang, C., ***Xue, P.** (2023). Reconstructing 42 Years (1979–2020) of Great Lakes Surface Temperature through a Deep Learning Approach. *Remote Sensing*, 15(17). https://doi.org/10.3390/rs15174253

21. †**Kayastha, M. B.,** Huang, C., Wang, J., Pringle, W. J., Chakraborty, T. C., Yang, Z., Hetland, R., Qian, Y., ***Xue, P**. (2023). Insights on simulating summer warming of the Great Lakes: Understanding the behavior of a newly developed coupled lake-atmosphere modeling system. *Journal of Advances in Modeling Earth Systems*, 15, e2023MS003620. https://doi.org/10.1029/2023MS003620

22. Jiang, P., Yang, Z., Wang J., Huang, C., **Xue, P**., Chakraborty, T. C., Chen, X., Qian, Y. (2023). Efficient Super-Resolution of Near-Surface Climate Modeling Using the Fourier Neural Operator. *Journal of Advances in Modeling Earth Systems*. https://doi.org/10.1029/2023MS003800

23. †**Zhou, X.,** Chaffin, J.D., Bratton, J.F., Verhamme, E.M. and ***Xue, P.** (2023). Forecasting Microcystin Concentrations in Lake Erie Using an Eulerian Tracer Model. *Journal of Great Lakes Research*, https://doi.org/10.1016/j.jglr.2023.06.006

24. †**Zhou, X.,** Rowe, M., Liu, Q., and ***Xue, P.** (2023). Comparison of Eulerian and Lagrangian transport models for a harmful algal bloom forecast in Lake Erie. *Environmental Modelling and Software*, 162, 105641, https://doi.org/10.1016/j.envsoft.2023.105641

25. Yang, Z., Qian, Y**., Xue, P.,** Wang, J., Pringle, W., Li, j., Chen, X., Chakraborty, TC. (2023). Quantify moisture sources of the Great Lakes Precipitation. *Geophysical Research Letters*, 50, e2022GL100682, https://doi.org/10.1029/2022GL100682

26. Wang, J., Qian, Y., Pringle, W., Chakraborty, T. C., Hetland, R., Yang, Z, and **Xue, P.** (2023). Contrasting effects of lake breeze and urbanization on heat stress in Chicago metropolitan area. *Urban Climate*, 48, 101429. https://doi.org/10.1016/j.uclim.2023.101429

27. †**Kayastha, M. B.,** Ye, X., Huang, C., and ***Xue, P.** (2022). Future Rise of the Great Lakes Water Levels under Climate Change. *Journal of Hydrology*, 612, 128205. https://doi.org/10.1016/j.jhydrol.2022.128205

28. ***Xue, P.**, Ye, X., Pal, J. S., Chu, P. Y., Kayastha, M. B., and Huang, C. (2022). Climate Projections over the Great Lakes Region: Using Two-way Coupling of a Regional Climate Model with a 3-D Lake Model. *Geosci. Model Dev.*, 15, 4425–4446. https://doi.org/10.5194/gmd-15-4425-2022.

29. ***Xue, P.**, Wagh, A., Ma, G., Wang, Y., Yang, Y., Liu, T., and Huang, C. (2022). Integrating Deep Learning and Hydrodynamic Modeling to Improve the Great Lakes Forecast. *Remote Sens.* , 14, 2640. https://doi.org/10.3390/rs14112640

30. Wang, J., **Xue, P.**, Pringle, W., Yang, Z., and Qian, Y. (2022). Impacts of lake surface temperature on the summer climate over the Great Lakes Region. *Journal of Geophysical Research: Atmospheres*, 127, e2021JD036231. https://doi.org/10.1029/2021JD036231

31. †**Huang**, C., Zhu, L., Ma, G., Meadows, G. A., ***Xue, P.** (2021). Wave Climate Associated with Changing Water Level and Ice Cover in Lake Michigan. *Frontiers in Marine Science*, 8, 1574. doi:10.3389/fmars.2021.7469

32. †**Huang**, C., Anderson, E.J.,Liu, Y., Ma, G., Mann, G., ***Xue, P.** (2021). Evaluating Essential Processes and Forecast Requirements for Meteotsunami-induced Coastal Flooding. *Natural Hazards*, 1-26. https://doi.org/10.1007/s11069-021-05007-x

33. †**Zhou**, X., Auer, M.T., ***Xue, P.** (2021). Open Lake Phosphorus Forcing of Cladophora Growth: Modeling the Dual Challenge in Great Lakes Trophic State Management. *Water*, 13, 2680. https://doi.org/10.3390/w13192680

34. Notaro, M., Zhong, Y., **Xue, P.**, Peters-Lidard, C., Cruz, C., Kemp, E., Kristovich, D., Kulie, M., Wang, J., Huang, C., Vavrus, S. (2021). Cold Season Performance of the NU-WRF Regional Climate Model in the Great Lakes Region. *Journal of Hydrometeorology*, Early online release, https://doi.org/10.1175/JHM-D-21-0025.1.

35. Chaffin J. et al. (29 authors) (2021). The Lake Erie HABs Grab: A binational collaboration to characterize the western basin cyanobacterial harmful algal blooms at an unprecedented high-resolution spatial scale. *Harmful Algae,* 108, https://doi.org/10.1016/j.hal.2021.102080.

36. Auer, M.T.; McDonald, C.P.; Kuczynski, A.; Huang, C.; **Xue, P.** (2021) Management of the Phosphorus–*Cladophora* Dynamic at a Site on Lake Ontario Using a Multi-Module Bioavailable P Model. *Water*, *13*, 375. https://doi.org/10.3390/w13030375

37. **Ibrahim, H.,** ***Xue, P.,** & Eltahir, E. A. (2020). Multiple Salinity Equilibria and Resilience of Persian/Arabian Gulf Basin Salinity to Brine Discharge. *Frontiers in Marine Science,* 7:573. doi: 10.3389/fmars.2020.00573

38. Feng, X., Ma, G., Su, S., Huang, C., Boswell, M., **Xue, P.** (2020). A multi-layer perceptron approach for accelerated wave forecasting in Lake Michigan. *Ocean Engineering*, 211, 107526

39. ***Xue, P.,** Malanotte-Rizzoli, P., Wei, J., Eltahir, E. A. (2020), Coupled Ocean-Atmosphere Modeling over the Maritime Continent: A Review. *Journal of Geophysical Research-Oceans*, 125, doi:10.1029/2019JC014978

40. Zhang, Y., Chen, C., **Xue, P.,** Beardsley, R. C., & Franks, P. J. (2020). A view of physical mechanisms for transporting harmful algal blooms to Massachusetts Bay. *Marine Pollution Bulletin,* 154, 111048; https://doi.org/10.1016/j.marpolbul.2020.111048

41. †**Ye, X**., Chu, P. Y., Anderson, E. J., Huang, C., Lang, G. A., & ***Xue, P.** (2020). Improved thermal structure simulation and optimized sampling strategy for Lake Erie using a data assimilative model. *Journal of Great Lakes Research*, 46, 144-158, DOI: 10.1016/j.jglr.2019.10.018

42. ♣**Shi,** Q., & ***Xue, P.** (2019). Impact of lake surface temperature variations on lake effect snow over the Great Lakes region. *Journal of Geophysical Research-Atmosphere,* 124, 12,553–12,567, DOI:10.1029/2019JD031261

43. †**Huang**, C., Kuczynski, A., Auer, M. T., O'Donnell, D. M., & ***Xue, P.** (2019). Managing the Phosphorus-Cladophora Dynamic in Lake Ontario: Insights from Hydrodynamics. *J. Mar. Sci. Eng.* 2019, 7(5), 129; https://doi.org/10.3390/jmse7050129

44. †**Ye, X.,** Anderson, E. J., Chu, P. Y., Huang, C., & ***Xue, P.** (2019). Impact of water mixing and ice formation on the warming of Lake Superior: a model-guided mechanism study. *Limnology and Oceanography*, doi: 10.1002/lno.11059

45. ***Xue, P.**, Schwab, D.J., Zhou, X., Huang, C., Kibler, R., Ye, X. (2018). A Hybrid Lagrangian–Eulerian Particle Model for Ecosystem Simulation. *J. Mar. Sci. Eng.* 2018, 6, 109. doi: 10.3390/jmse6040109

46. Niroomandi, A., Ma, G., Ye, X., Lou, S., & **Xue, P.** (2018), Extreme Value Analysis of Wave Climate in Chesapeake Bay, *Ocean Engineering*, 159, 22-36, doi: https://doi.org/10.1016/j.oceaneng.2018.03.094

47. Bao, T., Liu, Z., Meldrum, J., Green, C., **Xue, P.**, & Vitton, S. (2018). Field tests and multiphysics analysis of a flooded shaft for geothermal applications with mine water. *Energy Conversion and Management*, 169, 174-185.

48. ***Xue, P.**, Schwab, D. J., Sawtell, R. W., Sayers, M. J., Shuchman, R. A., & Fahnenstiel, G. L. (2017), A Particle-tracking Technique for Spatial and Temporal Interpolation of Satellite Images Applied to Lake Superior Chlorophyll Measurements, *J. Great Lakes Res.,* 43(3), 1-13.

49. ***Xue, P.**, J. S. Pal, X. Ye, J. D. Lenters, C. Huang, P. Y. Chu (2017), Improving the Simulation of Large Lakes in Regional Climate Modeling: Two-way Lake-atmosphere Coupling with a 3-D Hydrodynamic Model of the Great Lakes, *J. Climate,* 30, 1605–1627, doi: 10.1175/JCLI-D-16-0225.1

50. ***Xue, P.**, Schwab, D. J., and Hu S.(2015), An investigation of the thermal response to meteorological forcing in a hydrodynamic model of Lake Superior, *J. Geophys. Res. Ocean*s, 120, 5233–5253, doi:10.1002/2015JC010740.

51. ***Xue, P.** and Eltahir E. A. (2015), Estimation of the Heat and Water Budgets of the Persian Gulf Using A Regional Climate Model, *J. Climate*., 28(13), 5041-5062 doi: http://dx.doi.org/10.1175/JCLI-D-14-00189.1

52. Wang, Z., Song, H., Watkins, D. W., Ong, K. G., **Xue, P.,** Yang, Q., & Shi, X. (2015), Cyber-physical systems for water sustainability: challenges and opportunities, *Communications Magazine*, IEEE 53 (5), 216-222, doi: 10.1109/MCOM.2015.7105668

53. ***Xue, P.**, Eltahir, E. A., Malanotte-Rizzoli, P., & Wei, J. (2014), Local feedback mechanisms of the shallow water region around the Maritime Continent, *J. Geophys. Res. Oceans*, 119(10), 6933-6951, doi: 10.1002/2013JC009700

54. ***Xue, P.**, Chen, C., Qi, J., Beardsley, R. C., Tian, R., Zhao, L., & Lin, H. (2014). Mechanism studies of seasonal variability of dissolved oxygen in Mass Bay: A multi-scale FVCOM/UG-RCA application, *J. Mar. Syst.,* 131, 102-119. doi:10.1016/j.jmarsys.2013.12.00

55. Li, Y., Chen, X., Chen, C., Ge, J., Ji, R., Tian, R., **Xue, P.** and Xu, L. (2014), Dispersal and survival of chub mackerel (*Scomber Japonicus*) larvae in the East China Sea, *Ecol. Model., 283, 70-84.*, doi:10.1016/j.ecolmodel.2014.03.016

56. Wei, J., Malanotte-Rizzoli, P., Eltahir, E. A., **Xue, P.,** & Xu, D. (2013). Coupling of a regional atmospheric model (RegCM3) and a regional oceanic model (FVCOM) over the Maritime Continent*, Clim. Dyn.,* 43(5-6), 1575-1594, doi:10.1007/s00382-013-1986-3.

57. ***Xue, P.**, Chen, C., Beardsley, R.C. (2012). Observing System Simulation Experiments (OSSEs) of dissolved oxygen monitoring in Massachusetts Bay, *J. Geophys. Res.*, 117, C05014, doi:10.1029/2011JC007843.

58. Chen, C., Limeburner, R., Gao, G., Xu, Q., Qi, J., **Xue, P.,** Lai, Z., Lin, H., Beardsley, R., Owens, B. and Carlson, B., 2012, FVCOM model estimate of the location of Air France 447 Topical Collection on Advances in Search and Rescue at Sea, *Ocean Dyn*., 62(6),943-952.

59. ***Xue, P.**, Chen, C., Beardsley, R.C., Limeburner, R. (2011). Observing System Simulation Experiments (OSSEs) with Ensemble Kalman Filters in Nantucket Sound, Massachusetts, *J. Geophys. Res.*, doi: 10.1029/2010JC006428

60. **Xue, P.**, Chen, C., Ding, P., Beardsley, R. C., Lin, H., Ge, J., & Kong, Y. (2009). Saltwater intrusion into the Changjiang River: A model-guided mechanism study. *J. Geophys. Res,* 114, C02006, doi:10.1029/2008JC004831.

61. Chen, C., Malanotte-Rizzoli, P., Wei, J., Beardsley, R.C., Lai, Z., **Xue, P.,** Lyu, S., Xu, Q., Qi, J. and Cowles, G.W., (2009). Application and comparison of Kalman filters for coastal ocean problems: An experiment with FVCOM, *J. Geophys. Res.*, 114, C05011, doi:10.1029/2007JC004548.

62. Chen, C., **Xue, P.,** Ding, P., Beardsley, R.C., Xu, Q., Mao, X., Gao, G., Qi, J., Li, C., Lin, H. and Cowles, G. (2008). Physical mechanisms for the offshore detachment of the Changjiang diluted water in the East China Sea, *J. Geophys. Res.*, 113, C02002, doi: 10.1029/2006JC003994.

E. Papers in Peer-reviewed Conference Proceedings:

1. Liu Z., Meldrum J., **Xue P.**, & Green C. (2015). Preliminary studies of the use of abandoned mine water for geothermal applications. Paper presented at the *Geotechnical Special Publication, GSP 256* 1678-1690. doi:10.1061/9780784479087.152
2. Ge J., Ding P., Chen C., & **Xue P.** (2009). Low-salinity plume in the Changjiang and adjacent coastal regions: A model-data comparison. Paper presented at the Proceedings of the Coastal Engineering Conference, 4471-4481.

F. Technical Reports:

1. **Xue, P.,** Huang, C., Zhu, L., Jung, C., Pringle, W., and Wang, J. (2023). Progress on a fully coupled atmosphere-ocean-wave model developed for northeast offshore wind energy, technical report, DOE.
2. Brooks C., Billmire, M., Anderson, J., **Xue, P.,** Kuczynski, A., Auer, M.T., Almquist, Z., Zhu., L., Huang C., et al. (2023). Year 1 Progress Report for the Pickering Advanced Algae Warning System Maintenance Phase, July 2022 to June 2023, technical report, Ontario Power Generation.
3. Brooks C., **Xue, P.,** Anderson, J., Weinstein, C., Auer, M.T., Kuczynski, A., Billmire, M., Grimm, A., Huang, C., Leisman, D., VanderBilt, M., Cook, C (2022). Enabling the Pickering Advanced Algae Warning System to Reach Operation Status: A Phase 2.5 Project Final Report, technical report, Ontario Power Generation.
4. Brooks C., Xue, P., Anderson, J., Grimm, A., Billmire, M., Weinstein, C., Auer, M.T., Kuczynski, A., Huang, C., Cook, C, Leisman, D., Nakashima, M. (2021). Adaptation of the Advanced Algae Warning System to Darlington Nuclear Generating Station: Phase 1 , technical report, Ontario Power Generation.
5. Brooks C., **Xue, P.,** Anderson, J., Weinstein, C., Auer, M.T., Kuczynski, A., Billmire, M., Grimm, A., Huang, C., Leisman, D., Nakashima, M., Cook, C. (2020). Integration of the Advanced Algae Warning System GUI into OPG Operations, technical report, Ontario Power Generation.
6. Brooks, C., **Xue, P.,** Anderson, J., Grimm, A., Billmire, M., Weinstein, C., Auer, M., Huang, C., Kayastha, M., Marion, N. (2019). An Early Warning System Targeting Water Intake Fouling by Cladophora at the OPG Pickering Nuclear Generating Station, technical report, Ontario Power Generation
7. **Xue, P.,** Schwab, D., Anderson, E., Chu, P., Shonnard, D. R., Paterson, G. (2018) Analyzing the likely environmental fate and transport of oil or other products released from the Straits Pipeline under a worst-case scenario. Independent Risk Analysis for the Straits Pipelines-Final Report
8. Auer, M., M. Foster, C. Huang, A. Kuczynski, W. Lash-Marshall, Z. Miller, A. Scott, D. Watkins, **P. Xue**, and N. Zgnilec (*alphabetical authorship*) (2018). Water Quality Response to Consent Decree and

Member Community Infrastructure Programs. Environmental Considerations in Wastewater Infrastructure Asset Allocation in the Northeast Ohio Regional District (p. 318), Northeast Ohio Regional District.

9. Chen, C., Beardsley, R. C., Cowles, G., Qi, J., Lai, Z., Gao, G., **Xue, P.** ... & Ge, J. (2013). An Unstructured Grid, Finite-Volume Community Ocean Model FVCOM User Manual. SMAST (p. 404). UMASSD Technical Report-13-0701, University of Massachusetts-Dartmouth.
10. Chen, C., Zhao, L., Tian, R., & **Xue, P.** (2012). Modeling 2010 in Massachusetts bay using the unstructured-grid bay eutrophication model, Sea Grant College Program, Massachusetts Institute of Technology.
11. Tian, R., Chen, C., Zhao, L., **Xue, P.**, Leo, W., & Mickelson, M. (2010). Modeling 2009 in Massachusetts Bay using the unstructured-grid Bays eutrophication model, Rep. 2010-22, 100 pp. *Mass. Water Resour. Auth., Boston*.

G. Presentations at Professional Meetings: (†student advisee and ♣postdoc advisee, presenter):

i. Presentations at national and international conferences:

A) Podium Presentation

1. **Xue, P. (invited talk),** Chen, Y., Kayastha, M., Huang, C., Qian, Y., Wang, J., Hetland, R., Pringle, W., Yang, Z., Chakraborty, T.C. and Zhou, X., (2025). Advancing Great Lakes Modeling: Harnessing 3D Hydrodynamics and Deep Learning for Future Insights into Coupled Lake–Atmosphere Systems. In American Geophysical Union (AGU) Fall Meeting, New Orleans, LA, December, 2025.
2. **Xue, P. (invited talk),** Notaro, M., Huang, C., Zhong, Y., Zhou, X., Kayastha, M.B., Kemp, E.M., Cruz, C.A., Peters-Lidard, C. and Zhao, C.(2025), Enhancing Winter Climate Simulations of the Great Lakes: Importance of Integrating 3D Hydrodynamics with a Regional Climate Model. In *105th AMS Annual Meeting*. AMS. January, 2025
3. **Xue, P.** and Chen Y. Dual-transformer Deep Learning Framework for Predicting Great Lakes Water Levels In AOGS, Singapore, July 2025
4. **♣Zhao C., Xue P.,** Titze, D., and M. Rowe (2025), M. Enhancing Ecosystem Modeling in Lake Erie through Improved Thermal Structure Simulation via Data Assimilation, In *105th AMS Annual Meeting*. AMS, January 2025
5. **♣Chen Y. Xue, P.,**Wang C., 2025, January. Using Machine Learning for Enhanced Seasonal Water Level Predictions in the Great Lakes. In *105th AMS Annual Meeting*. AMS.
6. Peco, K., Mitra, A., Wang, J., **Xue, P.,** Chakraborty, T.C. and Qian, Y., 2025, January. Evaluation of Radiative Flux Datasets over the Great Lakes Region for Climate Model Validation Applications. In *105th AMS Annual Meeting*. AMS.
7. Chakraborty, T.C., Wang, J., Yang, Z., Qian, Y., Pringle, W.J. and Xue, P., (2025, January). Dynamically Downscaling Future Regional and Urban Heat Stress Extremes over the Great Lakes Region Using Pseudo Global Warming Simulations. In *105th AMS Annual Meeting*. AMS.
8. Jung, C., Huang, C., Wang, J., **Xue, P.**, Pringle, W., and Kotamarthi, V. Future Projection of North Atlantic Hurricanes using a Fully Coupled Regional Atmosphere-Ocean-Wave Model: Tropical vs. Non-Tropical Origin Hurricanes. In American Geophysical Union (AGU) Fall Meeting, Washington, D.C., December, 2024.
9. **†Nain, G.,** Pringle, W., **Xue, P.**, Kotamarthi, V., and Wang, J. Implication on Modeled Storm Surge with Different Parametric Wind Forcing for Different Storm Characteristics. In American Geophysical Union (AGU) Fall Meeting, Washington, D.C., December, 2024.

10. Wang, J., **Xue, P.**, Huang, C., Kayastha, M., Peco, K., Pringle, W., Yang, Z., Qian, Y., and Hetland, R. Evaluation of a Convection-Permitted, 3D Hydrodynamic Lake Process-Enabled Regional Climate Dataset over the Great Lakes Region. In American Geophysical Union (AGU) Fall Meeting, Washington, D.C., December, 2024.

11. Hetland, R., Painter, S., Qian, Y., Coon, E., Hadjimichael, A., Wang, J., **Xue, P.**, and Huang, C. Regional Earth System Modeling in the Great Lakes Region. In American Geophysical Union (AGU) Fall Meeting, Washington, D.C., December, 2024.

12. ‡**Nain, G**., **Xue, P.,** Pringle, W.J. and Kotamarthi, V.R., 2024, June. A data based method with dynamic steering flow to represent track uncertainty. In *24th Conference on Atmospheric & Oceanic Fluid Dynamics & 22nd Conference on Middle Atmosphere*. AMS.

13. ‡**Nain, G**., Pringle, W.J., Wang, J. and **Xue, P.,** 2024, May. Parametric and Machine Learning Approach for describing Hurricane Offshore Winds over the US Northeast Outer Continental Shelf. In *36th Conference on Hurricanes and Tropical Meteorology*. AMS.

14. **Xue, P.** Enhancing Winter Climate Simulations of the Great. In 7th LAKES Workshop – Parameterization of Lakes in Numerical Weather Prediction and Climate Modelling, Milan, Italy, November 20-22, 2024.

15. Zhao, C., **Xue, P.** Improved Thermal Structure and Lake-Surface Temperature Simulation for Lake Superior Using a Data Assimilative Model. In 7th LAKES Workshop – Parameterization of Lakes in Numerical Weather Prediction and Climate Modelling, Milan, Italy, November 20-22, 2024.

16. **Xue, P**.; Schelly, C.; Dyreson, A.; Oommen, T.; Apriesnig, J.; Watkins, D.; Wang, J.; Kotamarthi, R.; Wall, T.; Pressley, R.; Lanese, E.; Thomas, J.; Kayastha, M.; Zhao, C.(2024): Enhancing Rural Resilience in the Great Lakes: The C-CHARM Initiative. In 67th Annual Conference on Great Lakes Research (IAGLR), May 20-24, **2024**, in Windsor, Ontario.

17. ♣**Zhao, C**.; **Xue, P.;** Titze, D.; Huang, C.; Kayastha, M.(2024). Improved thermal structure and lake surface temperature simulation for Lake Superior using a data assimilative model, In 67th Annual Conference on Great Lakes Research (IAGLR), May 20-24, **2024**, in Windsor, Ontario.

18. †**Kayastha, M.,** Xue, P., Huang, C., Wang, J., Yang, Z., Pringle, W., Chakraborty, T., Qian, Y., and Hetland, R.(2024): How Could Lake-Effect Snow Storms Evolve in a Warming Future Climate?, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-4436, https://doi.org/10.5194/egusphere-egu24-4436, 2024.

19. †**Zhou, X.,** **Xue, P.,** Rowe, M., Alsip, P., Bunnell, D., Höök, T., Gardner, S., Rutherford, E., and Collingsworth, P.(2024): Impacts of Climate Change on Phytoplankton Dynamics in Lake Michigan: A Biophysical Modeling Study. In ASLO 2024 Meeting 2–7 June 2024 · Madison, Wisconsin, USA

20. Chakraborty, T. C., Wang, J., Qian, Y., Pringle, W. J., Yang, Z., & **Xue, P.** (2024, January). Isolating impacts of Urbanization and Lake Michigan on Chicago's Climate and Heat Stress Disparities. In *104th AMS Annual Meeting*. AMS.

21. Wang, J., Tan, H., Moustakes, T., O'Brien, J.R., Kotamarthi, R., Yang, Z., Chakraborty, T.C., **Xue, P.** and Qian, Y., (2024, January). Contrasting effects of lake breeze and urbanization on different types of precipitation in Chicago metropolitan area. In *104th AMS Annual Meeting*. AMS.

22. †**Kayastha, M., Xue, P.,** Huang, C., Wang, J., Yang, Z., Pringle, W., Chakraborty, TC., Qian, Y. and Hetland, R. (2023) The Future of Lake-Effect Snow Storm: Warmer Lakes, More Precipitation American Geophysical Union (AGU) Fall Meeting, San Francisco , CA, December 11-15, 2023

23. †**Nain, G.,** Pringle, W., Wang, J., **Xue, P.** and Jung C. (2023) Physically consistent synthetic tracks and wind field modeling for Tropical cyclone, American Geophysical Union (AGU) Fall Meeting, San Francisco , CA, December 11-15, 2023

24. Yang, Z., Wang, J., Qian, Y., Chakraborty, TC, **Xue P.,** Pringle, W., Huang, C., Kayastha, M., and Huang, H. (2023) Future precipitation characteristic change and mechanisms over the Great Lakes Region through the Pseudo-global warming approach. American Geophysical Union (AGU) Fall Meeting, San Francisco , CA, December 11-15, 2023

25. Pringle, W., Huang, C.,Kayastha, M., **Xue, P.**, Wang, J., Sargsyan, K., Yang, Z., Chakraborty,TC. and Qian, Y. (2023) Small-Ensemble Parametric Uncertainty Quantification of Great Lakes Regional Climate Model: Full Spatiotemporal Analysis, American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, December 11-15, 2023

26. Chakraborty, TC., Wang, J., Yang, Z., Qian, Y., Pringle, W. and **Xue, P.**, Dynamically downscaled future climate projections over the Great Lakes Region to examine population-level extreme heat exposure, American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, December 11-15, 2023

27. Jung, C., Huang, C., Wang, J., **Xue, P.,** Pringle, W., and Kotamarthi, R. (2023) Influence of SST and ocean waves on the structure and intensity of Hurricane Henri (2021) simulation: A coupled modeling study, American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, December 11-15, 2023.

28. **Xue, P.,** Jung, C., Huang, C., Pringle, W., Wang, J., Zhu, L. (2023), Impacts of Wave-Induced Surface Roughness and Upper Ocean Mixing on Tropical Cyclone in Atmosphere-Wave-Ocean Coupled Models. Symposium: Tropical and Extra-tropical Cyclone Impacts on Future Offshore Wind Energy 2023, Chicago, IL, June 1-2, 2023.

29. †**Zhou,** X., **Xue, P.**, Rowe, M., Alsip, P., Bunnell, D., Höök, T., Rutherford, E., Collingsworth, P., Gardner, S., †Holey, A. (2023), Climate Change's Impact on Phytoplankton Abundance in Lake Michigan: A Biophysical Modeling Study. International Association for Great Lakes Research (IAGLR) 2023, Toronto, Canada, May 8-12, 2023.

30. ♣**Zhu, L., Xue, P.**, Meadows, G., Wu, C., Troy, C. (2023), Trends and variations of coastal erosion in Lake Michigan. International Association for Great Lakes Research (IAGLR) 2023, Toronto, Canada, May 8-12, 2023.

31. †**Hoely A.,** †**Mallic**, S., **Xue, P.**, (2023), Joint Probability Analysis of Extreme Precipitation and Water Level for Chicago, Illinois.. International Association for Great Lakes Research (IAGLR) 2023, Toronto, Canada, May 8-12, 2023.

32. †**Huang, C.,** †**Kayastha**, M., **Xue, P.**, Wang, J., Yang, Z., Pringle, W., Chakraborty, TC., Qian, Y., Hetland, R.(2023), Lake-Atmosphere Feedbacks Intensify the Summer Warming of the Great Lakes. International Association for Great Lakes Research (IAGLR) 2023, Toronto, Canada, May 8-12, 2023.

33. ‡**Henderson, H., Xue, P.** Miller, R., (2023), The glider flies while data drives: Assimilation and deep learning with high-resolution AUV data. International Association for Great Lakes Research (IAGLR) 2023, Toronto, Canada, May 8-12, 2023.

34. Gardner, S., Rowe, M., **Xue, P.**, Zhou, X., Alsip, P., Bunnell, D., Rutherford, E., Collingsworth, P., Höök, T. (2023), The phenology of larval fish transport in Lake Michigan, USA. International Association for Great Lakes Research (IAGLR) 2023, Toronto, Canada, May 8-12, 2023.

35. Chakraborty, T.C., Wang, J., Qian, Y., Pringle, W., Yang, Z., **Xue, P.** (2022) Impacts of Urbanization and Lake Michigan on Chicago's Heat Stress and its Disparities. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

36. †**Kayastha, M., Xue, P.**, Huang, C., Wang, J., Yang, Z., Pringle, W., Chakraborty, T.C., Qian, Y. (2022) Amplified Warming of the Great Lakes due to Lake-Atmosphere Feedback Processes. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

37. Pringle, W., Huang, C., **Xue, P.**, Wang, J., Sargsyan, K., Yang, Z., Qian, Y., Chakraborty, T.C. (2022) Surrogate-assisted Bayesian Uncertainty Quantification of a Great Lakes Coupled Regional Climate Model. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

38. ♣**Zhu, L., Xue, P.**, †Kayastha, M., Meadows, G. (2022) Nearshore Sediment Transport Influenced by a Coastal Structure in Storm Events. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

39. Jiang, P., Yang, Z., Wang, J., Huang, C., **Xue, P.**, Chakraborty, T.C., Chen, X., Qian, Y. (2022) Zero-Shot Super-Resolution of Regional-Scale Surface Heat Simulation Using Fourier Neural Operator. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

40. Wang, J., Yang, Z., Puleikis, K., **Xue, P.**, Chakraborty, T.C., Li, J., Pringle, W., Qian, Y. (2022) Summer climate change over Great Lakes Region in late 21st century. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

41. Yang, Z., Qian, Y., **Xue, P.**, Wang, J., Pringle, W., Chakraborty, T.C., Li, J., Chen, X. (2022) Quantify moisture sources of the Great Lakes Precipitation. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

42. †**Kayastha, M., Xue, P.**, Ye, X., Huang, C. (2022) Projected Water Level Rise of the Great Lakes under Climate Change. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

43. †**Zhou, X., Xue, P.**, Rowe, M., Alsip, P., Bunnell, D., Höök, T., Rutherford, E., Collingsworth, P., Gardner, S. (2022) Impact of mixing regime shift on phytoplankton, and invasive mussel in Lake Michigan under a warming climate: a biophysical modeling study. American Geophysical Union (AGU) Fall Meeting, Chicago, IL, December 12-16, 2022

44. **Xue, P. (Keynote)** (2022) Towards a Better Predictive Understanding of the Great Lakes System. 12th International Workshop of Modeling the Ocean (IWMO2022), Ann Arbor, MI, June 28-July 1, 2022.

45. ♣**Zhu, L., Xue, P.,** Huang, C., & Meadows, G. A. (2022). Accelerated Coastal Erosion in Southern Lake Michigan under Wave Climate Change. In 12th International Workshop on Modeling the Ocean (IWMO2022). Ann Arbor, Michigan, June 28 to July 1, 2022

46. †**Hakim, A., Xue, P.,** Chu, P., & Ye, X. (2022). Implementation of Local Ensemble Transform Kalman Filter (LETKF) to Improve Hydrodynamic Modeling for Lake Erie Surface Temperature Short-term Forecast. **Third Place of the Outstanding Young Scientist Award** in 12th International Workshop on Modeling the Ocean (IWMO2022). Ann Arbor, Michigan, June 28 to July 1, 2022

47. ♣**Zhu, L., Xue, P**., Huang, C., & Meadows, G. A. (2022). Coastal Erosion along Lake Michigan under Climate Change. In Joint Aquatic Sciences Meeting 2022 (JASM2022). Grand Rapids, Michigan, May 14-20, 2022.

48. †**Hakim, A., Xue, P.,** Chu, P., & Ye, X. (2022). Using Ensemble-based Data Assimilation to Improve Hydrodynamic Modeling for Lake Erie Surface Temperature Short-term Forecast. In Joint Aquatic Sciences Meeting 2022 (JASM2022). Grand Rapids, Michigan, May 14-20, 2022.

49. †**Zhou, X., Xue, P**., Chaffin, J. D., Bratton, J. F & Verhamme, E. M. (2022). Incorporation of Microcystin Production Improves Lake Erie Cyanobacterial Bloom Toxin Forecasts. In Joint Aquatic Sciences Meeting 2022 (JASM2022). Grand Rapids, Michigan, May 14-20, 2022

50. **Xue, P**., Ye, X., Pal J., Chu, P., Kayastha, M. (2022) Changing Climate Over the Great Lakes Region: Projections Using Two-way Coupling of a Regional Climate Model With a 3-d Lake Model. Ocean Sciences Meeting (OSM2022, Virtual), February 24 - March 4, 2022

51. †**Kayastha, M., Xue, P**., Ye, X. (2022) Predicting the impacts of climate change on the Great Lakes water levels using a two-way coupled 3D regional climate modeling system. Ocean Sciences Meeting (OSM2022, Virtual), February 24 - March 4, 2022

52. ♣**Zhu, L., Xue, P**., Huang, C., Ma, G., & Meadows, G. A. (2022). Wave Climate and Water Level Changes in Lake Michigan. *In Ocean Sciences Meeting 2022 (OSM2022).* Online, Feb 27, 2022 – Mar 4, 2022.

53. **Xue, P**., (2022) Lake-Atmosphere-Land Coupling: Towards a Better Predictive Understanding of the Great Lakes Hydroclimate, Great Lakes Adaptive Management-Hydroclimate Priority Setting Workshop (Virtual), February 16, 2022

54. Wang, J., **Xue, P.,** Pringle, W.J., Yang, Z., Qian, Y. (2022) Lake Surface Temperature Impacts on Regional Climate over Great Lakes Basin. 102nd American Meteorological Society (AMS) Annual Meeting, Houston, Texas, January 23-27, 2022.

55. **Xue, P.**, C. Huang, M. Notaro, Y. Zhong, C. Peters-Lidard, C. Cruz, E. Kemp, D. Kristovich, M. Kulie, J. Wang, S. Vavrus (2021). Importance of Coupling the 3D Lake Model to the Regional Climate Model in Simulating the Great Lakes System. AGU fall meeting, New Orleans, Louisiana, December 13-17, 2021

56. Wang, J., **Xue, P.,** Pringle, W.J., Yang, Z., Qian, Y. (2021) Impacts of Lake Surface Temperature on Atmosphere Over the Great Lakes Region. AGU fall meeting, New Orleans, Louisiana, December 13-17, 2021

57. ♣**Zhu, L., Xue, P.,** Huang, C., & Meadows, G. A. (2021). Sediment Transport in Lake Michigan under a Changing Wave Climate. *In 26th Biennial CERF Conference (CERF2021)*. Online, 1–4 and 8–11 November 2021.

58. †**Huang, C., Xue, P**., Anderson, E., Liu, Y., Ma, G., & Mann, G. (2021). Evaluating essential processes and forecast requirements for meteotsunami-induced coastal flooding. *In 26th Biennial CERF Conference (CERF2021)*. Online, 1–4 and 8–11 November 2021

59. †**Zhou, X., Xue, P**., Rowe, M. D., & Liu, Q. (2021). Inter-comparison of Three HAB Transport Models in Short-term Forecasting of Lake Erie CHABs Event. *In 26th Biennial CERF Conference (CERF2021)*. Online, 1–4 and 8–11 November 2021.

60. **Xue, P.**, Huang, C., Anderson, E., Liu, Y., Mann, G. (2021) Enhancing Great Lakes coastal flooding forecasting for meteorologically-induced tsunamis. 30th International Tsunami Symposium, Sendai, Japan, July 1-3, 2021

61. **Xue, P.** (2021) Connecting Observations and Modeling: Part 1: Integrated Regional Earth System Model (IRESM), Northeastern Association of Marine & Great Lakes Laboratories Summer Meeting (Virtual), July 26, 2021

62. Kraucunas, I., Bailey, V., Hetland, R., Bridgeman, T., **Xue, P.** (2021) New U.S. DOE project on coastal observations, mechanisms, and predictions across systems and scales. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

63. Notaro, M., Zhong, Y., **Xue, P.**, Peters-Lidard, C., Cruz, C., Kemp, E., Kristovich, D., Kulie, M., Wang, J., Huang, C., Vavrus, S., Briley, L. (2021) Performance of the NU-WRF Regional Climate Model in the Great Lakes Region. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

64. **Xue, P.**, Huang, C., Notaro, M., Zhong, Y., Peters-Lidard, C., Cruz, C., Kemp, E., Kristovich, D., Kulie, M., Wang, J., Vavrus, S., Wang, J., Qian, Y., Yang, Z. (2021) Assessment of the two-way coupling of FVCOM and NU-WRF in the Great Lakes Region. International Association for Great Lakes Research (IAGLR), Houghton, MI, May 17-21, 2021

65. †**Kayastha, M.**, **Xue, P.**, Huang, C., Ye, X., Meadows, G., Miller, Z., Hunter, T., Fry, L., Chu, P. (2021) Projections of Great Lakes' water level based on a 3D regional climate modeling system. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

66. Chaffin, J., Bratton, J., Verhamme, E., Bridgeman, T., Davis, T., Westrick, J., Dick, G., **Xue, P.**, McKay, R., Binding, C., Zastepa, A. (2021) The HABs Grab: A binational characterization of the Lake Erie cyanobacterial blooms. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

67. Wang, J., **Xue, P.**, Yang, Z., Qian, Y. (2021) Impacts of Great Lakes on warm season precipitation using high resolution simulations. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

68. †**Huang, C., Xue, P.**, Anderson, E., Liu, Y., Mann, G. (2021) Modeling the coastal flooding: a study case in Ludington, Michigan. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

69. †**Wagh, A., Xue, P.**, Wang, Y., Huang, C., Yang, Y. (2021) Using Long short-term memory networks to improve hydrodynamic modeling. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

70. Yang, Z., Qian, Y., Wang, J., **Xue, P.**, Pringle, W. (2021) Convection Systems and Summer Storms over the Great Lakes Region. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

71. †**Ye, X., Xue, P.**, Chu, P., Anderson, E., Mason, L. (2021) Improved lake surface temperature analysis in Lake Michigan through data assimilation. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

72. Lenters, J., Lenard, C., **Xue, P.**, Meadows, G., Huang, C. (2021) Waves and circulation on Lake Superior during an intense autumn gale: The Halloween storm of 2020. International Association for Great Lakes Research, Houghton, MI, May 17-21, 2021

73. ♣**Shi, Q** and **Xue. P.** (2019) Impact of Lake Surface Temperature Variations on Lake Effect Snow over the Great Lakes Region. American Geophysical Union (AGU) fall meeting, San Francisco, CA December 9-13, 2019

74. **Xue, P**, Chu, P., Ye, X. Huang, C., Pal, J. (2019) Two-way Atmosphere-Lake-Ice Coupled Regional Climate Simulation over the Great Lakes Region Lakes2019 workshop, October 22-24, 2019 Toulouse, France

75. **Xue, P**., Ye, X., Huang, C. (2019) Climate projections over the Great Lakes region using the GLARM. International Association for Great Lakes Research, Brockport, New York, June 10-14, 2019

76. †**Huang, C. Xue, P.** (2019) Three-way Coupled Modeling System for Storm Wave: A Case Study in Lake Superior. International Association for Great Lakes Research, Brockport, New York, June 10-14, 2019

77. **Xue, P**., Ye, X., P. Chu, E. Anderson, Huang, C., G. Lang (2019) Using data assimilation to improve thermal structure prediction in Lake Erie. International Association for Great Lakes Research, Brockport, New York, June 10-14, 2019

78. Chaffin J., J. Bratton, T. Bridgeman, T. Davis, K. Meyer, E. Verhamme, J. Westrick**, P. Xue** (2019). Forecasting Microcystin Concentrations in Western Lake Erie. International Association for Great Lakes Research, Brockport, New York, June 10-14, 2019

79. **Xue, P**., Ye, X., Huang, C. (2019). Impact of Climate Change on Thermal Variability and Ecosystem Vulnerability of the Great Lakes, ASLO aquatic sciences meeting, Puerto Rico February 23- March 2, 2019

80. †**Ye, X.** and **Xue, P**. (2018). Projected Changes in Future Climate Over the Great Lakes Region Using a Regional Climate Modeling Coupled with a 3-D Lake Model, AGU Fall Meeting, Washington D.C. December 10-14, 2018

81. **Xue, P.**, D. J. Schwab, R. W. Sawtell, M. J. Sayers, R. A. Shuchman, G. L. Fahnenstiel (2018), "Spatiotemporal Interpolation of Satellite Images for Chlorophyll Measurement Using a Particle Model", State of Lake Superior Conference, International Association for Great Lakes Research. Houghton, MI, October 9-12, 2018.

82. **Xue, P.**, Ye, X., Zhou, X., Huang, C., (2018), "A Hybrid Lagrangian-Eulerian Particle Model for Ecosystem Simulation in Sandusky Bay," Estuarine and Coastal Modeling, Seattle, Washington, June 25-28, 2018

83. †**Ye, X., Xue, P.**, Anderson, E. J., Chu, P. Y., Huang, C., (2018), "Modeling the Impact of Water Mixing and Ice on Deep, Inland Lake Warming," International Association for Great Lakes Research, Toronto, Canada. June 18-22, 2018

84. †**Kibler, R**., **Xue, P.**, Huang, C., Zhou, X., (2018), "Using a Property-carrying Particle Model for Ecosystem Simulation: A Case Study of Sandusky Bay," International Association for Great Lakes Research, Toronto, Canada. June 18-22, 2018

85. Kuczynski, A., Auer, M. T., **Xue, P.**, (2018), "Phosphorus Provenance and Cladophora in the Northern Lake Ontario Nearshore," International Association for Great Lakes Research, Toronto, Canada. June 18-22, 2018

86. Rucinski, D., Verhamme, E., **Xue, P.**, Redder, T., (2018), "Hydrodynamic Modeling to Assess Effectiveness of Shoreline Restoration in Sandusky Bay," International Association for Great Lakes Research, Toronto, Canada. June 18-22, 2018

87. Auer, M. T., McDonald, C. P., Rowe, M., Kuczynski, A., **Xue, P.**, Bakshi, A., *Huang, C., (2018), "Modeling the Efficacy of Phosphorus Treatment Options for the Control of Cladophora in Lake Ontario," International Association for Great Lakes Research, Toronto, Canada. June 18-22, 2018

88. **Xue, P.**, Huang, C., Kuczynski, A., Auer, M. T., (2018), "Hydrodynamics and Its Impact on Water Quality Management in the Northern Nearshore of Lake Ontario," International Association for Great Lakes Research, Toronto, Canada. June 18-22, 2018

89. †**Ye, X., P. Xue**, J.S. Pal, J.D. Lenters, and P. Y. Chu, (2017) Coupling a Regional Climate Model with a 3-D Hydrodynamic Model over the Great Lakes. International Association for Great Lakes Research, Detroit, MI. May 15-19,2017

90. †**Huang, C.,** A. Kuczynski, **P. Xue**, and M. T. Auer, (2017) Hydrodynamics, Point Source Discharges and Water Quality in the Lake Ontario Nearshore. International Association for Great Lakes Research (IAGLR), Detroit, MI. May 15-19, 2017

91. **Xue, P.**, P. Y. Chu, X. Ye, and G.A. Lang, (2017) Improve Lake Erie Thermal Structure Predictions using Data Assimilative Hydrodynamic Model. International Association for Great Lakes Research (IAGLR), Detroit, MI. May 15-19, 2017

92. **Xue, P.**, A. Kuczynski, C. Huang, M. Auer **(**2017) "Hydrodynamic Modeling of Point Source Discharges and Implications for Nearshore Water Quality in Western Lake Ontario"**,** ASLO Aquatic Sciences Meeting in Honolulu, Hawaii, Feb 26 – Mar 3, 2017

93. Kuczynski, A**,** M. Auer, **P. Xue**, C. Huang, (2017) "Define a Phosphorus Standard for *Cladophora* Management in the Great Lakes, ASLO Aquatic Sciences Meeting in Honolulu, Hawaii, Feb 26 – Mar 3, 2017

94. **Xue, P.,** Ye, X., Huang C., Pal, J., Chu, P. (2016) Towards a local earth system modeling approach: Two-way Atmosphere-Lake-Ice coupling. 23rd IAHR International Symposium on Ice, Ann Arbor, MI, May 31- June 3, 2016

95. Huckins C., A. Marcarelli, K. Juneau, R. Chimner, C. Brooks**, P. Xue**, G. Meadows, E. Hersch-Green, (2016) Multifaceted Monitoring and Assessment Indicates Challenges in The Control of Eurasian Watermilfoil in a Lake Superior Coastal Waterway and Inland Lakes of Michigan, Midwest Fish & Wildlife Conference January 24-27, 2016

96. Blanken, P.**,** C. Spence, J. Lenters, A. Gronewold, B. Kerkez, **P. Xue** and N. Froelich (2015) The Dynamics of Laurentian Great Lakes Surface Energy Budgets. American Geophysical Union (AGU) fall meeting, San Francisco, CA December 12-16, 2015

97. **Xue. P.,** E. Eltahir (2015), Estimation of the Heat and Water Budgets of the Persian (Arabian) Gulf using a two-way, coupled Gulf–atmosphere regional model (GARM), AGU Fall Meeting, December 12-16, 2015.

98. †**Ye, X.,** C. Huang, **P. Xue** (2015) Coupling a Regional Atmospheric Model and a Hydrodynamic Model over the Great Lakes, Coastal and Estuarine Research Federation (CERF) 23rd Biennial Conference, Portland, OR November 8-12, 2015

99. **Xue. P.,** D.J. Schwab, S. Hu, J. Austin (2015) Interaction of atmospheric surface forcing and hydrodynamic modeling of the lake thermal structure, International Association for Great Lakes Research (IAGLR), Burlington, VT. May 25-29, 2015

100. Bernstein, D.N.**,** Austin, J.A., **Xue, P.**, Spence, C., and Blanken, P.D. (2015) Estimation of the Spatial Distribution of Evaporative Flux on Lake Superior. International Association for Great Lakes Research (IAGLR), Burlington, VT. May 25-29, 2015

101. †**Huang C., P. Xue**, J.S. Pal, J.D. Lenters (2015) Estimation of the Surface Heat and Water Budgets of the Great Lakes Using a Regional Climate Model. International Association for Great Lakes Research (IAGLR), Burlington, VT. May 25-29, 2015

102. Urban, N.R., W.C. Kerfoot, J.A. Padilla and **P. Xue** (2014) Towards an Ecological Assessment of Mining Impacts on Nearshore Lake Superior. International Association for Great Lakes Research (IAGLR), Hamilton, Ontario. May 26-30, 2014

103. **Xue, P.,** E. Eltahir (2014). Consistent Estimates of the Water and Heat Budget of the Persian Gulf using a Regional Two-way Coupled Ocean-Atmosphere Model, Ocean Sciences Meeting (OSM), Honolulu, HL, February 23-28, 2014.

104. Juneau, K. J.**,** Huckins, C. J., Marcarelli, A., Chimner, R., Brooks, C. N., **Xue, P.**, & Meadows, G. (2014). Arresting the spread of Eurasian watermilfoil (Myriophyllum spicatum) in the Keweenaw Waterway, Science of the Northwoods Conference. Boulder Junction, WI. October 15-17, 2014.

105. **Xue, P.,** E. Eltahir, P. Malanotte-Rizzoli, J. Wei (2013). A coupled Ocean-atmosphere Model over the Maritime Continent: Analysis of Coupling Frequency and Feedback Mechanisms. The 13th

International Conference on Estuarine and Coastal Modelling (ECM13), San Diego, CA. November 4-6, 2013

106. **Xue, P.**, P. Malanotte-Rizzoli, E. Eltahir, J. Wei (2012). Sensitivity Analysis of Coupling Frequency with a Coupled Ocean-Atmosphere Model Over Maritime Continent. AOGS 9th Annual General Meeting Joint Assembly with AGU, Singapore. August 13-17, 2012

107. **Xue, P.,** C. Chen, R. C. Beardsley, R. Limeburner (2010). OSSEs with Ensemble Kalman Filters in Nantucket Sound, Massachusetts. Ocean Sciences Meeting, Portland, OR. Febrary 22-26, 2012.

108. **Xue, P.**, C. Chen, P. Ding, R. C. Beardsley (2007). A High-Resolution Unstructured Grid Finite-Volume Model of the Changjiang River Estuary: An Application of FVCOM. Estuarine & Coastal Modeling Conference (ECM10), Newport, RI. November 15-17, 2007

B) Selected Poster Presentation

109. †**Nain, G.,** Sobel, A.H., Yang, B., **Xue, P**., Pringle, W.J., Wang, J. and Kotamarthi, V.R., 2025, January. Large Scale Control of Seasons with Extreme Tropical Cyclone Activity in the North Atlantic. In *105th AMS Annual Meeting*. AMS.

110. **Xue** et al. (2024), The DOE Climate Resilience Center for Enhancing Rural Resilience in the Great Lakes Region: The C-CHARM Initiative. in DOE U-IFL PI Meeting, Rockville, MD October 28-30, 2024

111. Kayastha M, **Xue, P.,** et al. (2024) Impact of future climate conditions on lake-effect snow storm in DOE EESM PI Meeting, North Bethesda, MD August 5-9, 2024

112. †Nain, G., Pringle, W. J., Wang, J., & **Xue, P.** (2024). Parametric and Machine Learning Approach for describing Hurricane Offshore Winds over the US Northeast Outer Continental Shelf. In *36th Conference on Hurricanes and Tropical Meteorology*. AMS.

113. Zhao C., **Xue, P.,** Titze, D., Huang, C.: Enhancing Short-Term Forecast Accuracy of Water Temperature in Lake Superior through Data Assimilation. In ASLO 2024 Meeting 2–7 June 2024 · Madison, Wisconsin, USA

114. **Xue, P**., Zhou, X., Rowe, M., Alsip, P., Bunnell, D., Höök, T., Gardner, S., Rutherford, E., and Collingsworth, P.: Modeling Study of Phytoplankton Responses in Lake Michigan to a Changing Climate, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-14564, https://doi.org/10.5194/egusphere-egu24-14564, 2024.

115. †Nain, G., **Xue, P.,** Pringle, W. J., & Kotamarthi, V. R. (2024). A data based method with dynamic steering flow to represent track uncertainty. In *24th Conference on Atmospheric & Oceanic Fluid Dynamics & 22nd Conference on Middle Atmosphere*. AMS.

116. **Xue, P.,** Kayastha, M., Ye, X., Huang C**.** (2022) Future Rise of the Great Lakes Water Levels under Climate Change", Frontiers in Hydrology Meeting 2022 – AGU, San Juan, Puerto Rico, June 19-24, 2022. (AGU press release)

117. †Zhou, X., **Xue, P**., Auer, M. T. Offshore P-forcing of Cladophora growth in the Lake Michigan nearshore: a 1D modeling approach (2020). International Association for Great Lakes Research (IAGLR), June 9–11, 2020.

118. E. J. Anderson, L. Read, J. Kessler, *C. Huang**, P. Xue**, L. Mason, L. Fry, Y. Hong (2019). Linking Watershed Hydrology and Coastal Hydrodynamic Models for Improved Water Level and Inundation Prediction in the Great Lakes, American Geophysical Union (AGU) fall meeting, San Francisco, CA December 9-13, 2019

119. †Ye, X., **Xue, P.,** P. Y. Chu, E. J. Anderson, *C. Huang, G. Lang (2019). A Step Toward Incorporating Data Assimilative Capability into the NOAA Great Lakes Operational Forecasting System (GLOFS), CIGLR Annual Meeting, Ann Arbor, September 23-24, 2019

120. †Huang C., and **Xue, P**. (2018). Improve the Wave Simulation in the Great Lakes Using a Three-way Coupled Modeling System, AGU Fall Meeting, Washington D.C. December 10-14, 2018

121. Shi, Q and **Xue, P.** (2018), "Surface water temperature and wind divergence variability over the Great Lakes region", State of Lake Superior Conference, International Association for Great Lakes Research. Houghton, MI, October 9-12, 2018.

122. **Xue, P.**, †Ye, X., Pal, J. S., Chu, P. Y. (2018) "Improve Regional Climate Modeling using the Great Lakes–Atmosphere Regional Model (GLARM)," Ocean Sciences Meeting 02-2018, American Geophysical Union, Portland, Oregon. February 12-16, 2018.

123. †Kibler, R.J., **P. Xue**, and X. Ye (2017) Understanding Lake Superior Warming through Observational Data and Model Results. International Association for Great Lakes Research (IAGLR), Detroit, MI. May 15-19, 2017.

124. †Ye, X.**, P. Xue,** J. Pal, J. Lenters and P. Chu (2016) "Lake-Atmosphere Feedbacks in a Coupled Regional Climate Model Over the Great Lakes**,** 20th Conference on Air-Sea Interaction, Madison, WI, August 15-19, 2016. (**Best Student Poster Award**)

125. **Xue, P.**, J.S. Pal, J.D. Lenters. (2016). Coupling a Regional Climate Model with a 3-D Hydrodynamic Model over the Great Lakes. Ocean Sciences Meeting, New Orleans, LA February 11-16, 2016.

126. **Xue, P.,** C. Chen, R. C. Beardsley (2011). A Multi-scale Coupled Physical-Biogeochemical FVCOM System for Massachusetts Bay: Application for Mechanism Studies of Seasonal Variability of Dissolved Oxygen. AGU Fall Meeting, San Francisco, CA. December 5-9, 2011.

ii. Invited Presentations (presenter):

1. **Xue, P.** (2025) "**An Integrated Regional Earth System Modeling Approach**", DHI Water & Environment, Inc. Virtual, July, 31, 2025

2. **Xue, P. (invited talk**), Advancing Great Lakes Modeling: Harnessing 3D Hydrodynamics and Deep Learning for Future Insights into Coupled Lake–Atmosphere Systems. In American Geophysical Union (AGU) Fall Meeting, New Orleans, LA, December, 2025.

3. **Xue, P. (invited talk).** Enhancing Winter Climate Simulations of the Great Lakes: Importance of Integrating 3D Hydrodynamics with a Regional Climate Model. In *105th AMS Annual Meeting*. AMS. January, 2025

4. **Xue, P.** (2025) "Enhancing Hydroclimate Predictive Capabilities of the Great Lakes System with Mechanistical Model and Deep Learning", Cooperative Institute for Great Lakes Research (CIGLR). Virtual, February, 18, 2025

5. **Xue, P.** (2023) "Enhancing Predictive Capabilities of the Great Lakes System: An Integrated Regional Earth System Modeling Approach", Environmental Science Division, Argonne National Lab, Lemont, IL. February, 28, 2023

6. **Xue, P.** (2022) "Toward a Better Predictive Understanding of the Earth's Largest Lake System", Department of Earth, Atmospheric and Planetary Sciences (EAPS), Massachusetts Institute of Technology, Cambridge, MA, May 6, 2022

7. **Xue, P.** (2022) "Climate Change and Coastal Hazards: a Better Predictive Understanding of the Great Lakes System", Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA, February 4, 2022

8. **Xue, P.** (2021) "Learning from Integrated Great Lakes Regional Modeling", University at Buffalo, Buffalo, New York, December 10, 2021

9. **Xue, P.** (2020) "Hydrodynamic Model Development and Collaboration", Cooperative Institute for Great Lakes Research, Ann Arbor, MI. December 14, 2020

10. **Xue, P.** (2019). "Integrated Regional Earth System Modeling for the Great Lakes Region" University of Notre Dame, Notre Dame, IN. November 19, 2019

11. **Xue, P.** (2019). "Two-way Atmosphere-Lake-Ice Coupled Regional Climate Simulation over the Great Lakes Region" Argonne National Lab, Lemont, IL. June 24, 2019

12. Auer, M. T.**, Xue, P.**, Kuzincski, A. (2018),"Managing Nuisance Cladophora Growth in the Great Lakes: Causes and Cures," US EPA, Ann Arbor, MI. March 13, 2018

13. **Xue, P.** (2016). "Improving the Simulation of Great Lakes in Regional Climate Modeling using Two-way Atmosphere-3D Lake Coupling." University Wisconsin-Madison, Madison, WI. February 4, 2016

14. **Xue, P.** (2016). "Simulation of Large Lakes in Regional Climate Modeling," NOAA - Great Lakes Environmental Research Laboratory, Ann Arbor, MI. January 29, 2016

15. **Xue, P.** (2015), EPA-Lake Superior Environmental Monitoring Collaborative meeting, "Hydrodynamic modeling of Lake Superior," Environmental Protection Agency, Houghton, MI. March 19, 2015

16. Meadows, G. A., Huckins, C. J., Marcarelli, A. M., **Xue, P.**, Group presentation to the Michigan Senator: Carl Levin, "USEPA-Great Lakes Restoration Initiative: Arresting the Spread of Eurasian Watermilfoil in Lake Superior," Great Lakes Research Center, Michigan Technological University Houghton, MI.

17. **Xue, P.** (2014), "Local feedback mechanisms of the shallow water regions around the Maritime Continent," Singapore MIT Alliance for Research and Technology Advisory Board Meeting, National University of Singapore, Singapore. July 12, 2014

18. **Xue, P.** (2014), "A Coupled regional ocean/atmosphere model for the Maritime Continent and local feedback mechanism in shallow water," Singapore MIT Alliance for Research and Technology, National University of Singapore, Singapore. July 24, 2014

19. **Xue, P.** (2012) Observing System Simulation Experiments (OSSEs) for Massachusetts Coastal Waters. College of Marine Sciences, Shanghai Ocean University, Shanghai, China. October 10, 2012

20. **Xue, P.** (2012) Ensemble-based Data Assimilation Technique and its Application to Massachusetts Coastal Waters. Department of Atmospheric and Oceanic Sciences, Peking University, Beijing, China. August 11, 2012.

iii. Invited On-campus Seminar (presenter):

21. **Xue, P.,** (2020) “From Severe to Extreme: Modeling Climate Change and Coastal Hazards on the Great Lakes”, Husky Bites Seminar, College of Engineering Nov 30, 2020

22. **Xue, P.,** (2018). "Application of Hydrodynamic Modeling to the Great Lakes," Atmospheric Program, Michigan Technological University, Houghton, MI. June 06, 2018

23. **Xue, P.,** (2018). "Weather the Storm: Improving Great Lakes Modeling," CEE Program Advisory Board, Michigan Technological University, Houghton, MI. April 17, 2018

24. **Xue, P.,** (2018). "Application of Hydrodynamic Modeling to Environmental Engineering," ASCE chapter meeting, Michigan Technological University, Houghton, MI. February 26, 2018

25. **Xue, P.**, (2017). "Weather the Storm: Improving Great Lakes Modeling,", CEE department seminar, Michigan Technological University, Houghton, MI. December 11, 2017

26. **Xue, P.** (2015). “Towards an earth system modeling approach: Coupling a Regional Climate Model with a 3-D Hydrodynamic Model over the Great Lakes”. Michigan Tech Geoseminar, Houghton, MI, November 13, 2015

27. **Xue, P.** (2013), "Does Regional Ocean-Atmosphere Model Coupling matter? Case studies of the Persian Gulf and Southeast Asia, and its implication on Great Lakes study," Great Lakes Research Center, Michigan Technological University, Houghton, MI. October 12, 2013

H. Honors and Awards:

2025 Bhakta Rath Research Award (with PhD advisee Miraj Kayastha), Michigan Technological University, 2025

Research Excellence Fund ($20,000), Michigan Technological University. May 2014

Graduate Fellowship (20,000 RMB) in the Second Institute of Oceanography, State Oceanic Administration, China (2004-2005)

Undergraduate Honors Thesis (3-D Numerical Simulation of Wind-driven Circulation in an Idealized Lake Using the ADI Method), East China Normal University. 2004

University Second-class Scholarship, East China Normal University, 2001-2004

I. Awards to Student Advisee:

Nain, G.: First Place for the Outstanding Student Poster Presentation Award at the 37th Conference on Hurricanes and Tropical Meteorology, hosted by the American Meteorological Society (AMS).

Zhou, X..: Outstanding Scholarship Award, Michigan Technological University (2023)

Hakim, A.: Outstanding Teaching Award, Michigan Technological University (2023)

Hakim A: Third Place of the Outstanding Young Scientist Award of the 12th International Workshop on Modeling, (2022).

Ye, X.: Best Student Poster Award, 20th Conference on Air-Sea Interaction, Madison, WI, 08-2016.

Ye, X.: EPD2 Fellowship ($14,000), Michigan Technological University (2017)

Ye. X.: University Doctoral Finishing Fellowship ($10,000), Michigan Technological University (2018)

Ye. X.: Outstanding Scholarship Award, Michigan Technological University (2018)

Huang C.: CEE Graduate Student Professional Development Grant, Michigan Technological University (2018)

Huang C.: GLRC Student Research Grant, Michigan Technological University (2018)

Kayastha M.: GLRC Student Research Grant, Michigan Technological University (2020)

Zhou X.: GLRC Student Research Grant, Michigan Technological University (2020)

Ryan Kibler: Undergraduate Research Internship Program, Pavlis Honors College, Michigan Technological University (2017)

J. Media Recognition

1. American Geophysical Union (AGU) **press release**: "Great Lakes Levels Are Likely to See Continued Rise in Next Three Decades" June, 22, 2022
2. Interview and news article by Detroit Public TV "Great Lakes water levels could increase on average from 19 to 44 centimeters in the next few decades, study says", June 27, 2022
3. Newspaper featured on the front page: "Great Lakes Study: Levels could increase", *Traverse City Record-Eagle*. June 28, 2022
4. Interview and news article by Detroit Free Press "Great Lakes fish and fisheries suffer stress of warming climate", June 14, 2022
5. *Wisconsin Public Radio* story about higher risks of industry-sourced toxins contaminating Wisconsin's Lake Michigan shoreline. The story featured research by Pengfei Xue (CEGE/GLRC).
6. A story on research by Pengfei Xue (CEGE/GLRC) that predicts baseline water levels in Lakes Superior, Michigan-Huron, and Erie to rise 20 to 50 centimeters by 2050 as a result of climate change was picked up by **Coastal News Today**, **Phys.org**, **Meteorological Technology International**, **Fishing Wire** and **Samachar Central**. , June, 2022
7. *Tech Today* news article: "Predicting Great Lakes Meteotsunamis with Better Modeling". December 2, 2021
8. News article: "Where Modeling Meets Observations: Improving the Great Lakes Operational Forecast System", co-released by MTU, NOAA-GLERL, reported in several science media outlets including *Phys.org, Wateronline.com, Newsbreak.com, and Eurekalert.org* etc. September 2019
9. "Navigating Risk", *Michigan Tech Magazine* 2018, Issue 2,
10. Newspaper featured on the front page: "Lake Climate Projection: MTU researcher developing Great Lakes climate model", *The daily Mining Gazette*. January 5, 2017
11. News article: "Weather the storm: Improving Great Lakes modeling", co-released by MTU, NOAA-GLERL, LMU, broadcasted by local radio WIMK, reported in several science media outlets including *Science Daily, Phys.org, Terra Daily, Supercomputing Online News, and TechCentury* etc. December 2016
12. News article: "Controlling Invasive Aquatic Weeds in Michigan's Waterways Requires Interdisciplinary Approach" *EarthZine* (IEEE online magazine). November 5, 2016

13. News Article: “The weed, the drone, and the tourist: Michigan Tech researchers survey invasive milfoil in the Les Cheneaux Islands”, *TechCentury* V.21| N.2 Summer 2016, page 15 (also available from TechCentury.com-Michigan's Premier Tech Publication)

14. News Article: Interdisciplinary Research 2.0., page 18- 20, *MTU Annual Research Magazine* (2016).

15. News Article: Underwater, Under Ice. page 16-18, *MTU Annual Research Magazine* (2015).

V. TEACHING AND ADVISING ACTIVITY

Dr. Xue has advised 13 graduates (eight funded Ph.D. students and four funded research MS students) and six funded postdoc associates and research scientists. Dr. Xue’s teaching scores are consistently higher than average, ranging from 4.35-4.75, including CEE3620 (Water Resources Engineering), an undergraduate core course (class size: 50-60 students, average teaching evaluation score: 4.35 out of 5); CEE/ATM 5520 (Hydrodynamic Modeling), a graduate course (class size 5-12 students, average teaching score 4.75 out of 5); ATM 5680 (Intro to Geophysical Fluid Dynamics), a graduate course (class size: 3~7, average teaching score 4.6 out of 5).

A. Interests and Specialties:

Geophysical Fluid Dynamics, Limnology and Oceanography, Water Resources

B. Courses Taught

i. Undergraduate

CEE 3620 (Core Course required for the Water Resources Program): Water Resources Engineering (Fall 2016, Fall 2017, Fall 2022). Course buyout in Fall 2018-2020, 2022, 2023, 2024, 2025

ii. Graduate

1. ATM/PH 5680 (offered every other year): Introduction to Geophysical Fluid Dynamics (Fall 2015, Fall 2017)
2. CEE 5520: Hydrodynamic Modeling (Fall 2014, Spring 2016, Spring 2017, Spring 2018, Spring 2019, Spring 2023, 2024, 2025, 2026)

C. Graduate Students Advisement

i. Advised as Principal Advisor:

1. Xinyu Ye(Ph.D.) graduated in May 2019, dissertation defense on October 15, 2018

   Current Position: Research Assistant Professor, Department of Civil, Environmental, and Geospatial Engineering, Michigan Technological University
2. Chenfu Huang(Ph.D.) graduated in September 2021, dissertation defense on July 26, 2021

   Current Position: Assistant Research Scientist, Great Lakes Research Center, Michigan Technological University
3. Xing Zhou (Ph.D.) Sept 2017- May 2023; defended in January 2023

   Current Position: Postdoctoral Associate, Department of Civil and Environmental Engineering, Georgia Tech
4. Miraj Kayastha (Ph.D.) May 2021-May 2025; dissertation defense on March, 2025

Current Position: Postdoc at MIT.

5. Hayden Henderson (Ph.D. student) January 2024-present; expected date of completion: July 2027
6. Geeta Nain (Ph.D. student) September 2024 -present, expected date of completion: July 2027
7. Ganesh Rawat (Ph.D. student) September 2025 -present, expected date of completion: July 2029
8. Alex Stinnett (Ph.D. student, co-advised with Prof. Havens) September 2026 -present, expected date of completion: July 2029
9. Connor Phelps (Research MS) September 2026-present
10. Saumik Mallik (Research MS) September 2022-May 2024
11. Anna Li Holey (Research MS), September 2021- May 2023, defended in March 2023
12. Miraj Kayasth (Research MS) graduated in May 2021, thesis defense on Apr 5, 2021
13. Jiaqi Chen (MS) –graduated in 2017 (Coursework-only student)

ii. Member of thesis committees

1. Hamed Dare Ibrahim, Ph.D. (2018): (CEE@MIT [*Massachusetts Institute of Technology*])
2. Anika Kuczynski, Ph.D (2017): (CEGE@MTU)
3. Ting Bao, Ph.D. (2018): (CEGE@MTU)
4. Mohammad Alizadeh Fard, Ph.D (2018): (CEGE@MTU)
5. Saeed Sohrabi, Ph.D student: CEGE@MTU
6. Victor Humanes Fuente, Ph.D student (CFRES@MTU)
7. Ankita Bakshi, MS (2018): CEGE@MTU)
8. Nathan Zgnilec, MS (2015): (CEGE@MTU)
9. Megan MacNeill, MS (2015): (CEGE@MTU)
10. Michael Foster, MS (2019): (CEGE@MTU)
11. Kevin Mcgee, MS (2020): (CEE@LMU [*Loyola Marymount University])*
12. Aditya Wagh, MS (2020): (MEEM@MTU)
13. Mahta Naziri Saeed (2020) (CEGE@MTU)

D. Postdoc/Research Scientist Supervision:

i. Chuyan Zhao, Postdoc Associate, June 2023- Present

ii. Yi Chen, Postdoc visiting scholar, February 2023- Present

iii. Longhuan Zhu, Postdoc Associate, January 2020-August 2023

iv. Chenfu Huang, Postdoc Associate, August 2021- October 2022

Assistant Research Scientist, Great Lakes Research Center, Michigan Technological University

v. Qi Shi, Postdoc Associate, May 2018-March 2020.

Scientist/federal contractor with Lynker at the NOAA's National Water Center, Alabama.

E. Undergraduate Supervision:

vi. Eva Mullen, Undergraduate Research Assistant, 2021- 2023

vii. Ryan Kibler, Undergraduate Research Assistant, 2014-2018.

viii. Lily Kraft, Undergraduate Research Assistant, 2019.

VI. UNIVERSITY SERVICE

Dr. Xue has served on various campus committees at the departmental, college, and university levels, including:

Chair, CEGE Department Chair Search Committee, Dept. of CEGE., 2025-2026.

Member, Tenure, Promotion, and Reappointment (TPR) Committee, Department of CEGE, 2023-present

Member, Surface Water Quality Faculty Search Committee, Dept. of CEGE., 2024-2025.

Member, Michigan Tech Early Career Management (ECM) Committee, 2022-2023; 2025-2026

Member, Michigan Tech HPC Research Computing Committee. 2015-present

Member, Great Lakes Research Scientist Search Committee, Great Lakes Research Center., 2019-2020.

Member, Surface Water Quality Faculty Search Committee, Dept. of Civil & Environ. Eng., 2016-2017.

Member, Non-Departmental Atmospheric Sciences Program Committee. 2014-Present

Member, Awards Committee, CEGE, 2018-2019

Member, Budget and Space Committee, Dept. of Civil & Environ. Eng., 2017-2019.

Member, Graduate and Research Committee, Dept. of Civil & Environ. Eng., 2015-2017.

Member, Instructional & Research Software and Computing Committee. 2016-2017

Member, Computer Utilization Committee 2013-2014.

Faculty and graduate application review committee, non-departmental Atmospheric Sciences Program 2013-present

Judge, Undergraduate Research Symposium 2018

Judge, Undergraduate Research Internship Program, Pavlis Honors College 2020

VII. PROFESSIONAL SERVICE

Dr. Xue is a U.S. regular member of the International Association for Great Lakes Research (IAGLR) board of directors. He also (co-) chaired or served on the organizing committees for four national conferences, as an associate editor for an international journal, and as a guest editor for two other journals to organize special issues. He has also chaired sessions at various national conferences. In addition, he has participated on review panels for the NOAA, DOE, and Sea Grant programs and has reviewed articles for over 20 journals.

A. Membership in Professional Associations

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- Association for the Sciences of Limnology and Oceanography (ASLO)
- The Oceanography Society (TOS)
- American Society for Engineering Education (ASEE)
- International Association for Great Lakes Research (IAGLR, lifetime membership)

- International Association for Hydro-Environment Engineering and Research (IAHR)
- Asia Oceania Geosciences Society (AOGS)

B. Offices Held and Editorial Position

Board of Director: U.S. regular member of the International Association for Great Lakes Research (IAGLR) board of directors.

Associate Editor: Frontiers in Marine Science: Coastal Ocean Processes (2014-present)

Guest Editor: Journal of Great Lakes Research. Special Issue "Great Lakes Coastal Processeses" (2023-2024)

Guest Editor: Fluids. Special Issue "Boundary Layer Processes in Geophysical/Environmental Flows" (2021-2022)

Conference Co-Chair: 16th Estuarine and Coastal Modeling (ECM) Conference (2021,2023)

Conference Organizing Committee: 15th, 16th Estuarine and Coastal Modeling (ECM) Conference (2018, 2023)

Conference Scientific Program Committee: 26th Coastal & Estuarine Research Federation (CERF) Biennial Conference (2021)

Conference Program Committee: 64th International Association for Great Lakes Research (IAGLR) Annual Conference (2021)

Conference Planning Committee: State of Lake Superior Conference, International Association for Great Lakes Research (IAGLR) (2018)

Conference Session Chair: Coastal & Estuarine Research Federation (CERF) biannual conference (2015, 2021, 2023, 2025), International Association for Great Lakes Research (IAGLR) annual conference (2015, 2017, 2018, 2019, 2021, 2023), 12th International Workshop for Modeling the Ocean (IWMO2022); Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting (2025)

C. Evaluation of Grant Proposals:

National Oceanic and Atmospheric Administration

Department of Energy

National Science Foundation

NIH-NSF

Sea Grants