

Curriculum Vitae

Pengfei Xue

Dept. of Civil & Environmental Engineering
& Great Lakes Research Center,
Michigan Technological University

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EDUCATION

Ph.D. in Physical Oceanography, 2012

University of Massachusetts (IMS)

B.Sc. in Applied Mathematics, 2004

East China Normal University

RESEARCH INTERESTS

- Estuary and coastal ocean processes
- Hydrodynamic Modeling
- Coupled physical-biological modeling
- Bio-physical processes in the Great Lakes
- Coupled Regional climate-hydrodynamic modeling
- Ocean data assimilation

ACADEMIC EMPLOYMENT

2013 – Present: Tenure-Track Assistant Professor, Michigan Technological University

2012 – 2013: Postdoctoral Associate, Massachusetts Institute of Technology

2006 – 2012: Research Assistant, University of Massachusetts (School for Marine Science & Technology)

2005 – 2006: Visiting Scholar, University of Massachusetts (School for Marine Science & Technology)

2004 – 2005: Research Assistant, State Key Laboratory of Estuarine and Coastal Research, China

PROFESSIONAL SERVICE

Associate Editor: *Frontiers (Nature Publishing Group)* in Marine Science: Coastal Ocean Processes (2014-present)

Panel member: Sea Grant

Article reviewer 1) Environmental Modelling & Software, 2) Science of the Total Environment, 3) Journal of Geophysical Research-Oceans, 4) PLOS ONE, 5) Journal Of Hydrology 6) Journal of Advances in Modeling Earth Systems 7) Earth System Dynamics, 8) Journal of Marine Systems, 9) Journal of Great Lake Research, 10) Estuarine, Coastal and Shelf Science, 11) Journal of Applied Meteorology and Climatology, 12) Journal of Atmospheric and Oceanic Technology, 13) Ocean Dynamics, 14) Stochastic Environmental Research and Risk Assessment, 15) Applied Ocean Research, 16) Meteorology and Atmospheric Physics, 17) Journal of Coastal Research, 18) Science China-Earth Sciences.

PROFESSIONAL SOCIETIES

American Geophysical Union (AGU)

American Meteorological Society (AMS)

Association for the Sciences of Limnology and Oceanography (ASLO)

The Oceanography Society (TOS)

International Association for Great Lakes Research (IAGLR)

International Association for Hydro-Environment Engineering and Research (IAHR)

Asia Oceania Geosciences Society (AOGS)

PEER-REVIEWED JOURNAL PUBLICATIONS

1. **Xue, P.**, D. J. Schwab, R. W. Sawtell, M. J. Sayers, R. A. Shuchman, G. L. Fahnenstiel (2016), A Particle-tracking Technique for Spatial and Temporal Interpolation of Satellite Images Applied to Lake Superior Chlorophyll Measurements, *Journal of Great Lakes Research* (in revision)
2. **Xue, P.**, J. S. Pal, X. Ye, J. D. Lenters, C. Huang, P. Y. Chu (2016), 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, *Journal of Climate*, DOI: 10.1175/JCLI-D-16-0225.1
3. **Xue, P.**, D. J. Schwab, and S. Hu (2015), An investigation of the thermal response to meteorological forcing in a hydrodynamic model of Lake Superior, *J. Geophys. Res. Oceans*, 120, 5233–5253, doi:10.1002/2015JC010740.
4. **Xue, P.** and E. A. B. Eltahir (2015), Estimation of the Heat and Water Budgets of the Persian Gulf Using A Regional Climate Model, *J. Climate.*, doi: <http://dx.doi.org/10.1175/JCLI-D-14-00189.1>
5. Z. Wang, H. Song, DW. Watkins, KG. Ong, **P. Xue**, Q. Yang, X. Shi (2015), Cyber-physical systems for water sustainability: challenges and opportunities, *Communications Magazine, IEEE* 53 (5), 216-222, doi: 10.1109/MCOM.2015.7105668
6. **Xue, P.**, E. Eltahir, P. Malanotte-Rizzoli and J. Wei (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
7. **Xue, P.**, C. Chen, J. Qi, R. C. Beardsley, R. Tian, L. Zhao, and H. Lin (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
8. Li, Y., X. Chen, C. Chen, J. Ge, R. Ji, R. Tian, **P. Xue** , and L. Xu (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
9. Wei, J., P. Malanotte-Rizzoli, E. Eltahir, **P. Xue**, D. Zhang (2013). Coupling of a regional atmospheric model (RegCM3) and a regional oceanic model (FVCOM) over the Maritime Continent, *Clim. Dyn.*, doi:10.1007/s00382-013-1986-3.
10. **Xue, P.**, C. Chen, R.C. Beardsley, (2012). Observing System Simulation Experiments (OSSEs) of dissolved oxygen monitoring in Massachusetts Bay, *J. Geophys. Res.*, 117, C05014, doi:10.1029/2011JC007843.
11. Chen C, R. Limeburner, G. Gao, Q. Xu, J. Qi, **P. Xue**, Z. Lai, H. Lin and members of the WHOI Field Measurement Group, R. Beardsley, B. Owens & B. Carlson. 2012, FVCOM model estimate of the location of Air France 447 Topical Collection on Advances in Search and Rescue at Sea, *Ocean Dyn., Online First*TM.
12. **Xue, P.**, C. Chen, R. C. Beardsley , R. Limeburner, (2011). Observing System Simulation Experiments (OSSEs) with Ensemble Kalman Filters in Nantucket Sound, Massachusetts, *J. Geophys. Res.*, .doi: 10.1029/2010JC006428

13. **Xue, P.**, C. Chen, P. Ding, R.C. Beardsley, H. Lin, J. Ge, and Y. Kong, (2009). Saltwater intrusion into the Changjiang River: A model-guided mechanism study. *J. Geophys. Res.*, 114, C02006, doi:10.1029/2008JC004831.
14. Chen C., P. Malanotte-Rizzoli, J. Wei, R. C. Beardsley, Z. Lai, **P. Xue**, S. Lyu, Q. Xu, J. Qi, and G. W. Cowles, (2009). Application and comparison of Kalman filters for coastal ocean problems: An experiment with FVCOM, *J. Geophys. Res.*, 114, C05011, doi:10.1029/2007JC004548.
15. Chen, C. **P. Xue**, P. Ding, R. C. Beardsley, Q. Xu, X. Mao, G. Gao, J. Qi, C. Li, H. Lin, G. Cowles and M. Shi, (2008). Physical mechanisms for the offshore detachment of the Chanjiang diluted water in the East China Sea, *J. Geophys. Res.*, 113, C02002, doi: 10.1029/2006JC003994.

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.

TECHNICAL REPORT

1. 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.
2. Chen, C., Beardsley, R. C., Cowles, G. W., Qi, J., Lai, Z., Gao, G., **Xue, P.**, . . . Ge, J. (2012). An unstructured-grid, finite-volume community ocean model: FVCOM user manual, Sea Grant College Program, Massachusetts Institute of Technology.
3. Chen, C., Beardsley, R. C., Xu, Q., Mickelson, M., Tian, R., **Xue, P.**, . . . Rothschild, B. J. (2009). The massachusetts bay hydrodynamic model: 2006-2007 simulation.

PUBLISHED ABSTRACTS

1. P.D. Blanken, C. Spence, J. Lenters, B. Kerkez, A. Gronewold, **P. Xue**, N. Froelich (2015) The Dynamics of Laurentian Great Lakes Surface Energy Budgets, 2015 AGU Fall Meeting.
2. **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 Abstracts.
3. **Xue, P.**, C. Chen, J. Qi, R. Beardsley, R. Tian, and L. Zhao (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 Abstracts, 1, 1775.

SELECTED RECENT PRESENTATION (*student advisees)

1. *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" (**best student poster presentation**), 20th Conference on Air-Sea Interaction, Madison, WI, 08-2016

2. **Xue, P.** (2016) Towards a local earth system modeling approach: Two-way Atmosphere-Lake-Ice coupling. 23rd IAHR International Symposium on Ice, Ann Arbor, MI, 06-2016
3. **Xue, P.** (2016) Improving the Simulation of Great Lakes in Regional Climate Modeling using Two-way Atmosphere-3D Lake Coupling (invited seminar). University Wisconsin-Madison, Madison, WI 02-2016
4. **Xue, P.** (2016) Simulation of Large Lakes in Regional Climate Modeling (invited seminar). NOAA-GLERL, Ann Arbor, MI, 01-2016
5. **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
6. 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 01-2016
7. 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 12-2015
8. **Xue, P.** (2015) Towards an earth system modeling approach: Coupling a Regional Climate Model with a 3-D Hydrodynamic Model over the Great Lakes (invited seminar). Michigan Tech Geoseminar, Houghton, MI, 11-2015
9. *Ye, X., C. Huang, **Xue, P.** (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 11-2015 (**Session chair**)
10. **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 05-2015
11. 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 05-2015 (**Session co-convener**)
12. *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 05-2015
13. JUNEAU, K.J., HUCKINS, C.J., MARCARELLI, A.M., CHIMNER, R., BROOKS, C.N., **XUE, P.** and MEADOWS, G. (2015). Ecological Response to Eurasian Watermilfoil Management in a Lake Superior Coastal Waterway. International Association for Great Lakes Research (IAGLR), Burlington, VT 05-2015
14. **Xue, P.** (2015) Hydrodynamic modeling of Lake Superior, EPA-Lake Superior Environmental Monitoring Collaborative meeting (invited-only), Houghton, Michigan, 03-2015
15. **Xue, P.** (2014) A Coupled regional ocean/atmosphere model for the Maritime Continent and local feedback mechanism in shallow water, (invited seminar), Singapore-MIT alliance for research and technology, National University of Singapore, Singapore, 07-2014.
16. 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 05-2014

17. **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, HI
18. **Xue, P.** (2013) Does Regional Ocean-Atmosphere Model Coupling matter? Case studies of Persian Gulf and Southeast Asia, and its implication on Great Lakes study. (invited seminar) Great Lakes Research Center, Houghton, Michigan, 12-2013.
19. **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.
20. **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.
21. **Xue, P.** (2012) Ensemble-based Data Assimilation Technique and its Application to Massachusetts Coastal Waters. (Invited seminar). Department of Atmospheric and Oceanic Sciences, Peking University, Beijing, China. 08-2012.
22. **Xue, P.** (2012) Observing System Simulation Experiments (OSSEs) for Massachusetts Coastal Waters. College of Marine Sciences, Shanghai Ocean University, Shanghai, China. 10-2012
23. **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
24. **Xue, P.**, C. Chen, R. C. Beardsley, R. Limeburner (2010). OSSEs with Ensemble Kalman Filters in Nantucket Sound, Massachusetts. Ocean Sciences Meeting, Portland, OR
25. **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

COURSE TAUGHT

1. ENVE 5590: Introduction to Hydrodynamic Modeling (Fall 2014)
2. ATM/PH 5680: Atmospheric Fluid Dynamics (Fall 2015)
3. ENVE 5590: Introduction to Hydrodynamic Modeling (Spring 2016)
4. CE3620: Water Resources Engineering (Fall 2016)

STUDENT THESES SUPERVISED AS PRINCIPAL ADVISOR

1. Ye, Xinyu (PhD student) started Fall 2014
2. Huang, Chenfu (PhD student) started Fall 2014

MEMBER OF THE THESIS COMMITTEES

3. PhD student: Hamed Dare Ibrahim (CEE@Massachusetts Institute of Technology) 2013-present
4. PhD student: Anika Kuczynski (CEE@Michigan Tech) 2013-present
5. PhD student: Ting Bao (CEE@Michigan Tech) 2016-present
6. PhD student: Mohammad Alizadeh Fard (CEE@Michigan Tech) 2016-present
7. M.S. student: Nathan Zgnilec (CEE@Michigan Tech) graduated 2016
8. M.S. student: Megan MacNeill (CEE@Michigan Tech) graduated 2015