

Curriculum Vitae – Zhengchen (John) Zang, Ph.D.

Assistant Professor-Research
Center for Computation and Technology
Louisiana State University
2003 Digital Media Center
Baton Rouge, LA, 70803

Email: zzang@lsu.edu
Tel: 225-421-4719

Website: <https://directory.who.edu/profile/zzang>
ResearchGate: https://www.researchgate.net/profile/Zhengchen_Zang

Education

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|-------------------|----------------------------|---|
| ▪ 01/2015-12/2019 | Louisiana State University | Ph.D. Oceanography (advisor: Z. George Xue) |
| ▪ 09/2012-06/2015 | Ocean University of China | M.S. Marine Geology (advisor: Houjie Wang) |
| ▪ 09/2008-06/2012 | Ocean University of China | B.S. Earth information Science and Technology |

Research Experience

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|-------------------|--------------------------------------|---|
| ▪ 01/2023-present | Louisiana State University | Assistant Professor-Research |
| ▪ 01/2023-present | Woods Hole Oceanographic Institution | Guest Investigator |
| ▪ 01/2020-12/2022 | Woods Hole Oceanographic Institution | Postdoc Investigator (Mentor: Rubao Ji) |
| ▪ 01/2015-12/2019 | Louisiana State University | Research Assistant |
| ▪ 09/2012-01/2015 | Ocean University of China | Laboratory Assistant |

Research Interests

Climate Impact on Marine Ecosystem and Deltaic System
Coastal Sediment-Biogeochemical Process Coupling
Coastal Morphodynamics
Sediment Dynamics in Estuaries and Coastal Seas
Benthic-Pelagic Coupling
Phytoplankton Zooplankton Dynamics in Marine Ecosystem
Fishery species biogeography and population dynamics

Skillset

- Regional Ocean Modeling System (ROMS)
- ROMS-related biogeochemical model (Fennel and NEMURO)
- Sediment transport model (CSTMS)
- Simulating Waves Nearshore (SWAN)
- Weather Research and Forecasting Model (WRF)
- ROMS-related oyster larvae Individual-Based Model
- FVCOM-related biogeochemical model (10-component Global Marine Food Web Model)
- Atlantic sea scallop Scope For Growth (SFG) model
- Copepod Individual-Based Model
- Model coupling and nesting

- Artificial Neural Network (Self-Organizing Map)
- Satellite image processing (MODIS; SeaWiFS; Landsat)
- Measurement data processing

Teaching and Mentoring Experience

- 04/2022 Woods Hole Oceanographic Institution Guest lecturer
(MIT-WHOI joint Program; *Biological Oceanography Matlab recitation*. class size: 7)
- 04/2022 Woods Hole Oceanographic Institution Guest lecturer
(MIT-WHOI joint Program; *Biological Oceanography*. class size: 7)
- 05/2021 Woods Hole Oceanographic Institution Guest lecturer
(MIT-WHOI joint Program; *Biological Oceanography Matlab recitation*. class size: 8)
- 04/2021 Woods Hole Oceanographic Institution Guest lecturer
(MIT-WHOI joint Program; *Biological Oceanography*. class size: 8)
- 03/2020 Woods Hole Oceanographic Institution Guest lecturer
(MIT-WHOI joint Program; *Biological Oceanography Matlab recitation*. class size: 10)
- 03/2020 Woods Hole Oceanographic Institution Guest lecturer
(MIT-WHOI joint Program; *Biological Oceanography*. class size: 10)
- 01/2019-12/2019 Louisiana State University Teaching Assistant
(*Introduction to Oceanography*. class size: 43)
- 03/2017 Louisiana State University Guest lecturer
(*Coupled Ocean-Atmosphere Wave and Sediment Transport Modeling*. class size: 7)

Contribution to student mentoring and training

Huizi Dong, Shanghai Jiao Tong University graduate student – Biological model setup and Matlab training
 Isabel Honda, MIT-WHOI joint program graduate student – HPC and Matlab training
 Ciara Willis, MIT-WHOI joint program graduate student – HPC training and particle tracking model setup
 Justin Suca, MIT-WHOI joint program graduate student – fish larva model setup
 Joshua Zahner, University of Miami undergraduate student – particle tracking model setup
 Alexis Hernandez, Humboldt State University undergraduate – large dataset processing

Publications

In Preparation

[19] **Zang, Z.**, Ji, R., Chen, C., Li, S., Davis, C.S. Phenology of energy flow through the marine lower trophic food web on the Northeast U.S. Shelf.

In Revision

[18] **Zang, Z.**, Ji, R., Hart D.R., Chen, C., Li, S., Davis, C.S. Effects of warming and fishing on Atlantic sea

scallop (*Placopecten magellanicus*) size structure in the Mid-Atlantic Bight (submitted to ICES-Journal of Marine Science)

Published

- [17] **Zang, Z.**, Ji, R., Hart D.R., Chen, C., Li, S., Davis, C.S., 2022. Modeling the seasonality of Atlantic sea scallop (*Placopecten magellanicus*) scope for growth in the Northwest Atlantic Shelf. *Fisheries Oceanography*. 31(3), 271–290.
- [16] **Zang, Z.**, Ji, R., Liu, Y., Chen, C., Li, Y., Li, S., Davis, C.S., 2022. Investigation of the interannual variability of spring bloom magnitude in the Gulf of Maine using a self-organizing map. *Limnology and Oceanography Letters*. <https://doi.org/10.1002/lol2.10245>
- [15] **Zang, Z.**, Ji, R., Feng, Z., Chen, C., Li, S., Davis, C.S., 2021. Spatially varying phytoplankton seasonality on the Northeast Atlantic Shelf: A model-based assessment of patterns, drivers and implications. *ICES Journal of Marine Science*. 78, 1920–1934.
- [14] Liu, H., Xu, K., Ou, Y., Bales, R., **Zang, Z.**, Xue, Z.G., 2020. Sediment transport near Ship Shoal for coastal restoration in the Louisiana Shelf: a model estimate of the year 2017–2018. *Water*, 12, 2212.
- [13] Ou, Y., Xue, Z.G., Li C., Xu, K., White, J.R., Bentley, S.J., **Zang, Z.**, 2020. A 3-dimensional numerical study of salinity variations in the Barataria Estuary, Louisiana. *Estuarine, Coastal and Shelf Science*. 245, 107021.
- [12] **Zang, Z.**, Xue, Z.G., Xu, K., Bentley, S.J., Chen, Q., D'Sa, E.J., Zhang, L., Ou, Y., 2020. The Role of Sediment-induced Light Attenuation on Primary Production during hurricane Gustav (2008). *Biogeosciences*, 17(20), 5043–5055.
- [11] **Zang, Z.**, Xue, Z. G., Xu, K., Ozdemir, C. E., Chen, Q., Bentley, S. J., Sahin, C., 2020. A numerical investigation of wave-supported gravity flow during cold fronts over the Atchafalaya shelf. *Journal of Geophysical Research: Oceans*, 125, e2019JC015269
- [10] **Zang, Z.**, Xue, Z.G., Xu, K., Bentley, S.J., Chen, Q., D'Sa, E.J., Ge, Q., 2019. A Two Decadal (1993–2012) Numerical Assessment of Sediment Dynamics in the Northern Gulf of Mexico. *Water*, 11, 938.
- [9] Ding, Y., Yao, Z., Zhou, L., Bao, M., **Zang, Z.**, 2018. Numerical modeling of the seasonal circulation in the coastal ocean of the Northern South China Sea. *Frontiers of Earth Science*. 14(1), 90–109.
- [8] Xue, Z.G., Gochis, D.J., Yu, W., Keim, B.D., Rohli, R. V, **Zang, Z.**, Sampson, K., Dugger, A., Sathiaraj, D., Ge, Q., 2018. Modeling Hydroclimatic Change in Southwest Louisiana Rivers. *Water* 2018, 10, 596.
- [7] **Zang, Z.**, Xue, Z.G., Bao, S., Chen, Q., Walker, N.D., Haag, A.S., Ge, Q., Yao, Z., 2018. Numerical study of sediment dynamics during hurricane Gustav. *Ocean Modeling*. 126, 29–42.
- [6] Kang, M., Fu, P., Kawamura, K., Yang, F., Zhang, H., **Zang, Z.**, Ren, H., Ren, L., Zhao, Y., Sun, Y., 2018. Characterization of biogenic primary and secondary organic aerosols in the marine atmosphere over the East China Sea. *Atmospheric Chemistry & Physics*. 18, 13947–13967.
- [5] Mariotti, G., Huang, H., Xue, Z., Li, B., Justic, D., **Zang, Z.**, 2018. Biased wind measurements in estuarine waters. *Journal of Geophysical Research: Oceans*. 123, 3577–3587.
- [4] **Zang, Z.**, Xue, Z.G., Bi, N., Yao, Z., Wu, X., Ge, Q., Wang, H., 2017. Seasonal and intra-seasonal variations of suspended-sediment distribution in the Yellow Sea. *Continental Shelf Research*. 148, 116–129.
- [3] Ge, Q., Xue, Z., Yao, Z., **Zang, Z.**, Chu, F., 2017. Anti-phase relationship between the East Asian winter monsoon and summer monsoon during the Holocene? *Journal of Ocean University of China* 16, 175–183.
- [2] Xue, Z., He, R., Fennel, K., Cai, W., Lohrenz, S., Huang, W., Tian, H., Ren, W., **Zang, Z.**, 2016. Modeling pCO₂ variability in the Gulf of Mexico. *Biogeosciences* 13, 4359.
- [1] Wu, X., Wang, H., Bi, N., Song, Z., **Zang, Z.**, Kineke, G.C., 2016. Bio-physical changes in the coastal ocean

triggered by typhoon: A case of Typhoon Meari in summer 2011. *Estuarine, Coastal and Shelf Science*. 183, 413–421.

Published Datasets

- [3] **Zang, Z.** 2022. Atlantic sea scallop energy budget data on the Northeast U.S. Shelf, monthly in 2010 and 2012 ver 1. Environmental Data Initiative. <https://doi.org/10.6073/pasta/665ddfc326826df5740eca24194529fe>.
- [2] **Zang, Z.**, 2021. Chlorophyll and phytoplankton composition climatological data on the Northwest Atlantic Shelf from 1978 to 2014: post-processed model data ver 1. Environmental Data Initiative. <https://doi.org/10.6073/pasta/adb6741bb880ec450dc8fc333ce6bdf8>
- [1] **Zang, Z.**, 2021. DINEOF reconstructed MODIS-terra 8-day composite of surface chlorophyll data. Zenodo. <https://doi.org/10.5281/zenodo.5077173>

Funding

- [1] **NOAA National Marine Fisheries Service Atlantic Sea Scallop Research Set-Aside (RSA) Program.** The development of observation and modeling system for assessing scallop growth potential in the Northeast U.S. Shelf (2022-2024). co-PI. (to Zang: \$ 360,000).
- [2] **Louisiana Coastal Protection and Restoration Authority.** Modeling to Inform Sustainable Oyster Populations in Louisiana Estuaries (2023-2025). co-PI. (to Zang: \$ 185,079).

Talk/Meeting/Conference Abstracts

- [21] **Zang, Z.**, “Assess the impact of physical forcings on phytoplankton dynamics and Atlantic Sea Scallop on the Northeast U.S. Shelf”. In the University of Massachusetts-Dartmouth seminar series, 2022 (**invited**; oral presentation).
- [20] **Zang, Z.**, Ji, R., Stanley, R.M., Fontaine, D.N., Rynearson, T.A., Chen, C., “Model assessment of lower trophic energy flow on the northeast U.S. Shelf (NES)”. In LTER All Scientists’ Meeting, 2022.
- [19] **Zang, Z.**, Ji, R., Liu, Y., Chen, C., Li, S., Davis, C.S., “Interannual variability of spring phytoplankton bloom in the Gulf of Maine”. In Workshop “Daily to Decadal Ecological Forecasting along North American Coastlines”. Online, 2022 (oral presentation).
- [18] **Zang, Z.**, Ji, R., Liu, Y., Chen, C., Li, S., Davis, C.S., “Remote silicate supply regulates spring phytoplankton bloom magnitude in the Gulf of Maine”. In Ocean Science Meeting. Online, 2022 (oral presentation).
- [17] **Zang, Z.**, “Phytoplankton responses to physical and sedimentary processes at different time scales: case studies in the northern Gulf of Mexico and the Northeast U.S. Shelf”. In Boston University on-site interview. Online, 2022 (**invited**; oral presentation).
- [16] **Zang, Z.**, Ji, R., Liu, Y., Chen, C., Li, S., Davis, C.S., “Remote silicate supply regulates spring phytoplankton bloom magnitude in the Gulf of Maine”. In RARGOM Annual Science Meeting. Online, 2021 (oral presentation).
- [15] **Zang, Z.**, Ji, R., Liu, Y., Chen, C., Li, S., Davis, C.S., “Remote silicate supply regulates spring phytoplankton bloom magnitude in the Gulf of Maine”. In WHOI Postdoc Symposium. Online, 2021 (oral presentation).
- [14] **Zang, Z.**, Ji, R., Feng, Z., Chen, C., Li, S., Davis, C.S., “Phytoplankton responses to physical forcings at different time scales: case studies in the northern Gulf of Mexico and the Northwest Atlantic Shelf”. In 2021 WHOI Biology Department Bioseminar, Online, 2021 (oral presentation).

- [13] **Zang, Z.**, Ji, R., Feng, Z., Chen, C., Li, S., Davis, C.S., “Investigation of phytoplankton dynamics in the Northwest Atlantic Shelf ecosystem from seasonal to decadal scales using a numerical model and artificial neural network”. In NES-LTER Meeting Student Symposium. Online, 2021 (oral presentation).
- [12] **Zang, Z.**, Xue, Z.G., Xu, K., Bentley, S.J., Chen, Q., D’Sa, E.J., Zhang, L., Ou, Y., “The Role of Sediment-induced Light Attenuation on Primary Production during hurricane Gustav (2008)”. In WHOI Postdoc Symposium. Online, 2020 (oral presentation).
- [11] **Zang, Z.**, Ji, R., Feng, Z., Chen, C., Li, S., Davis, C.S., “Spatially varying phytoplankton seasonality on the Northeast Atlantic Shelf: A model-based assessment of patterns, drivers and implications”. In RARGOM Annual Science Meeting. Online, 2020 (oral presentation).
- [10] Xue, Z.G., **Zang, Z.**, Yin, D., Xu, K., Chen, Q., Gochis, D., Bentley, S.J., “Using Coupled Modeling Suites to Understand Sediment Dynamics in the Land Ocean Interaction Zone”. In Ocean Science Meeting. San Diego, CA 2020.
- [9] Justic, D., Wang, L., Xue, Z.G., **Zang, Z.**, Ko, D.S., Rabalais, N.N., Maiti, K., “Development of Long Range Hypoxia Forecasts for the Northern Gulf of Mexico”. In Ocean Science Meeting. San Diego, CA 2020.
- [8] **Zang, Z.**, Xue, Z.G., Xu, K., Ozdemir, C.E., Chen, Q., Bentley, S.J., Cihan, S. “A numerical investigation of wave-supported gravity flow during cold fronts over the Atchafalaya shelf”. In CSDMS Meeting. Boulder, CO 2019.
- [7] **Zang, Z.**, Xue, Z.G., Xu, K., Ozdemir, C.E., Chen, Q., Bentley, S.J., “A numerical investigation of wave-supported gravity flow during cold fronts over the Atchafalaya shelf”. In LSU DOCS Coffee Talk. Baton Rouge, LA 2018 (oral presentation).
- [6] Xue, Z., Gochis, D., Yu, W., Keim, B., **Zang, Z.** “Assessing Hydroclimatic Change in Southwest Louisiana Rivers using WRF-Hydro”. In AGU Fall Meeting. New Orleans, LA 2017.
- [5] **Zang, Z.**, Xue, Z., Bao, S., Chen, J., Walker, N., Haag, A., Ge, Q., Yao, Z. “A Numerical Study of Sediment Dynamics during Hurricane Gustav”. In AGU Fall Meeting. New Orleans, LA 2017.
- [4] **Zang, Z.**, Xue, Z., Tao, J., Du, J. and Chen, J. “SIMULOCEAN Science Gateway for COAWST”. 2016 COAWST Modeling Workshop. Woods Hole, MA. 2016 (oral presentation).
- [3] **Zang, Z.**, Xue, Z., Wang, H., Bi, N., Wu, X., Zhang, Y. “Dynamics of Large River-Derived Sediments in the Yellow Sea”. in AGU Ocean Sciences. New Orleans, LA. 2016.
- [2] Xue, Z., Gochis, D., Yu, W., **Zang, Z.**, Sampson, K. and Keim, B. “Assessing Climate Change’s Impact on Coastal Rivers using a Coupled Climate-Hydrology Model”. In AGU Annual Meeting. San Francisco, CA. 2016.
- [1] Xue, Z and **Zang, Z.** “Connecting Regional Climate, River, and Ocean using High Resolution Numerical Models”. South Central Climate Center Workshop. Fort Worth, TX. 2015.

Professional Service

Reviewer for Water Research, JGR-Ocean, JGR-Biogeosciences, Progress in Oceanography, Remote Sensing of Environment, Journal of Hydrology, Geophysical Research Letters, Ocean Dynamics, Estuarine, Coastal and Shelf Science, Continental Shelf Research, Water, SN Applied Sciences, and Journal of Ocean University of China

Field Experience

Water and suspended sediment sampling on R/V Dongfanghong II in the Bohai and Yellow Seas, 2013

Suspended sediment sampling and CTD cast in the Yellow River estuary, 2013
Water and sediment core sampling on R/V Dongfanghong II in the Bohai and Yellow Seas, 2014
Water and suspended sediment sampling in the Yellow River estuary, 2014

Honors/Awards

- [6] CSDMS annual meeting 2019, student travel grant, Boulder, Colorado, 2019
- [5] WRF-Hydro Training workshop, student travel grant, Boulder, Colorado, 2016
- [4] Academic scholarship, College of Marine Geosciences, Ocean University of China, 2009/2013
- [3] Scientific creativity scholarship, Ocean University of China, 2011
- [2] Scholarship in Student Research Developing Program, Ocean University of China, 2010
- [1] Sports scholarship, College of Marine Geosciences, Ocean University of China, 2009

Media Coverage

- [2] 04/13/2022, Scallop Balance-Modeling for Management. *Northeast U.S. Shelf-LTER news*. <https://nes-lter.who.edu/scallop-balance-energy-of-where-and-when/>
- [1] 04/09/2022, When it's spring in the Gulf of Maine. *Northeast U.S. Shelf-LTER news*. <https://nes-lter.who.edu/lo-letters-when-its-spring-in-the-gulf-of-maine/>