

Jin Liu
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Academic and Professional Appointments

2024-Present	Research Fellow, University of Melbourne, Australia
2023-2024	Honorary Fellow, University of Melbourne, Australia
2022-2024	Science Officer, Victoria State Government, Australia
2019	Research Assistant, Zhejiang University, China
2016	Intern, First Institute of Oceanography, China
2016	Intern, South China Sea Marine Survey and Technology Center, China

Education

2019-2023	PhD in Physical Oceanography, University of Melbourne, Australia Supervisors: Prof. Ian R. Young, Prof. Alexander V. Babanin and Dr. Alberto Meucci Thesis: Wave Variability of Bass Strait and South-East Australia
2016-2019	MSc in Physical Oceanography, Zhejiang University, China Supervisor: A/ Prof. Yeping Yuan Thesis: Variations of Cross-Shelf Volume Transports and Mesoscale Eddy Effects on Chlorophyll in the Northern South China Sea
2012-2016	BSc in Marine Science (Physical Oceanography), Guangdong Ocean University, China Thesis: Interannual Variability of Sea Surface Temperature and Salinity in the South China Sea

Research Fields

- [1] Coastal Oceanography, Physical Oceanography, Ocean Engineering, Air-Sea Interaction, and Nature-Based Solutions.
- [2] Ocean Waves, Ocean Circulation, Sea Surface Temperature, and Mesoscale Eddies

Peer-Reviewed Publications

- [1] **Liu, J.**, Meucci, A., Li, R., and Young, I. R., Global ocean wave power under the changing climate. In Preparation.
- [2] **Liu, J.**, Pomeroy, A. W. M., Lanham, B. S., & Morris, R. L., 2026. Hydrodynamic modelling of reef and mangrove modules for coastal protection. In Preparation.
- [3] Yuan, R., Kennedy, D., Lawes, J., and **Liu, J.**, An effective morphological approach to assess wave hazards and public safety on microtidal shore platforms. In Preparation.
- [4] **Liu, J.**, Pomeroy, A. W. M., Lanham, B. S., Swearer, S. E., Ghisalberti, M., Lowe, R., Bishop, M. J., Jenkins, C., Cole, V. J., Bodycomb, R. O., Crisanti, S. A., Yuan, R., Li, R., Wang, Z., Li, S., & Morris, R. L., 2026. Wave and slope thresholds for mangrove restoration and nature-based solution design. Environmental Research Letters (accepted).
- [5] Li, R., Babanin, A. V., **Liu, J.**, Wu, K., and Wu, Y., 2026. Long-term trends and climate-mode controls on offshore wind power density off Australia. Applied Ocean Research, 170, 104991. <https://doi.org/10.1016/j.apor.2026.104991>.
- [6] McCarroll, J. R., Kennedy, D. M., **Liu, J.**, Allan, B., Zavadil, E., and Ierodiaconou, D., 2026. A framework to combine beach monitoring data with modular erosion risk modelling to inform operational coastal management. Ocean and Coastal Management, 272, 107972. <https://doi.org/10.1016/j.ocecoaman.2025.107972>.

- [7] Kennedy, D. M., Yuan, R., McCarroll, J., **Liu, J.**, Beetham, E., and Ierodionou, D., 2025. Shoreline dynamics of an urbanised estuarine beach under the influence of changing sediment budgets. *Frontiers in Earth Science*, 13, 1607126. <https://doi.org/10.3389/feart.2025.1607126>.
- [8] Li, R., Wu, K., Liu, Q., **Liu, J.**, Long, S., Sun, J., and Babanin, A. V., 2025. The wave-induced heat transport in the global ocean. *Ocean Modelling*, 102649. <https://doi.org/10.1016/j.ocemod.2025.102649>.
- [9] Li, S., Babanin, A., Liu, Q., **Liu, J.**, Li, R., and Voermans, J., 2025. Effect of ocean surface waves on sea ice using coupled wave-ice-ocean modelling. *Ocean Modelling*, 196, 102540. <https://doi.org/10.1016/j.ocemod.2025.102540>.
- [10] Lorenzo, M., Meucci, A., **Liu, J.**, Syktus, J., Thatcher, M., and Young, I., 2025. From global to regional-scale CMIP6-derived wind wave extremes: A single-GCM HighResMIP and CORDEX downscaling experiment in South-East Australia. *Climate Dynamics*, 63. <https://doi.org/10.1007/s00382-024-07504-8>.
- [11] Tavakoli, S., Singh, M., Hosseinzadeh, S., Hu, Z., Shao, Y., Wang, S., Huang, L., Grammatikopoulos, A., Li, Y., Khojasteh, D., **Liu, J.**, Dolatshah, A., Cheng, H., and Hirdaris, S., 2025. A review of flexible fluid-structure interactions in the ocean: progress, challenges, and future directions. *Ocean Engineering*, 342, 122545. <https://doi.org/10.1016/j.oceaneng.2025.122545>.
- [12] Ghanavati, M., Young, I. R., Kirezci, E., and **Liu, J.**, 2024. The impact of long-term changes in ocean waves and storm surge on coastal shoreline change: A case study of Bass Strait and south-east Australia. *Natural Hazards and Earth System Sciences*, 24(6), 2175–2190. <https://doi.org/10.5194/nhess-24-2175-2024>.
- [13] **Liu, J.**, Li, R., Li, S., Meucci, A., and Young, I. R., 2024. Increasing wave power due to global climate change and intensification of Antarctic Oscillation. *Applied Energy*, 358, 122572. <https://doi.org/10.1016/j.apenergy.2023.122572>.
- [14] McCarroll, J. R., Kennedy, D. M., **Liu, J.**, Allan, B., and Ierodionou, D., 2024. Design and application of coastal erosion indicators using satellite and drone data for a regional monitoring program. *Ocean and Coastal Management*, 253, 107146. <https://doi.org/10.1016/j.ocecoaman.2024.107146>.
- [15] Leach, C., Kennedy, D., Pucino, N., Doumstis, S., Sorrell, K., Allan, B., Carvalho, R., **Liu, J.**, and Ierodionou, D., 2023. Measuring drivers of shoreline and subaerial beach change using limited datasets in a temperate, wave-dominated sandy system: Inverloch, Australia. *Ocean and Coastal Management*, 240, 106641. <https://doi.org/10.1016/j.ocecoaman.2023.106641>.
- [16] Li, R., Wu, K., Zhang, W., Dong, X., Lv, L., Li, S., **Liu, J.**, and Babanin, A. V., 2023. Analysis of the 20-year variability of ocean wave hazards in the Northwest Pacific. *Remote Sensing*, 15(11), 2768. <https://doi.org/10.3390/rs15112768>.
- [17] **Liu, J.**, Meucci, A., and Young, I. R., 2023. Projected 21st century wind-wave climate of Bass Strait and south-east Australia: Comparison of EC-Earth3 and ACCESS-CM2 climate model forcing. *Journal of Geophysical Research: Oceans*, 128(4), e2022JC018996. <https://doi.org/10.1029/2022JC018996>.
- [18] **Liu, J.**, Meucci, A., and Young, I. R., 2023. A comparison of multiple approaches to study the modulation of ocean waves due to climate variability. *Journal of Geophysical Research: Oceans*, 128(9), e2023JC019843. <https://doi.org/10.1029/2023JC019843>.
- [19] **Liu, J.**, Meucci, A., Liu, Q., Babanin, A. V., Ierodionou, D., Xu, X., and Young, I. R., 2023. A high-resolution wave energy assessment of south-east Australia based on a 40-year hindcast. *Renewable Energy*, 215, 118943. <https://doi.org/10.1016/j.renene.2023.118943>.
- [20] Zhang, X., Wu, K., Li, R., Zhang, S., Zhang, R., **Liu, J.**, and Babanin, A. V., 2023. Relationship between large-scale variability of North Pacific waves and El Niño-Southern Oscillation. *Journal of Marine Science and Engineering*, 11(10), 1848. <https://doi.org/10.3390/jmse11101848>.
- [21] **Liu, J.**, Meucci, A., and Young, I. R., 2022. Projected wave climate of Bass Strait and south-east Australia by the end of the twenty-first century. *Climate Dynamics*, 60, 393–407. <https://doi.org/10.1007/s00382-022-06310-4>.
- [22] **Liu, J.**, Meucci, A., Liu, Q., Babanin, A. V., Ierodionou, D., and Young, I. R., 2022. The wave climate of Bass Strait and south-east Australia. *Ocean Modelling*, 172, 101980. <https://doi.org/10.1016/j.ocemod.2022.101980>.

- [23] Wang, Y., **Liu, J. (Co-First Author)**, Liu, H., Lin, P., Yuan, Y., and Chai, F., 2021. Seasonal and interannual variability in the sea surface temperature front in the eastern Pacific Ocean. *Journal of Geophysical Research: Oceans*, 126(2), e2020JC016356. <https://doi.org/10.1029/2020JC016356>.
- [24] **Liu, J.**, Wang, Y., Yuan, Y., and Xu, D., 2020. The response of surface chlorophyll to mesoscale eddies generated in the eastern South China Sea. *Journal of Oceanography*, 76(3), 211–226. <https://doi.org/10.1007/s10872-020-00540-y>.
- [25] He, Z., Lv, Y., Yuan, Y., **Liu, J.**, and Zhao, L., 2019. Front propagation of gravity currents on inclined bottoms in linearly stratified fluids. *Environmental Fluid Mechanics*, 19(1), 279–296. <https://doi.org/10.1007/s10652-018-9610-z>.
- [26] **Liu, J.**, Dai, J., Xu, D., Wang, J., and Yuan, Y., 2018. Seasonal and interannual variability in coastal circulations in the northern South China Sea. *Water*, 10(4), 520. <https://doi.org/10.3390/w10040520>.

Reports

- [1] **Liu, J.** and McCarroll, J.R., 2024. VCMF Data Product. Department of Energy, Environment and Climate Action of Victoria.
- [2] **Liu, J.** and McCarroll, J.R., 2023. Victorian coastline longshore sediment transport modelling. Department of Energy, Environment and Climate Action of Victoria.
- [3] Young, I.R., Meucci, A. and **Liu, J.**, 2022. Climate impacts on ocean waves. *Australian Marine Sciences Association Bulletin*.

Teaching Experience

2023	Victorian Coastal Monitoring Program Sites Data Product
2017	Marine Science Internship
2017	English Scientific Writing

Funding

2022	Engineering and Information Technology Conference Travel Grant
2019	Melbourne Research Scholarship
2019	France Excellence Summer School Scholarship (25 Recipients Globally, Funded by French Embassy in China)
2019	National Natural Science Foundation of China (General Program, Core Member)
2017	Open Fund of Second Institute of Oceanography of China (Core Member)

Research Projects

2024-present	Australian Research Council Linkage Project: Improving the Success of Hybrid Living Shorelines for Coastal Protection.
2019-2024	Victorian Coastal Monitoring Program.
2019-2022	National Natural Science Foundation of China (General Program): Evolution and Transport of Ideal River Plumes under Geostrophic Conditions and Its Stratified Turbulence, Entrainment and Mixing Mechanisms.
2018-2020	Analysis of Physical Environment in the Western Pacific Seamount.
2017-2018	Open Fund of Second Institute of Oceanography of China: Interannual Variations of Shelf Transport in the Northern South China Sea Based on Satellite Altimetry.
2016-2017	Mesoscale Eddies in the Kuroshio region.

Conference Presentations

- [1] **Liu, J.**, Morris, R., Pomeroy, A., and Lanham, B., 2025. Wave modelling in New South Wales, Australia. Australasian Young Coastal Scientists & Engineers Conference (AusYCSEC) 2025, Melbourne, Australia.
- [2] **Liu, J.**, Pomeroy, A., Lanham, B., and Morris, R., 2025. Wave hydrodynamic modelling for mangrove establishment. Australian Marine Sciences Association (AMSA) 2025, Melbourne, Australia.
- [3] **Liu, J.**, Li, R., Li, S., Meucci, A., and Young, I.R., 2024. Increasing wave power due to global climate change and intensification of Antarctic Oscillation. Australasian Young Coastal Scientists & Engineers Conference (AusYCSEC) 2024, Melbourne, Australia.
- [4] **Liu, J.** and Young, I.R., 2024. A high-resolution wave energy assessment of south-east Australia based on a 40-year hindcast. Australian Meteorological and Oceanographic Society (AMOS) 2024, Canberra, Australia.
- [5] Lorenzo, M., Meucci, A., M., **Liu, J.**, Syktus, J., Trenham, C., Hernaman, V., Hoeke, R., Onorato, M., and Young, I. Assessment of different CMIP6 regional wind wave climate downscaling approaches for south-east Australia. Australian Meteorological and Oceanographic Society (AMOS) 2024, Canberra, Australia.
- [6] Meucci, A., Lorenzo, M., **Liu, J.**, Syktus, J., Trenham, C., Hernaman, V., Hoeke, R., Onorato, M., and Young, I. Assessment of different CMIP6 regional wind wave climate downscaling approaches – From a global to a local perspective. European Geosciences Union (EGU) 2024, Vienna, Austria.
- [7] Lorenzo, M., Meucci, A., **Liu, J.**, Young, I.R., and Onorato, M. Evaluation of CMIP6 global high-resolution wind forcing performance for regional wave climate modeling off the coast of south-east Australia. 3rd International Workshop on Waves, Storm Surges, and Coastal Hazards and 17th International Workshop on Wave Hindcasting and Forecasting, Notre Dame, IN, USA.
- [8] **Liu, J.**, Meucci, A., Liu, Q., Babanin, A.V., Ierodionou, D., Xu, X., and Young, I.R., 2023. A high-resolution wave power assessment of south-east Australia. Australasian Young Coastal Scientists & Engineers Conference (AusYCSEC) 2023, Melbourne, Australia.
- [9] McCarroll, J.R., Ierodionou, D., Kennedy, D.M., Allan, B. and **Liu, J.**, 2023. A regional-scale method for coastal erosion hazard assessment addressing local-scale complexity. Joint Coast to Coast and New South Wales Coastal Conference 2023, Newcastle, Australia.
- [10] **Liu, J.**, Young, I.R., and Meucci, A., 2022. The wave climate of south-east Australia and future wave projection by the end of the 21st century. International Conference on Coastal Engineering (ICCE) 2022, Sydney, Australia.
- [11] McCarroll, J.R., Ierodionou, D., Kennedy D.M., Pucino, N., Allan., B., **Liu, J.**, Meucci, A., Young, I.R., Tran, H.Q., Carvalho, R. and Bishop-Taylor, R., 2022. Coastal ‘omni-line’: multi-scale data synthesis, top-down and bottom-up. International Conference on Coastal Engineering (ICCE) 2022, Sydney, Australia.
- [12] **Liu, J.**, Meucci, A., and Young, I.R., 2022. Projected wave climate of Bass Strait and south-east Australia by the end of the twenty-first century. Chinese Association of Professionals and Scholars (CAPS) 2022, Melbourne, Australia.
- [13] **Liu, J.**, Meucci, A., and Young, I.R., 2022. Projected wave climate of Bass Strait and south-east Australia by the end of the twenty-first century. Infrastructure Engineering Postgraduate Conference (IEPC) 2022, Melbourne, Australia.
- [14] **Liu, J.**, Meucci, A., and Young, I.R., 2022. Projected wave climate of Bass Strait and south-east Australia by the end of the twenty-first century. Australasian Young Coastal Scientists & Engineers Conference (AusYCSEC) 2022, Brisbane, Australia.
- [15] **Liu, J.**, Babanin, A.V., and Young, I.R., 2022. The wave climate of Bass Strait and south-east Australia. Infrastructure Engineering Postgraduate Conference (IEPC) 2021, Melbourne, Australia.
- [16] **Liu, J.**, Meucci, A., Liu, Q., Babanin, A.V., Ierodionou, D. and Young, I.R., 2021. The wave climate of Bass Strait and south-east Australia. Wind Waves in the Earth System (WISE) 2021, Bergen, Norway.
- [17] **Liu, J.**, Meucci, A., Liu, Q., Babanin, A. and Young, I.R., 2021. The wave climate of Bass Strait and south-east Australia. Coordinated Ocean Wave Climate Project (COWCLiP) 2021, Online.
- [18] **Liu, J.**, Babanin, A.V., and Young, I.R., 2020. Ocean wave simulations off Victoria. Infrastructure Engineering Postgraduate Conference (IEPC) 2020, Online.

- [19] **Liu, J.**, Yuan, Y., Wang, Y. and Dai J., 2019. The response of chlorophyll to mesoscale eddies in the eastern South China Sea. American Meteorological Society (AMS) 2019, Phoenix, AZ, USA.
- [20] **Liu, J.**, Yuan, Y., Wang, Y. and Dai J., 2018. Eddy effects on chlorophyll concentration in the eastern South China Sea. South China Sea Annual Meeting 2018, Nanjing, China.
- [21] **Liu, J.** and Yuan, Y., 2017. Seasonal and interannual variability in along-shelf and cross-shelf circulation in the northern South China Sea. 10th WESTPAC International Scientific Conference, Qingdao, China.
- [22] **Liu, J.** and Yuan, Y., 2017. Seasonal and interannual variability in along-shelf and cross-shelf circulation in the northern South China Sea. 25th PACON International Conference, Zhoushan, China.

Selected Awards

2019	Excellent Postgraduate Student Award (Top 5%)
2017-2018	National Scholarship (Top 2%, One of the Highest Honors for Graduate Students in China)
2017	Best Student Presentation Award of 1 st International Ocean Youth Camp
2017	Best Presentation Award of 25 th PACON International Conference
2016	Outstanding Graduate Award (Top 5%)
2013-2015	National Encouragement Scholarship (Top 3%)

Skills

Ocean Modeling	WAVEWATCH III, SWAN, XBeach, and Delft3D.
IT	Linux/Unix, High-Performance Computing, MATLAB, Python, NetCDF, Microsoft Office, EndNote, Photoshop, and WordPress.
Data Analysis	Empirical Orthogonal Function, Empirical Mode Decomposition, Extreme Value Analysis, and Wavelet Analysis
Languages	English (Fluent) and Mandarin (Native).

Outreach and Service

Committee	Australasian Young Coastal Scientists and Engineers Conference (AusYCSEC) 2025, Melbourne, Australia
Local Hub Chair	Australasian Young Coastal Scientists and Engineers Conference (AusYCSEC) 2023, Melbourne, Australia
Membership	Association for the Sciences of Limnology and Oceanography, American Meteorological Society, Australian Meteorological and Oceanographic Society, Australian Marine Sciences Association
Editor	Frontiers in Marine Science (Review Editor), Ocean (Young Editorial Board Member)
Reviewer	Continental Shelf Research, Data in Brief, Environmental Research Communications, Environmental Research Letters, International Journal of Climatology, Journal of Coastal Conservation, Journal of Geophysical Research: Oceans, Journal of Ocean Engineering and Marine Energy, Journal of Oceanography, Journal of Operational Oceanography, Journal of Sea Research, npj Climate and Atmospheric Science, Ocean Dynamics, Ocean Engineering, Ocean Modelling, Physica Scripta, Physics and Chemistry of the Earth, Progress in Oceanography, Regional Studies in Marine Science, Renewable Energy, Science Advances, Scientific Data, Thalassas: An International Journal of Marine Sciences.
2026	University of Melbourne Open Day, Melbourne, Australia
2019	2 nd Workshop on Waves, Storm Surges and Coastal Hazards (Incorporating the 16 th International Wave Workshop), Melbourne, Australia.
2019	Université de Versailles Saint-Quentin-en-Yvelines (UVSQ) Summer School (France Excellence Summer Schools), Paris and Provence, France.
2018	Australia-China Centre for Maritime Engineering (ACCME) 3 rd Workshop on Ocean Surface Waves

	and Wave-Coupled Processes, Hangzhou, China.
2018	Summer Camp, Southern University of Science and Technology, Shenzhen, China.
2018	2 nd International Workshop on Regional Oceanic Numerical Modeling and Observation, Nanjing, China.
2018	Summer Workshop, Chinese University of Hong Kong, Hong Kong, China.
2018	Ocean Dynamics and Mutiscale Variability Training Course, Hangzhou, China.
2017-2018	Undergraduate Mentor, Zhejiang University
2017	Ocean Turbulence Workshop, Qingdao, China.
2017	1 st International Ocean Youth Camp, Hangzhou and Zhoushan, China.
2014-2015	Vice President, Youth League and Student Union, College of Ocean and Meteorology, Guangdong Ocean University

Surveys

2025	Mangrove measurements in New South Wales, Australia
2022-2023	Bathymetric surveys in Port Phillip Bay, Australia
2016	Research Cruise in the Northern South China Sea, China