

Dr. Zhou Liang

Postdoctoral Fellow

Biosphere Sciences and Engineering – Global Ecology
Carnegie Science

1200 E. California Boulevard
Pasadena, CA, 91125

Personal website: <https://zliangocean.com>

Email: zliang@carnegiescience.edu

Cell: 850-300-8280

Education

2020 – 2024	Ph.D. in chemical oceanography at Florida State University, Tallahassee, FL. Advisor: Dr. Angela Knapp
2018 – 2020	M.S. in chemical oceanography at Florida State University, Tallahassee, FL. Advisor: Dr. Angela Knapp
2014 – 2018	B.S. in chemistry w/ marine concentration at Ocean University of China, Qingdao, China

Professional Experience

2024 - current	Postdoctoral Fellow. Biosphere Sciences and Engineering – Global Ecology, Carnegie Science. Supervisor: Dr. Emily Zakem
2022 – 2023	Graduate Teaching Assistant. Dept. of Earth, Ocean, and Atmospheric Science, Florida State University, Tallahassee, FL.

2018 - 2024

Graduate Research Assistant. Dept. of Earth, Ocean, and Atmospheric Science, Florida State University, Tallahassee, FL, Dr. Angela Knapp lab collaborated with Dr. Robert Letscher at University of New Hampshire.

Project: Dissolved organic phosphorus controls on marine nitrogen fixation and export production. Funding: NSF-OCE 1829916 and 1829916

2017 - 2018

Undergraduate Research Assistant. Ocean University of China, Qingdao, China. Dr. Yu Xin lab
Project: Solid phase extraction of marine dissolved organic nitrogen

2017 summer

Laboratory Technician. Ocean University of China, Qingdao, China. Dr. Guilin Zhang lab
Project: Measuring methane concentrations in the ocean and Huanghe River

Research Interests

Chemical Oceanography; climate change; nutrient cycle; dissolved organic matter; biogeochemical modeling; nitrogen; phosphorus; ocean productivity

Publications

* Denotes corresponding authors

2025

Liang, Z.*, Marconi, D., D.M. Sigman, and Knapp, A. N., Production and consumption of dissolved organic nitrogen (DON) across the South Pacific: an isotopic perspective from a zonal transect.
(in preparation)

- 2025** Zhong, Y.* , Li, Z., Shi, X., Isson, T., Yu, J., Kender, S., **Liang, Z.**, Swann, G. E. A., Pullen, A., Weber, M. E., Du, J., Larrasoaña, J. C., Zhang, J., Song, Y., González, F. J., Kaboth-Bahr, S., Li, H., Zhang, Q., Zhao, D., Cao, W., Zhao, M., & Liu, Q. (2025). Enhanced phosphorus weathering contributed to Late Miocene cooling. *Nature Communications*, 16(1). <https://doi.org/10.1038/s41467-025-56477-7>
- 2024** **Liang, Z.***, Letscher, R.T., and Knapp, A. N. Oligotrophic Ocean New Production Supported by Lateral Transport of Dissolved Organic Nutrients, *Global Biogeochemical Cycles*. <https://doi.org/10.22541/essoar.172745152.22046530/v1> **(preprint, under review)**
- 2024** Inomura, K.* , Nishimura, Y., Armin, G., Letscher, R.T., **Liang, Z.**, Pasquier, B., Lønborg, C., Deutsch, C., and Yoshizawa, S. Quantitative analysis of light harvesting by rhodopsin containing ocean prokaryotes. *Nature Communications*. **(under review)**
- 2023** **Liang, Z.***, Letscher, R.T., and Knapp, A. N., Global patterns of surface ocean dissolved organic matter stoichiometry. *Global Biogeochemical Cycles*, 37, e2023GB007788. <https://doi.org/10.1029/2023GB007788> **7 citations**
- 2022** **Liang, Z.***, McCabe, K., Fawcett, S.E., Forrer, H.J., Jeandel, C., Marconi, D., Planquette, H., Saito, M.A., Sohm, J.A., Thomas, R.K., Letscher, R.T., and Knapp, A. N., A global ocean dissolved organic phosphorus (DOP) concentration database (DOPv2021), *Scientific Data*, 9, 722, <https://doi.org/10.1038/s41597-022-01873-7> **17 citations**
- 2022** **Liang, Z.***, Letscher, R.T., and Knapp, A. N., Dissolved organic phosphorus concentrations in the surface ocean controlled by both phosphate and iron stress; *Nature Geosciences*, 15(8), 651-657, <https://doi.org/10.1038/s41561-022-00988-1> **29 citations**
- 2022** Letscher, R.T.* , Wang, W.-L., **Liang, Z.**, and Knapp, A.N., Regionally variable contribution of dissolved organic phosphorus to marine annual net community production, *Global Biogeochemical Cycles*, 36, e2022GB007354. <https://doi.org/10.1029/2022GB007354> **10 citations**

- 2021** Yan, Z., Yang, N., **Liang, Z.**, Yan, M., Zhong, X., Zhang, Y., Xu, W. and Xin, Y.*, Active dissolved organic nitrogen cycling hidden in large river and environmental implications. Science of The Total Environment, 795, 148882. <https://doi.org/10.1016/j.scitotenv.2021.148882>
17 citations
- 2020** **Liang, Z.**, Pan, Y., Zhu, S., Luo, C., Tan., L.* , Spatiotemporal distribution and influencing factors of total suspended particles in the Yangtze River Estuary adjacent sea area[J].Journal of Xiamen University(Natural Science),59(S1):50-55.<https://doi.org/10.6043/j.issn.0438-0479.202007117>(in Chinese)
1 citation
- 2020** **Liang, Z.**, Pan, Y., Zhang, J., Dong, H., Tan., L.* , Data analysis of marine variables in the Yangtze River Estuary adjacent sea area in summer of 2016[J].Journal of Xiamen University(Natural Science),59(S1):69-74.<https://doi.org/10.6043/j.issn.0438-0479.202007115> (in Chinese)
- 2020** Pan, Y., **Liang, Z.**, Wang, H., Wan, L., Tan, L., Ge, T.* , The distribution and influence factors of COD in the Yangtze River Estuary adjacent sea area[J].Journal of Xiamen University(Natural Science),59(S1):63-68.<https://doi.org/10.6043/j.issn.0438-0479.202007116> (in Chinese)

Data Product

* Denotes corresponding authors

-
- 2022** Knapp, A. N., Letscher, R. T., **Liang, Z.***, DOP concentration observations from the global ocean between 1990 and 2021 (DOP N2 fixation and export production project). Biological and Chemical Oceanography Data Management Office (BCO-DMO). <https://doi.org/10.26008/1912/bco-dmo.855139.4>

Field Work

-
- 2019** Cruise in the Gulf of Mexico, studying carbon, nitrogen, and iron cycling. 4 days, Vessel: R/V Weatherbird
- 2018** Cruise in the Jiaozhou Bay and Yellow Sea, 14 days, Vessel: R/V dongfanghong 2

2016

Cruise in Changjiang Estuary and coast investigation in zhoushan islands, Vessel: R/V Zhehaik 1

Conferences and Presentations

2025

The 7th Xiamen Symposium on Marine Environmental Sciences, Xiamen, China. **(oral presentation)**
Topic: "Oligotrophic Ocean New Production Supported by Lateral Transport of Dissolved Organic Nutrients"

2024

Dissertations Symposium in Chemical Oceanography (DISCO), Lihue, HI, United States. **(oral presentation)**
Topic: "New Metrics of Surface Ocean Dissolved Organic Nutrient Cycling: Global Patterns of Production and Consumption"

2024

2024 Ocean Sciences Meeting, New Orleans, LA, United States. **(oral presentation)**
Topic: "Evaluating the Southern Ocean source of organic nutrients to the subtropical South Pacific"

2023

Chemical Oceanography Gordon Research Conference (GRC), Southern New Hampshire University, NH, United States. **(poster)**
Topic: "Dissolved organic phosphorus production and consumption in the global surface ocean"

2023

Chemical Oceanography Gordon Research Seminar (GRS), Southern New Hampshire University, NH, United States. **(invited talk)**
Topic: "Dissolved organic phosphorus concentrations in the surface ocean controlled by both phosphate and iron stress"

2023

Luncheon Seminar, Xiamen University, Xiamen, China. **(invited talk)**
Topic: "Thinking as a data scientist --- What controls dissolved organic phosphorus distribution in the global surface ocean?"

2023	The Sixth Xiamen Symposium on Marine Environmental Sciences. (virtual talk) Topic: “Comparative surface ocean DOC:DON:DOP stoichiometry between the Atlantic and Pacific Oceans”
2022	2022 Ocean Sciences Meeting. (virtual talk) Topic: “Dissolved organic nitrogen concentration and d15N distribution along a zonal transect in the South Pacific”
2021	2021 ASLO meeting. (virtual talk) Topic: “Phosphate and iron control global surface ocean dissolved organic phosphorus concentrations.”
2020	2020 Ocean Sciences Meeting, San Deigo, CA, United States. (poster) Topic: “Dissolved organic phosphorus (DOP) distributions in the eastern Indian Ocean and subtropical South Pacific Ocean”
2019	Tutorial-based Ocean Circulation Inverse Model (OCIM) workshop, Woods Hole, MA, United States. (participant)

Teaching Experiences

2023 Fall	Teaching assistant, Florida State University. Assisted in “Environmental Science Capstone”, including preparing water analysis kits for field work, leading field trips and grading assignments.
2023 Spring	Invited instructor for two lectures of the course “Geochemical Ocean Tracers” at Florida State University
2023 Spring	Teaching assistant, Florida State University. Assisted in “Introduction to Environmental Science”

2022 Fall

Teaching assistant, Florida State University. Assisted in
“Introduction to Environmental Science”

Professional Memberships

American Geophysical Union (AGU), American Society for Limnology and Oceanography (ASLO)

Manuscript Referee

Marine Chemistry, Earth System Science Data, Marine Pollution Bulletin, Science of the Total Environment, Journal of Environmental Management, Biogeoscience, npj Climate and Atmospheric Science

Programming skills

Matlab, Python, R, Julia

Honors and Awards

2016-2017 Scholarship Award for Excellence in Academic Work, Ocean University of China
2015-2016 Scholarship Award for Excellent Students, Ocean University of China
2015-2016 Scholarship Award for Excellence in Academic Work, Ocean University of China
2014-2015 Scholarship Award for Excellence in Academic Work, Ocean University of China