Chen Zhao

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RESEARCH INTERESTS

- **Elucidating the carbon cycling in estuarine systems and its impact on climate change**
- **Developing new data science toolboxes to address molecular geochemistry issues**

EDUCATION

Ph. D. Candidate, Marine Environmental Science, Hong Kong University of Science and Technology, Hong Kong, China 2022-present

M.S., Geochemistry, Zhejiang University, Hangzhou, China 2022

B.S., Geology, China University of Geosciences, Wuhan, China 2019

EXPERIENCE/VISITING

Helmholtz Centre for Environmental Research, Leipzig, Germany 2024

Southern University of Science and Technology, Shenzhen, China 2024

Moscow State University, Moscow, Russia 2019

Washington University in St. Louis, St. Louis, MO, USA 2018

The University of Sydney, Sydney, Australia 2017

PUBLICATIONS

(14) **Zhao, C.,** Tian, Z., Zhang, Q., Wang, Y., Zhang, P., Sun, G., Yang, Y., He, D., Tu, S., Wang, J. (2024). Unraveling the distribution of black carbon in Chinese forest soils using machine learning approaches. *Geophysical Research Letters,* 51, e2024GL110618. **(Nature Index, JCR Q1, IF = 4.6)**

(13) **Zhao, C.,** Wang, K., Jiao, Q., Xu, X., Yi, Y., Li, P., Merder, J., He, D. (2024). Machine learning models for evaluating biological reactivity within molecular fingerprints of dissolved organic matter over time. *Geophysical Research Letters,* 51, e2024GL108794. **(Nature Index, JCR Q1, IF = 4.6)**

(12) **Zhao, C.,** Hou, Y., Wang, Y., Li, P., He, C., Shi, Q., Yi, Y., He, D. (2023). Unraveling the photochemical reactivity of dissolved organic matter in the Yangtze River Estuary: Integrating incubations with field observations. *Water Research,* 245*,* 120638. **(Nature Index, JCR Q1, IF = 11.5)**

(11) **Zhao, C.,** Xu, X., Chen, H., Wang, F., Li, P., He, C., Shi, Q., Yi, Y., Li, X., Li, S., He, D. (2023). Exploring the complexities of dissolved organic matter photochemistry from the molecular level by using machine learning approaches. *Environmental Science & Technology*, 57(46), 17889-17899. **(Nature Index, JCR Q1, IF = 10.9)**

(10) **Zhao, C.,** Zhou, Y., Wang, Y., Huang, W., He, C., Shi, Q., He, D. (2023). Seasonal variations

in dissolved organic matter chemistry in a eutrophic, semi-enclosed bay in Southeastern China: Implications for carbon cycling. *Journal of Hydrology,* 622, 129679. **(JCR Q1, IF = 5.9)**

(9) **Zhao, C.,** Zhang, H., Li, P., Yi, Y., Zhou, Y., Wang, Y., He, C., Shi, Q., He, D. (2023). Dissolved organic matter cycling revealed from the molecular level in three coastal bays in China. *Science of the total Environment,* 904, 166843. **(JCR Q1, IF = 8.6)**

(8) **Zhao, C.**, Zhou, Y., Pang, Y., Zhang, Y., Huang, W., Wang Y., He, D. (2021). The optical and molecular signatures of DOM under the eutrophication status in Xiangshan Bay. *China. Science China: Earth Sciences,* 64 (7), 1090-1104. **(JCR Q1, IF = 6.0)**

(7) **Zhao, C.**, Lodders, K., Bloom, H., Chen, H., Tian, Z., Koefoed, P., Pető, M. K., Wang, K. (2020) Potassium isotopic compositions of enstatite meteorites. *Meteoritics & Planetary Science*, 53, 1-14. **(JCR Q2, IF = 2.2)**

(6) Zhang, Z. X., **Zhao, C.,** Chen, Z. L., Zhang, Z., Yi, Y., Li, P., He, D. (2024). Optical signatures as a diagnostic tool for tracking dynamics of sedimentary dissolved organic nitrogen, phosphorus, and sulfur in an anthropogenic bay. *Chemical Geology*, 672, 122508. **(JCR Q1, IF = 3.6)**

(5) Liang, W., Chen, X., **Zhao, C.,** Li, L., He, D. (2023). Seasonal changes of dissolved organic matter chemistry and its linkage with greenhouse gas emissions in saltmarsh surface water and porewater interactions. *Water Research*, 245, 120582. **(Nature Index, JCQ Q1, IF = 11.5)**

(4) Zhou, Y., **Zhao, C.,** He, C., Li, P., Wang, Y., Pang, Y., Shi, Q., He, D., (2022). Characterization of dissolved organic matter processing between surface sediment porewater and overlying bottom water in the Yangtze River Estuary. *Water Research,* 215, 118260. **(Nature Index, JCQ Q1, IF = 11.5)**

(3) Li, P., **Zhao, C.**, Liu, K., Xiao, X., Wang, Y., Wang, Y., He, D. (2021). Anthropogenic influences on dissolved organic matter in three coastal bays, North China. *Frontiers in Earth Science*, 9, 697758. **(JCR Q2, IF = 2.0)**

(2) Zhou, Y., He, D., He, C., Li, P., Fan, D., Wang, A., Zhang, K., **Zhao, C.,** Chen, B., Wang, Y., Shi, Q., Sun, Y. (2020). Spatial changes in molecular composition of dissolved organic matter in the Yangtze River Estuary: implications for estuarine carbon cycling. *Science of the Total Environment*, 759, 143531. **(JCR Q1, IF = 8.6)**

(1) Bloom, H., Lodders, K., Chen, H., **Zhao C.**, Tian Z., Koefoed P., Pető, M. K., Jiang, Y, Fegley B. Jr., Wang, K. (2020) Potassium isotope compositions of carbonaceous and ordinary chondrites: implications on the origin of volatile depletion in the early solar system. *Geochimica et Cosmochimica Acta*, 277, 111-131. **(Nature Index, JCQ Q1, IF = 4.5)**

CONFERENCE PAPERS

(9) **Zhao, C.,** He, D. (2024) Unraveling the Isomeric Diversity of Dissolved Organic Matter in Marine Environments. AGU fall meeting 2024, Poster (Washington, D. C., USA), Abstract#: 1534094.

(8) **Zhao, C.,** Wang, K., Jiao, Q., Xu, X., Yi, Y., Li, P., Merder, J., He, D. (2024) Machine Learning Models for Evaluating Biological Reactivity in Dissolved Organic Matter over time: A case study in the Three Gorges Reservoir. China. Goldschmidt 2024, Oral presentation (Chicago, USA), Abstract#: 24121.

(7) **Zhao, C.,** Hou, Y., Wang, Y., Li, P., He, C., Shi, Q., Yi, Y., He, D. (2023). Unraveling the photochemical reactivity of dissolved organic matter in the Yangtze River Estuary: Integrating incubations with field observations. 9th Bio-organichemistry (BOGC) Seminar, Poster (Shenzhen, China). ***(Best Poster Award)***

(6) **Zhao, C.,** Xu, X., Chen, H., Wang, F., Li, P., He, C., Shi, Q., Yi, Y., Li, X., Li, S., He, D. (2023). Improved understanding of photochemical processing of dissolved organic matter by using machine learning approaches. Goldschmidt 2023, Oral presentation (Lyon, France), Abstract#: 15974.

(5) **Zhao, C.,** Xu, X., Chen, H., Wang, F., Li, P., He, C., Shi, Q., Yi, Y., Li, X., Li, S., He, D. (2023). Improved understanding of photochemical processing of dissolved organic matter by using machine learning approaches. The sixth Xiamen Symposium on Marine Environmental Sciences, Poster (Xiamen, China). ***(Best Poster Award)***

(4) **Zhao, C.,** Zhou, Y., Wang, Y., Huang, W., He, C., Shi, Q., He, D. (2021). Seasonal variations in dissolved organic matter chemistry in a eutrophic, semi-enclosed bay in Southeastern China: Implications for carbon cycling. The 6th Conference on Earth System Science, Oral presentation (Shanghai, China), Abstract#: S27-O-11.

(3) **Zhao, C**., Zhou, Y., Pang, Y., Zhang, Y., Huang, W., Wang Y., He, D. (2020). The optical and molecular signatures of DOM under the eutrophication status in Xiangshan Bay. 7th Bio-organichemistry (BOGC) Seminar, Oral presentation (Beijing, China).

(2) **Zhao, C.,** Bloom, H., Chen, H., Tian, Z., Koefoed, P., Lodders, K., Wang, K. (2019) Potassium isotopic compositions of enstatite chondrites and aubrites. 50th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 2689.

(1) Wang, K., Koefoed, P., Tian, Z., Bloom H., **Zhao C.,** Chen H. (2019) Potassium isotopic constraints on vaporization and volatile element evolution during planet formation. 29th Goldschmidt Conference (Barcelona, Spain), Abstract#: 3582.

SEMINAR

- **Invited talk**: Princeton University, Geosciences Department 2024

SELECTED HONORS AND AWARDS

- Departmental Postgraduate Research Award (First Place) 2025
- Zhejiang Province Outstanding Master's Thesis (Top 1%) 2023
- **Hong Kong PhD Fellowship** 2022
- HKUST Redbird PhD Award 2022, 2023
- Outstanding graduates from Zhejiang University 2022

SERVICE

- **Reviewer:** *Environmental Science & Technology (3)*

ADDITIONAL INFORMATION

- **Membership:** European Association of Geochemistry, American Geophysical Union

- **Language**: English, Chinese
- **Skills:** Proficiency in R and Python programming
- **Hobbies:** Skiing, Swimming, Hiking, Photography