Jianghui Du

Contact Information

Peking University, School of Earth and Space Sciences
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Education

Oregon State University, USA
Ph.D., Oceanography, 2014.08 - 2019.06

Peking University, China
M.S., Geology, 2009.09 - 2011.07

B.S., Geology, 2005.09 - 2009.07

Research Interests

Ocean and Earth Sciences

- Ocean biogeochemical cycles
- Marine trace elements and isotopes
- Paleoceanography and paleoclimate
- Ocean biogeochemical modeling

Employment

Assistant Professor **2024.02 - present**
Peking University, Schoolf of Earth and Space Sciences, China

ETH Postdoc Fellow & Marie Skłodowska-Curie Fellow **2019.11 - 2023.12**
ETH Zürich, Department of Earth Sciences, Switzerland

Awards

Marie Skłodowska-Curie Individual Fellowship, European Union, 2021-2023.

ETH Postdoctoral Fellowship, ETH Zurich, 2020-2021.

Kirk Bryan Award, Geological Society of America, 2021

Harry Elderfield Student Paper Award, American Geophysical Union, 2019

Publications

Peer reviewed

24. Du J., Haley B. A., McManus J., Blaser P., Rickli J. and Vance D. (2025) Abyssal seafloor as a key driver of ocean trace-metal biogeochemical cycles. ***Nature***. **Accompanied by News & Views**
23. Fleischmann, S., Scholz, F., **Du, J.**, Scholten, J., Vance, D., 2025. Processes controlling nickel and its isotopes in anoxic sediments of a seasonally hypoxic bay. ***Geochimica et Cosmochimica Acta*** 391, 1–15.
22. Deng, K., de Souza, G.F., **Du J.**, 2025. Modern oceanic cycle of beryllium isotopes assessed using a data-constrained biogeochemical model. ***Geochimica et Cosmochimica Acta***. 389, 186-199.
21. Zhang, Y., Li, G., Yu, J., Zhong, Y., **Du J.**, Gong, X., Jiang, X., Gai, C., Li, S., Liu, Q., 2025. Response of atmospheric CO2 changes to the Abyssal Pacific overturning during the last glacial cycle. ***Global and Planetary Change*** 244, 104636.
20. Zhang, X., Tang, L.,**Du J.**, Haley, B.A., McManus, J., Hu, X., Huang, F., 2024. The Rb isotope composition of modern seawater and outputs to deep-sea sediments. ***Earth and Planetary Science Letters*** 642, 118858.
19. **Du J.** (**2023**) SedTrace 1.0: a Julia-based framework for generating and running reactive-transport models of marine sediment diagenesis specializing in trace elements and isotopes, ***Geoscientific Model Development*** 16, 5865–5894 .
18. *Fleischmann S., **Du J.**, Chatterjee A., McManus J., Lyer S. D., Amonkar A., Vance D. (**2023**) The nickel output to abyssal pelagic manganese oxides: a balanced elemental and isotope budget for the oceans, ***Earth and Planetary Science Letters*** 619, 118301. ***Supervised student**
17. Deng K., Rickli J., Suhrhoff T. J., **Du J.**, Scholz F., Severmann S., Yang S., McManus J., Vance D. (**2023**) Dominance of Benthic fluxes in the Oceanic Beryllium Budget and Implications for Paleo-denudation Records, ***Science Advances*** 9, adg3702.
16. **Du J.**, Mix A. C., Haley B. A., Belanger C. L., Sharon. (**2022**) Volcanic trigger of ocean deoxygenation during Cordilleran ice sheet retreat. ***Nature***, 611, 74–80. **Accompanied by News & Views**
15. **Du J.**, Haley B. A., Mix A. C., Abbott A. N., McManus J., Vance D. (**2022**) Reactive-transport modeling of neodymium and its radiogenic isotope in deep-sea sediments: the roles of authigenesis, marine silicate weathering and reverse weathering. ***Earth and Planetary Science Letters*** 596, 117792.

14. Deng K., Yang S., **Du J.**, Lian E., Vance D. (**2022**) Dominance of benthic flux of REE on continental shelves: implications for oceanic budgets. ***Geochemical Perspective Letters*** 22, 26–30.
13. Lemaitre N., **Du J.**, de Souza F. G., Archer C., Vance D. (**2022**) The essential bioactive role of nickel in the oceans: evidence from nickel isotopes. ***Earth and Planetary Science Letters*** 587, 117513.
12. Abbott A. N., Löhr S. C., Payne A., Kumar H. and **Du J.** (**2022**) Widespread lithogenic control of marine authigenic neodymium isotope records? Implications for paleoceanographic reconstructions. ***Geochimica et Cosmochimica Acta*** 319, 318–336.
11. Sharon, Belanger C. L., **Du J.** and Mix A. C. (**2021**) Reconstructing Paleo-oxygenation for the Last 54,000 Years in the Gulf of Alaska Using Cross-validated Benthic Foraminiferal and Geochemical Records. ***Paleoceanography and Paleoclimatology*** 36, e2020PA003986.
10. **Du J.**, Haley B. A. and Mix A. C. (**2020**) Evolution of the Global Overturning Circulation since the Last Glacial Maximum based on marine authigenic neodymium isotopes. ***Quaternary Science Reviews*** 241, 106396. **Invited paper**
9. Walczak M. H., Mix A. C., Cowan E. A., Fallon S., Fifield L. K., Alder J. R., **Du J.**, Haley B., Hobern T., Padman J., Praetorius S. K., Schmittner A., Stoner J. S. and Zellers S. D. (**2020**) Phasing of millennial-scale climate variability in the Pacific and Atlantic Oceans. ***Science*** 370, 716–720.
8. Praetorius S. K., Condron A., Mix A. C., Walczak M. H., McKay J. L. and **Du J.** (**2020**) The role of Northeast Pacific meltwater events in deglacial climate change. ***Science Advances 6***, 6, eaay2915.
7. Belanger C. L., Sharon, **Du J.**, Payne C. R. and Mix A. C. (**2020**) North Pacific deep-sea ecosystem responses reflect post-glacial switch to pulsed export productivity, deoxygenation, and destratification. ***Deep Sea Research Part I: Oceanographic Research Papers*** 164, 103341.
6. Khider D., et al. (**2019**) PaCTS v1.0: A Crowdsourced Reporting Standard for Paleoclimate Data. ***Paleoceanography and Paleoclimatology*** 34, 1570-1596.
5. **Du J.**, Haley B. A., Mix A. C., Walczak M. H. and Praetorius S. K. (**2018**) Flushing of the deep Pacific Ocean and the deglacial rise of atmospheric CO_2 concentrations. ***Nature Geoscience*** 11, 749–755.
4. Haley B. A., **Du J.**, Abbott A. N. and McManus J. (**2017**) The Impact of Benthic Processes on Rare Earth Element and Neodymium Isotope Distributions in the Oceans. ***Frontiers in Marine Science*** 4, 426.
3. **Du J.**, Haley B. A. and Mix A. C. (**2016**) Neodymium isotopes in authigenic phases, bottom waters and detrital sediments in the Gulf of Alaska and their implications for paleo-circulation reconstruction. ***Geochimica et Cosmochimica Acta*** 193, 14–35.
2. **Du J.**, Huang B. and Zhou L. (**2016**) Global deepwater circulation between 2.4 and 1.7 Ma and its connection to the onset of Northern Hemisphere Glaciation. ***Paleoceanography*** 31, 1480–1497.
1. **Du J.** and Huang B. (**2010**) Variations in upper water structure during MIS3 from the western South China Sea. ***Chinese Science Bulletin*** 55, 301–307.

Service

Committee

- Co-Chair, GEOTRACES Early Career Scientist Committee, 2024-present
- Memeber, China-SCOR National Committee, 2024-present

Conference organization

- Theme chair, Goldschmidt 2024, Theme 12 "Chemistry and Physical Processes of The Oceans and Atmosphere", Chicago, USA.
- Co-convener, Goldschmidt 2023, Pre-conference workshop "What can marine authigenic Nd isotopes be reliably used for?", Lyon, France.
- Co-convener, Goldschmidt 2022, Session 14b "Transport and transformations of trace metals from estuaries to open ocean", Hawaii, USA.
- Co-convener, Goldschmidt 2019, Session 10a "Silicate alteration in ocean sediments and synthetic glasses: process, consequence, and kinetics", Barcelona, Spain.

Reviewer (academic journals)

- Nature Geoscience
- Science Advances
- Geochimica et Cosmochimica
- Earth and Planetary Science Letters
- Geophysical Research Letters
- Chemical Geology
- Biogeosciences
- Geoscientific Model Development
- Quaternary Science Review
- Paleoceanography and Paleoclimatology
- Frontiers in Marine Science
- Geochemistry, Geophysics, Geosystems
- Global and Planetary Change

Reviewer (funding agencies)

- National Science Foundation, USA,

– Natural Environment Research Council, UK

Professional Affiliations

– American Geophysical Union
– Geochemical Society
– European Association of Geochemistry
– The Oceanography Society

Invited Presentations

Conferences

Xiamen Symposium on Marine Environmental Sciences, Xiamen, China, 2025.
– Invited by session "The biogeochemistry of trace metals in a changing ocean".

China-Japan-Korea Ocean and Earth System Science Symposium, Yantai, China, 2024.
– Invited by workshop "Climate Change—Paleoceanography and Paleoclimatology".

EGU General Assembly, Vienna, Austria, 2023.
– Invited by session "Response of ocean biogeochemical cycles to past, present and future climate change".

AGU Fall Meeting, Chicago, USA, 2022.
– Invited by session "Ocean deoxygenation during past hyperthermals".

Goldschmidt, Lyon, France, 2021.
– Invited by session "Benthic dynamics in a changing ocean".

AGU Fall Meeting, San Francisco, USA, 2019.
– Invited by session "Deep ocean circulation changes and their impacts".

Seminars

"Shuang Gu" Forum, Department of Ocean Science and Engineering, Southern University of Science and Technology, 2023

Department seminar, School of Earth and Space Sciences & Institute of Ocean Research, Peking University, 2022

OEB Distinguished Doctoral Scholar Seminar Series, Oregon State University, 2021

Symposium of seawater trace elements and isotopes, Peking University, 2016

Mentoring

Peking University, China
Feiyang Liu, M.S. student **2024 - present**

ETH Zurich, Switzerland
Sarah Fleischmann, Ph.D. student, Second advisor **2022 - 2024**
- Thesis title: Quantifiying and understanding the benthic flux of the ocean of trace elements and their isotopes

Manyu Chen, M.S. student, Second advisor **2023**
- Thesis title: Insights of silicon benthic flux by studying silicon stable isotope in porewater from the abyssal sediments in the Equatorial Pacific Ocean

Teaching

Peking University, China
- Paleobiology, undergraduate level **Fall 2024**

ETH Zurich, USA
Tutor **Fall 2023**
- Integrated Earth Systems 2, undergraduate level

Oregon State University, USA
Graduate Teaching Assistant **Winter 2017, Fall 2018**
- Biogeochemical Earth, graduate level

Peking University, China
Graduate Teaching Assistant **Fall 2011**
- Paleobiology, undergraduate level

Field Experience

R/V Oceanus, Astoria Canyon coring expedition **Summer 2017**
– Retrieving sediment cores from the Astoria fan to reconstruct the history of Missoula flood during the last deglaciation

R/V Elakha, Newport Hydrographic Line **Spring 2015**
– Survey of hydrography, chlorophyll, and zooplankton populations in an Oregon nearshore and estuarine system during upwelling conditions.