

Jule T. Middleton

MIT - WHOI Joint Program for Oceanography
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Pronouns: they/them

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EDUCATION

Ph.D. Chemical Oceanography May 2022

MIT-WHOI Joint Program in Oceanography

Dissertation: Barium isotope cycling in the marine environment: Pathways of fractionation and implications for paleoceanographic applications.

Advisor: Tristan J. Horner

B.A., Chemistry and Biology - Mathematical Ecology, Minor: Mathematics May 2015

Colby College

WORK EXPERIENCE

Postdoctoral Scholar [March 2023]

University of California - Santa Barbara

Supervisor: Mark Brzezinski

Super technician, ODF Rosette

[Nov 2022 - January 2023]

Old Dominion University

Supervisor: Greg Cutter

Postdoctoral Investigator

June - July 2022

Woods Hole Oceanographic Institution

Supervisor: Tristan J. Horner

Data Consultant

Nov 2015 - June 2016

Bigelow Laboratory for Ocean Sciences

Supervisor: Patricia Matrai

PUBLICATIONS

**Note that some publications remain under my birth initials (J.E.M)*

Middleton, J. T., Tegler, L.A., Buesseler, K., Balch, W., T. J. Horner. Controls on barium formation in the water column of the Southern Ocean. *In prep.*

Middleton, J. T., A. Paytan, T. J. Horner. Diagenetic alteration of sedimentary barite; Implications for isotopic proxies. *In prep.*

Middleton, J. T., E. M. Griffith, A. Paytan, W. L. Hong, T. J. Temporal evolution of barium isotopes during precipitation and at equilibrium in barite-fluid systems *In prep.*

Crockford, P.W., B.A. Wing, A. Paytan, M.S.W. Hodgskiss, K.K. Mayfield, J.A. Hayles, **J.E. Middleton** et al. Barium-isotopic constraints on the origin of post-Marinoan barites. *Earth and Planetary Science Letters* 519, (2019): 234-244.

Gabric AJ, Matrai P, Jones G, **Middleton JE**. Sea ice as a source of emissions of marine biogenic aerosols. *Bulletin of the American Meteorological Society* 99, (2018): 61-81.

Middleton JE, Martínez-Martínez J, Wilson WH, Record NR. Functional dynamics of *Emiliana huxleyi* virus-host interactions across multiple spatial scales. *Limnology & Oceanography* 62, (2017): 922-933.

Lyons PJ, Arboleda E, Benkwitt CE, Davis B, Gleason M, Howe C, Mathe J, **Middleton JE**, Sikowitz N, Untersteggaber L, Villalobos S. The effect of recreational SCUBA divers on the structural complexity and benthic assemblage of a Caribbean coral reef. *Biodiversity and Conservation* 24, (2015): 3491-3504. DOI: 10.1007/s10531-015-1009-2

PRESENTATIONS

"Barium isotope signatures of barite diagenesis", **Middleton, J.E.**, A. Paytan, M. Saito, T.J. Horner. Oral presentation. Goldschmidt 2021, 4-9 July, 2021. Virtual.

"Barium isotope fractionation into barite", **Middleton, J.E.**, M.E. Auro, E.M. Griffith, T.J. Horner. Poster presentation. Gordon Research Conference in Chemical Oceanography 2019, North Conway, New Hampshire.

"Controls on barium isotope fractionation during barite precipitation", **Middleton, J.E.**, M.E. Auro, E.M. Griffith, T.J. Horner. Poster presentation. Ocean Sciences 2018, Portland, Oregon.

"The role of large amplitude internal waves in mitigating ocean warming impacts on coral reefs." **Middleton, J.E.**, A.E. Cohen, H. Barkley, C. Davis, R. Ji, S. Khakiattiwong, G.P. Lohmann, L. Putschim, A. Wang, W. Yu, G. Zhang. Oral presentation at UNESCO WestPac IOC, Qingdao, China (2017).

"Mathematical modeling of *Emiliana huxleyi*-EhV interactions." **Middleton, J.** Oral presentation at the Colby Liberal Arts Symposium, Waterville, ME (2015).

"Functional forms of *Emiliana huxleyi*: interactions with a host specific virus." **Middleton, J.** Oral presentation at the Mount Desert Island Biological Laboratory (MDIBL) Marine Biological and Medical Sciences Symposium, Mount Desert Island, ME (2015).

"Functional forms analysis of *Emiliana huxleyi* interactions with a host-specific virus." **Middleton, J.** and NR Record. Poster presentation at the Northeast Undergraduate Research and Development Symposium (2015).

"Bioaccumulation of polyaromatic hydrocarbons in tropical marine sponges of the class *Demospongiae*." **Middleton, J.** Oral presentation at CIEE Research Station Bonaire, Bonaire, NA (2014).

GRANTS

National Science Foundation, Graduate Research Fellow Program	2017 - 2021
Geosciences - Chemical Oceanography	
Woods Hole Oceanography Institution, Ocean Venture Fund	2020

<i>"Catching silicon-barium decoupling in the act"</i>	
Woods Hole Oceanographic Institution, Ocean Venture Fund	2019
<i>"Quantifying the length scale of Ba-isotopic exchange in marine barite"</i>	
MIT, John S. and Maryann Montrym Fund for Climate Research	2018
<i>"Constraining a climatically significant carbon sink using barium isotopes"</i>	
MIT, Course 12 Student Research Fund Recipient	Fall 2017, Fall 2018, Fall 2019

AWARDS

Von Damm Fellowship for first year graduate students (WHOI)	Sept 2016
Inductee, Phi Beta Kappa National Honors Society	May 2015
Chemistry Department Senior Student Award	May 2015
Honors in Biology, Distinctions in Chemistry & Biology	May 2015
Top of the CLAS (Colby Liberal Arts Symposium) - Top student in Science & Math	April 2015

FIELD EXPERIENCE

R/V Roger Revelle, Southern Ocean	63 days, Dec 2020 - Feb 2021
R/V Thomas Thompson, Southern Ocean	42 days, Jan - Mar 2020
R/V Neil Armstrong, Vineyard Sound	5 days, Nov 2018
R/V Neil Armstrong, Vineyard Sound	5 days, Sep 2017

Other fieldwork:

Ecological field assistant, Belize	January 2015
Scientific diver, Bonaire, Netherland Antilles	Jan - May, 2014

SERVICE

<u>WHOI Through the Porthole Student Magazine</u> , Co-Creator & Editor	2020 - present
<u>WHOI Committee for Diversity and Inclusion</u> , Academic Recruitment Co-Leader	2019 - present
MIT - WHOI Ad-Hoc Student Diversity Committee	2019
MIT - WHOI Graduate Student Council (President & Education Chair)	2018 - 2019
NE Geobiology Symposium 2018 - Chair	2018
MIT EAPS Graduate Student Advisory Committee	2016 - 2017

MENTORING & TEACHING

Invited Guest Lecturer on trace metal chemistry, University of New Orleans for Dr. Madeline R. Foster-Martinez	2021
<u>Coastal Ocean Environment Summer School in Ghana</u> (Teaching Staff)	2019, 2020
MIT Teaching Assistant - Marine Isotopes (Course 12.744)	Spring 2019
MIT Teaching Assistant - Marine Chemistry (Course 12.742)	Fall 2018
<u>MIT-WHOI Joint Program Application Support & Knowledgeable</u> (Mentor)	2019 - 2021
MIT Earth, Atmospheric, and Planetary Sciences Peer Mentoring Program (Mentor)	2019 - 2022

National Science Bowl Volunteer	2017, 2018, 2019
Blue Lobster Regional Science Bowl Volunteer	2017, 2018
Teaching Volunteer - Marine Field Geology for middle school girls (Dana Hall School)	June 2017