

Erin E. Black

Assistant Professor

TRACER Lab, University of Rochester (UR)

120 Trustee Road, Box 270221, Rochester, NY 14627

Office Phone: 585-275-3440



EXPERIENCE, EDUCATION, AND FUNDING

ACADEMIC APPOINTMENTS

- 2021 – Assistant Professor: Department of Earth and Environmental Sciences, UR
- 2021 – 2026 Adjunct Scholar: Faculty of Graduate Studies, Dalhousie University
- 2021 – 2026 Adjunct Associate Research Scientist: Lamont-Doherty Earth Observatory (LDEO)
- 2020 – 2021 Research Assistant: Department of Earth and Environmental Sciences, UR
- 2020 – 2021 Postdoctoral Research Scientist: Department of Geochemistry, LDEO
- 2018 – 2020 Ocean Frontier Institute Postdoctoral Fellow: Dalhousie University and LDEO
- 2012 – 2017 Ph.D. Candidate and Research Assistant: Woods Hole Oceanographic Institution (WHOI)

EDUCATION

- 2018 Ph.D. Chemical Oceanography: Massachusetts Institute of Technology (MIT) and Woods Hole Oceanographic Institution (WHOI) Joint Program
- 2008 M.S. Earth Sciences: Dartmouth College
- 2006 B.A. Geology, Summa Cum Laude: Skidmore College

RELEVANT ENVIRONMENTAL POSITIONS

- 2009 – 2012 Geologist: Arcadis-US/Malcolm Pirnie, Inc., Fair Lawn, NJ
- 2006 Environmental Consultant: GeoQuest Environmental, Rochester, NY (Jun–Aug)
- 2004 Summer Intern: Department of Environmental Conservation, Office of Mineral Resources, Avon, NY
- 2003 Environmental Consultant: GeoQuest Environmental, Rochester, NY (Jun–Aug)

RESEARCH CRUISE EXPERIENCE

- 2027 NSF-OCE ETNP OMZ, Atlantis (May-June) – Chief Scientist (scheduled)
- 2027 NSF-OCE BATS, Atlantic Explorer (funded, not yet scheduled)
- 2026 NSF-OCE EAGER Th-Plastics, Hugh Sharp (Jul-Aug) – Chief Scientist
- 2025 North Atlantic Coastal Survey, Hugh Sharp (Oct)
- 2021 EN665 Carbon and Carbonate Alkalinity Cruise, Gulf of Maine, RV Endeavor (Apr)
- 2019 NSF-UNOLS Chief Scientist Training Cruise: Co-Team Leader, RV Kilo Moana (Jun)
- 2019 Bedford Basin Coring and Water Column Sampling, East Com (daytrips, Feb–May)
- 2015 U.S. GEOTRACES Arctic Ocean, USCGC Healy (Aug–Oct)
- 2014 Fukushima Japan Coastal Monitoring, Shinsei Maru (Oct)
- 2013 U.S. GEOTRACES Eastern Pacific, RV Thomas G Thompson (Oct–Dec)
- 2012 BATS/BVAL Bermuda Atlantic Time-series Study, RV Atlantic Explorer (Oct)
- 2012 SEA Jake Peirson Summer Cruise, SSV Corwith Cramer (Jun–Jul)

FUNDED GRANTS AND SUBMITTED PROPOSALS

- 2026 Co-PI Simons Collaborations in Ecology and Evolution: Ecology and the Evolution of Carbon Export Traits over Space and Time (\$798K, board interview Aug, **pending**)
- 2025 Co-PI ONR - Intensive Monitoring and Physics-Based Modeling of Bedforms in The North American Great Lakes as an Analogue for the Deep Ocean (\$7.4M, not funded)

2025	PI	NSF OCE- Collaborative Research: Towards a comprehensive constraint of the coastal carbon cycle (\$650K, not funded)
2025	User	NIH- Shared Instrumentation Grant (SIG S10): Pyrolysis-Gas Chromatography-Mass Spectrometer for Western New York, UR PI Matt Rand (\$529K, JIT request status)
2024	PI	NSF OCE- Collaborative Research: Towards a comprehensive constraint of the coastal carbon cycle (\$593K, not funded)
2024	PI	NSF OCE- Collaborative Research: Understanding efficient particulate organic carbon transfer to depth in the ocean's oxygen minimum zones (\$739K, funded)
2024	Co-PI	UR Internal Transdisciplinary Center Planning Grant: Frontier Center for Exploring the Multiscale Dynamics of Fluids - Simulations, Experiments, & Theory (Fluid-SET) (\$33.8K, funded)
2024	PI	NSF OCE- EAGER: Could plastics pollution impact natural marine tracer systems? (\$300K, funded)
2023	Co-PI	NSF OCE- Collaborative Research: Understanding efficient particulate organic carbon transfer to depth in the ocean's oxygen minimum zones (\$711K, not funded)
2020	Co-PI	NSF MRI- Acquisition of a Multicollector – Inductively Coupled Plasma – Mass Spectrometer at the University of Rochester for Earth Science Research and Education (\$607K, not funded)

FELLOWSHIPS, HONORS, AND EDUCATIONAL GRANTS

2026	Gwennie – UR Greene Center Faculty Award
2025	Bond Family Foundation Faculty Scholarship Grant (\$4.5K)
2023	UR College Course Development Fellowship (\$1K)
2023	UR Furth Fund Award (\$12.5K)
2020 – 2021	Lamont-Doherty Earth Observatory Climate Center Grant (\$10K)
2018 – 2019	Ocean Frontier Institute Seed Fund Grant (\$20K)
2018	Dissertations Symposium in Chemical Oceanography (DISCO) Selectee
2018 – 2020	Ocean Frontier Institute Postdoctoral Fellowship (\$150K over 2 years)
2013 – 2016	NASA Earth and Space Science Fellowship (\$30K/year)

PUBLICATIONS, DATASETS AND PENDING PROJECTS

*Graduate student coauthors from the TRACER lab are underlined, presenting authors have an asterisk**

MANUSCRIPTS UNDER PEER REVIEW

Black, E.E., Puigcorbé, V., Buesseler, K.O., Lam, P.J., Masque, P., Rutgers van der Loeff, M., and Xiang, Y., Th-based Estimates Reveal Persistent Differences in Carbon Export Regimes Between Shelf and Basin Waters in the Arctic Ocean, *Submitted Sept 2026 to Global Biogeochemical Cycles*. Pre-print available at: <https://doi.org/10.22541/essoar.15009919/v1>

MATURE MANUSCRIPTS UNDER COAUTHOR REVISION

Black, E.E., Puigcorbé, V., Buesseler, K.O., Lam, P.J., Masque, P., Rutgers van der Loeff, M., and Xiang, Y., Changes in carbon export across the Arctic Ocean, Target Journal: PNAS

Hayes, C., Redmond, N., **Black, E.**, Anderson, R., Fleisher, M., Lam, P., Edwards, R.L., Li, X., Pavia, F., Vivancos, S., Sinking of particulate thorium in the deep sea: implications for elemental fluxes in the water column, Target Journal: Global Biogeochemical Cycles.

Holmes, K.L., **Black, E.E.**, Weber, T., and Xu, H. 2027, Deconstructing signals from the coastal carbon cycle, Target Journal: Global Biogeochemical Cycles.

PUBLICATIONS

19. Healey, M.G., **Black, E.E.**, Algar, C.K., Armstrong, M., and Kienast, S.S., Balancing water column and sedimentary ^{234}Th fluxes to quantify coastal marine carbon export, 2025, *Biogeosciences*, Vol. 22, 6895-6912, doi.org/10.5194/bg-22-6895-2025
18. Whitmore, L.M., Granger, J., Xiang, X., Kipp, L.E., Pasqualini, A., Newton, R., Agather, A.M., Anderson, R.F., **Black, E.E.**, Bowman, K.L., Bourbonnais, A., Brzezinski, M.A., Bundy, R.M., Charette, M.A., Edwards, R.L., Fitzsimmons, J.N., Hansell, D.A., Lam, P.J., Morton, P., Saito, M., Shiller, A.M., Smethie, W.M., Twining, B.S., Woosley, R.J., and Zhang, R., 2025, Multi-elemental tracers in the Amerasian Basin reveal interlinked biogeochemical and physical processes in the Arctic Ocean upper halocline, *Global Biogeochemical Cycles*, Vol. 39, Issue 4, doi.org/10.1029/2024GB008342
17. Redmond, N., Hayes, C.T., Anderson, R.F., **Black, E.E.**, Edwards, R.L., Fleisher, M.Q., Li, X., Lam, P.J., and Mateos, K.C., 2025, Hydrothermal plumes Act as a regional boundary sink of ^{230}Th in the Equatorial Pacific, *Global Biogeochemical Cycles*, Vol. 39, Issue 4, doi.org/10.1029/2024GB008219.
16. Buckley, N.R., **Black, E.E.**, Conway, T.M., Fitzsimmons, J.N., Kenyon, J., Lanning, N.T., Sieber, M., and Cutter, G.A., 2024, Re-evaluating hydrogen sulfide as a sink for cadmium and zinc in the oxic to suboxic water column of the Pacific Ocean, *Global Biogeochemical Cycles*, Vol. 38, Issue 3, doi.org/10.1029/2023GB007881.
15. **Black, E.E.**, Algar, C.K., Armstrong, M., and Kienast, S.S., Armstrong, M., and Kienast, S.S., 2023, Insights into constraining coastal carbon export from radioisotopes, *Frontiers in Marine Science*, Vol 10, doi.org/10.3389/fmars.2023.1254316.
14. Kemnitz, N., Hammond, D., Henderson, P. Le Roy, E., Charette, M., Moore, W., Anderson, R.F., Fleisher, M., Leal, A., **Black, E.E.**, Hayes, C., Adkins, J., Berelson, W., 2022, Actinium and radium fluxes from the seabed in the northeast Pacific Basin, *Marine Chemistry*, Vol 250, doi.org/10.1016/j.marchem.2022.104180.
13. Hawco, N.J., Yang, S.-C., Pinedo-Gonzalez, P., **Black, E.E.**, Kenyon, J., Ferron, S., Bian, X., and John, S.G., 2022, Recycling of dissolved iron in the North Pacific Subtropical Gyre, *Limnology and Oceanography*, 67(11): 2448-2465, doi.org/10.1002/lno.12212.
12. **Black, E.E.**, Kienast, S.S., Lemaitre, N., Lam, P.J., Anderson, R.F., Planquette, H., Planchon, F., and Buesseler, K.O., 2020, Ironing out Fe residence time in the dynamic upper ocean, *Global Biogeochemical Cycles*, 34: 9, e2020GB006592, doi: 10.1029/2020GB006592.
11. Tesán Onrubia, J.A., Petrova, M.V., Puigcorbé, V., **Black, E.E.**, Valk, O., Dufour, A., Hamelin, B., Buesseler, K.O., Masqué, P., Le Moigne, F.A.C., Sonke, J.E., Rutgers van der Loeff, M., and Heimbürger-Boavida, L.-E., 2020, Mercury export flux in the Arctic Ocean estimated from ^{234}Th - ^{238}U disequilibrium, *ACS Earth and Space Chemistry*, 4: 795-801, doi: 10.1021/acsearthspacechem.0c00055.
10. Buesseler, K.O., Boyd, P.W., **Black, E.E.**, and Siegel, D.A., 2020, Metrics that matter for assessing the ocean biological carbon pump, *Proceedings of the National Academy of Sciences*, 117(18): 9679-9687, doi: 10.1073/pnas.1918114117.
9. **Black, E.E.**, Lam, P.J., Lee, J.-M., and Buesseler, K.O., 2019, Insights from the ^{238}U - ^{234}Th Method into the Coupling of Biological Export and the Cycling of Cadmium, Cobalt, and Manganese in the Southeast Pacific Ocean, *Global Biogeochemical Cycles*, 33: 15-36, doi:10.1029/2018GB005985.
8. Pavia, F., Anderson, R.F., **Black, E.E.**, Kipp, L.E., Vivancos, S.M., Fleisher, M.Q., Charette, M.A., Sanial, V., Moore, W.S., Hult, M., Lu, Y., Cheng, H., Zhang, P., and Edwards, R.L., 2019, Timescales of hydrothermal scavenging in the South Pacific Ocean from ^{234}Th , ^{230}Th , and ^{228}Th , *Earth and Planetary Science Letters*, 506: 146–156, doi:10.1016/j.epsl.2018.10.038.
7. Hayes, C.T., **Black, E.E.**, Anderson, R.F., Baskaran, M., Buesseler, K.O., Charette, M.A., Cheng, H., Cochran, J.K., Edwards, L. R., Fitzgerald, P., Lam, P.J., Lu, Y., Morris, S.O., Ohnemus, D.O., Pavia, F.J., Stewart, G., and Tang, Y., 2018, Flux of particulate elements in the North Atlantic Ocean constrained by multiple radionuclides, *Global Biogeochemical Cycles*, 32: 1738-1758, doi:10.1029/2018GB005994.

6. Schlitzer et. al. (>300 coauthors including **E.E. Black**), 2018, The GEOTRACES Intermediate Data Product 2017, *Chemical Geology*, 493: 210–223, doi:10.1016/j.chemgeo.2018.05.040.
5. Rutgers van der Loeff, M., Kipp, L., Charette, M., **Black, E.**, Stimac, I., Charkin, A., Bauch, D., Valk, O., Karcher, M., Krumpen, T., Casacuberta, N., Smethie, W., and Rember, R., 2018, Radium isotopes across the Arctic Ocean show time scales of water mass ventilation and increasing shelf inputs, *Journal of Geophysical Research: Oceans*, 123: 4853–4873, doi:10.1029/2018JC013888.
4. **Black, E.E.**, Buesseler, K.O, Pike, S.M., and Lam, P.J., 2018, ^{234}Th as a tracer of particulate export and remineralization in the Southeastern Tropical Pacific, *Marine Chemistry*, 201: 35–50, doi: 10.1016/j.marchem.2017.06.009.
3. Buesseler, K.O, German, C.R., Honda, M.C., Otosaka, S., **Black, E.E.**, Kawakami, H., Manganini, S.J., and Pike, S.M., 2015, Tracking the Fate of Particle Associated Fukushima Daiichi Cesium in the Ocean off Japan, *Environmental Science and Technology*, 49(16): 9807–9816, doi:10.1021/acs.est.5b02635.
2. **Black, E.E.** and Buesseler, K.O., 2014, Spatial Variability and the Fate of Cesium in Coastal Sediments near Fukushima, Japan, *Biogeosciences*, 11: 5123–5137, doi:10.5194/bg-11-5123-2014.
1. **Black, E.**, Renshaw, C.E., Magilligan, F.J., Kaste, J., Dade, W.B. and Landis, J., 2010, Determining Lateral Migration Rates in Meandering Rivers Using Fallout Radionuclides, *Geomorphology*, 123(3-4): 364–369, doi:10.1016/j.geomorph.2010.08.004.

PUBLISHED AND DATASETS UNDER REVIEW

- Subhas, A. V., **Black, E. E.**, Holmes, K. (2025) Small and large particle concentrations of total carbon, total nitrogen, and inorganic carbon, and particulate thorium-234 and RAP234 from large volume pump profiles collected on R/V Endeavor cruise EN665 in the Gulf of Maine in April 2021. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2025-07-23. doi:10.26008/1912/bco-dmo.969640.1.
- Anderson, R. F., Edwards, R. L., Hayes, C. T., Fleisher, M. Q., **Black, E. E.**, Cheng, H., Li, X., Schroedl, P. (2025) Size-fractionated particulate thorium and protactinium isotopes in seawater from Leg 2 (Hilo, HI to Papeete, French Polynesia) of the US GEOTRACES Pacific Meridional Transect (PMT) cruise (GP15, RR1815) on R/V Roger Revelle from Oct-Nov 2018. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2025-05-30. doi:10.26008/1912/bco-dmo.954626.1.
- Anderson, R. F., Edwards, R. L., Hayes, C. T., Fleisher, M. Q., **Black, E. E.**, Cheng, H., Li, X., Schroedl, P. (2025) Size-fractionated particulate thorium and protactinium isotopes in seawater from Leg 1 (Seattle, WA to Hilo, HI) of the US GEOTRACES Pacific Meridional Transect (PMT) cruise (GP15, RR1814) on R/V Roger Revelle from September to October 2018. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2025-02-24. doi:10.26008/1912/bco-dmo.954271.1.
- Anderson, R. F., Fleisher, M. Q., Edwards, R. L., Cheng, H., Hayes, C. T., Li, X., **Black, E. E.**, Redmond, N. (2024) Dissolved thorium and protactinium isotopes (^{232}Th , ^{230}Th , ^{231}Pa) in seawater from Leg 1 (Seattle, WA to Hilo, HI) of the US GEOTRACES Pacific Meridional Transect (PMT) cruise (GP15, RR1814) on R/V Roger Revelle from September to October 2018. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1). doi:10.26008/1912/bco-dmo.919783.1
- Anderson, R. F., Fleisher, M. Q., Edwards, R. L., Cheng, H., Hayes, C. T., Li, X., **Black, E. E.**, Redmond, N. (2024) Dissolved thorium and protactinium isotopes (^{232}Th , ^{230}Th , ^{231}Pa) in seawater from Leg 2 (Hilo, HI to Papeete, French Polynesia) of the US GEOTRACES Pacific Meridional Transect (PMT) cruise (GP15, RR1815) on R/V Roger Revelle from Oct-Nov 2018. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 2). doi:10.26008/1912/bco-dmo.920078.
- Black, E. E.**, Kienast, S. S. (2023) Carbon content and radioisotope data from sampling conducted at the Compass Station in Bedford Basin, Nova Scotia, Canada from February to August 2019. Biological

and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1).
doi:10.26008/1912/bco-dmo.889551.1.

Black, E. E., Kienast, S. S. (2023) Seawater radioisotope (^{234}Th) and carbon from sampling conducted at the Compass Station in Bedford Basin, Nova Scotia, Canada from April to August 2019. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1).
doi:10.26008/1912/bco-dmo.889642.1

Buesseler, K. O., Charette, M. A., **Black, E.** (2021) Activities of size-fractionated particulate thorium isotopes and total Thorium-234 from the U.S. GEOTRACES Arctic cruise, HLY1502, on USCGC Healy from August to October 2015. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 2) Version Date 2020-10-12. doi:10.26008/1912/bco-dmo.814857.2
Preparer and Data Contact Point: **Black, E.**

Buesseler, K., Charette, M., Moore, W. (2020) Particulate Th-234 from in-situ pumps, including large size fraction ($> 51\text{ }\mu\text{m}$) and small size fraction ($1\text{-}51\text{ }\mu\text{m}$), from R/V Thomas G. Thompson cruise TN303 in the Eastern Tropical Pacific in 2013 (U.S. GEOTRACES EPZT project). Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 3) Version Date 2020-06-11. doi:10.26008/1912/bco-dmo.643316.3. Preparer and Data Contact Point: **Black, E.**

Buesseler, K., Charette, M., Moore, W. (2020) Water-column total Th-234 from R/V Thomas G. Thompson cruise TN303 in the Eastern Tropical Pacific in 2013 (U.S. GEOTRACES EPZT project). Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 7) Version Date 2020-06-11. doi:10.26008/1912/bco-dmo.643213.7. Preparer and Data Contact Point: **Black, E.**

ACADEMIC PRESENTATIONS

INVITED TALKS AND SEMINARS

- 2026 Department of Environmental Science – Rowan University, NJ
- 2025 Department of Earth Sciences - Kent State University, OH.
- 2025 LOMP Plastics Symposium - Rochester Institute of Technology, NY.
- 2022 Department of Chemistry - Rochester Institute of Technology, NY.
- 2020 Department of Earth Sciences - Dartmouth College, NH.
- 2019 Geochemistry Seminar Series, Lamont Doherty Earth Observatory, Palisades, NY.
- 2019 University of Rochester, Rochester, NY.
- 2019 University of Rochester, Rochester, NY.
- 2019 Bedford Institute of Oceanography, Dartmouth, NS.
- 2018 Ocean Sciences Seminar Series, Dalhousie University, Halifax, NS.
- 2016 Chemical Oceanography Seminar Series WHOI, Woods Hole, MA.

CONFERENCE TALKS

- 26. Leal, A.*, Anderson, R.F., Fleisher, M.Q., Hayes, C.T., **Black, E.E.**, Redmond, N., Edwards, R.L., and Lam, P., 2026, Variables Impacting ^{230}Th and ^{231}Pa Scavenging in Resuspended Sediments, Talk presented 12-17 July at Goldschmidt Conference, Montreal, Canada.
- 25. **Black, E.E.***, Puigcorbe, V., Buesseler, K.O., Lam, P.J., Masque, P., Rutgers van der Loeff, M., and Xiang, Y., 2026, Late summer-fall export in the Arctic Ocean: insights from a pan-Arctic ^{234}Th study, Talk presented 22-27 February at the Ocean Sciences Meeting, Glasgow, Scotland.
- 24. Leal, A.*, Anderson, R.F., Fleisher, M.Q., Hayes, C.T., Ojuade, K., Edwards, R.L., Shaikh, J., **Black, E.E.**, Redmond, N., Schroedl, P., Li, X., and Lam, P., 2026, Thorium and Protactinium Isotopes as Tracers of Hydrothermal Scavenging: Differences in Scavenging across Multiple Plume Systems Sampled on GEOTRACES Cruises, Talk presented 22-27 February at Ocean Sciences Meeting, Glasgow, Scotland.

23. Bam, W.* , Pike, S., Maiti, K., Benitez-Nelson, C., Morris, S., **Black, E.**, Kenyon, J., Lam, P., and Buesseler, K. 2025, Following the Particles: Using ^{234}Th to Trace Element Pathways along U.S. GEOTRACES Transects: Café Thorium's journey, Talk presented 15 December at AGU, New Orleans.
22. Holmes, K.L., Weber, T., Xu, H., and **Black, E.E.**, 2024, Tracing Coastal Carbon Cycling Dynamics with U-Th Isotope Systems in the Gulf of Maine. Talk presented 18-23 August at Goldschmidt, Chicago, USA.
21. Cyriac, M., Anderson, R.F., Fleisher, M.Q., and **Black, E.E.**, 2024, A comprehensive evaluation of the U-Salinity relationship in the Arctic Ocean and implications for the ^{238}U - ^{234}Th method. Talk presented 18-23 August, Goldschmidt, Chicago, USA.
20. Redmond, N.* , Hayes, C.T., Davis, J, and **Black, E.E.**, 2022, A Friend to Help Show Little Air Rocks in Big Water, Talk presented Dec 12-16 at AGU, Chicago, USA.
19. Redmond, N.* , Hayes, C.T., Anderson, R.F., Leal, A., **Black, E.E.**, Fleisher, M.Q., Edwards, R.L., Li, X., and Lam, P.J., 2022, Exploring the Relative Roles of Biogenic and Hydrothermal Particles as Drivers of Metal Scavenging in the Equatorial Pacific, Talk presented Dec 12-16 at AGU, Chicago, USA.
18. Leal, A.* , Anderson, R.F., Fleisher, M.Q., **Black, E.E.**, Hayes, C.T., Redmond, N., Schroedl, P., Li, X., and Edwards, R.L., 2022, Inconsistencies in Thorium-Derived Dust Fluxes in the Pacific Ocean, Talk presented Dec 12-16 at AGU, Chicago, USA.
17. Hayes, C.T.* , **Black, E.E.**, Redmond, N.R., Anderson, R.F., Fleisher, M.Q., Edwards, R.L., Li, X., and Leal, A.L., 2022, Thorium-based Estimates of Atmospheric Dust-Derived Iron Delivery to High-Nitrate Low-Chlorophyll Regions in the Pacific Ocean, Talk presented Dec 12-16 at AGU, Chicago, USA.
16. Hayes, C.T.* , Redmond, N.R., Leal, A.L., Anderson, R.F., **Black, E.E.**, Fleisher, M.Q., Edwards, R.L., Li, X., Schroedl, P., and Lam, P.J., 2022, The Cycling of ^{231}Pa in the Pacific Ocean and Implications for its Use as a Paleoceanographic Proxy, Talk presented Dec 12-16 at AGU, Chicago, USA.
15. Hayes, C.K.* , Fleisher, M.Q., Anderson, R.F., **Black, E.E.**, Carracino, N., Edwards, R.L., Lam, P.J., Li, X., Redmond, N.A., Rojas, S., and Schroedl, P., 2022, Size-fractionated particulate organic carbon fluxes throughout the water column of the Pacific basin (GEOTRACES section GP15), Talk presented Feb 27-Mar 4 at Ocean Sciences, virtual meeting.
14. Hawco, N.J.* , Yang, S.-C., Pinedo-Gonzalez, P., **Black, E.E.**, Kenyon, J., Ferron, S., and John, S.G., 2022, Quantifying Ecosystem Iron Recycling in the North Pacific Subtropical Gyre, Talk presented Feb 27-Mar 4 at Ocean Sciences, virtual meeting.
13. Redmond, N.* , Hayes, C.T., Anderson, R.F., **Black, E.E.**, Fleisher, M.Q., Edwards, R.L., Li, X., and Schroedl, P., 2021, Quantifying Meridional Transport of Scavenged Radionuclides over Pacific Biogeochemical Provinces, Talk presented 13-17 December at AGU, New Orleans, LA.
12. **Black, E.E.***, Anderson, R.F., Edwards, R.L., Hayes, C.T., Li, X., Fleisher, M.Q., Pavia, F.J., Redmond, N., and Schroedl, P., 2021, Thorium-derived dust fluxes in the Pacific: examining seawater, particle and sediment-based estimates. Session 13aO2. Talk presented 7 Jul at *Goldschmidt*, Lyon, France.
11. **Black, E.E.***, Kienast, S.S., Lam, P.J., and Buesseler, K.O., 2019, Upper ocean iron residence times across a wide range of ocean regimes. Session SS051, Abstract ID 12012. Talk presented 23 Feb – 2 Mar at *Aquatic Sciences*, San Juan, PR.
10. **Black, E.E.***, 2018, An investigation of basin-scale controls on upper ocean export and remineralization. Invited talk presented 21–25 Oct at *Dissertations Symposium in Chemical Oceanography*, Kailua-Kona, HI.
9. **Black, E.E.***, Charette, M.A., Lam, P.J., Anderson, R.F., Kipp, L.E., Xiang, Y., Vivancos, S.M., and Buesseler, K.O., 2018, Thorium isotopes as tracers of the biological carbon pump in the Arctic. Session 07L, Abstract ID 3743. Talk presented 1–17 Aug at *Goldschmidt*, Boston, MA.

8. **Black, E.E.***, Lam, P.J., Lee, J.-M., and Buesseler, K.O., 2018, Particulate export and upper ocean residence times of trace metals in the southeastern tropical Pacific. Abstract ID CT21A-02. Talk presented 12–16 Feb at *Ocean Sciences*, Portland, OR.
7. Buesseler, K.* and **Black, E.E.**, 2018, Quantifying particle flux attenuation using thorium-234 through the upper twilight zone by the gatekeepers of export, Abstract ID ME43A-07. Talk presented 12–16 Feb at *Ocean Sciences*, Portland, OR.
6. Hayes, C.T.* , **Black, E.E.**, Pavia, F.J., Anderson, R.F., Baskaran, M.M., Buesseler, K., Charette, M.A., Fitzgerald, P., and Cochran, J.K., 2018, Sinking flux profiles of carbon and trace elements in the North Atlantic Ocean constrained by multiple radionuclide systems, Abstract ID CT13A-07. Talk presented 12–16 Feb at *Ocean Sciences*, Portland, OR.
5. **Black, E.E.***, Buesseler, K.O., Pike, S.M., Lam, P.J., and Charette, M.A., 2017, Thorium isotopes as tracers of particulate export and remineralization in the Arctic Ocean. Abstract ID 28685, Session 004. Talk presented 26 Feb–3 Mar at *Aquatic Sciences*, Honolulu, HI.
4. Buesseler, K.O.* and **Black, E.E.**, 2016, Observational strategies to quantify export and remineralization, including transfer of carbon cycle applications to trace elements and their isotopes. Invited talk presented 1–4 Aug at Biogeochemical cycling of trace elements within the ocean: *GTC-OCB Synthesis Meeting*, Lamont-Doherty Earth Observatory, Palisades, NY.
3. Honda, M.C.* , Buesseler, K., German, C.R., Ootosaka, S., **Black, E.E.**, Kawakami, H., Manganini, S.J., and Pike, S., 2016, Resuspension and lateral transport of radiologically-contaminated seafloor sediment of Fukushima Daiichi Nuclear Power Plant, Abstract ID 1150, Session 15b. Talk presented 26 Jun–1 Jul at *Goldschmidt*, Yokohama, Japan.
2. Buesseler, K. *, **Black, E.**, Pike, S., Kenna, T., and Masque, P., 2014, Plutonium isotopes in the ocean off Japan after Fukushima, Abstract ID 300 O-019. Talk presented 7–12 Sep at *International Conference on Radioecology and Environmental Radioactivity*, Barcelona, Spain.
1. Ennis-McMillan, M.* , Kellogg, K., Stafford, A., and **Black, E.**, 2008, Blessed with Water: Drinking Water Politics in Upstate New York. Talk presented 19–23 Nov at *American Anthropological Association Annual Conference*, San Francisco, CA.

SELECT POSTER PRESENTATIONS (2014 -)

- Holmes, K.L.** , **Black, E.E.**, Weber, T., and Xu, H. 2026, Advancing radioisotope methods to further investigate coastal carbon cycling. Poster presented 22-27 February at the Ocean Sciences Meeting, Glasgow, Scotland.
- Cyriac, M.** , Black, E.E., 2026, Investigating adsorption coefficients of radiotracers onto microplastics in aquatic environments: Insights from lab and field-based studies. Poster presented 22-27 February at *OSM*, Glasgow, Scotland.
- Leal, A.* , Anderson, R.F., Fleisher, M.Q., **Black, E.**, Hayes, C., Redmond, N., Li, X., and Edwards, R.L., 2024, Enhanced Scavenging by Resuspended Sediments in the Pacific Ocean along the GEOTRACES GP15 Transect, Poster presented 10 Dec at AGU, Washington D.C., USA.
- Bam, W.* , Pike, S., Benitez-Nelson, C., Maiti, K., Morris, S., **Black, E.**, Kenyon, J., Lam, P., and Buesseler, K. 2024, Quantifying Export and Remineralization of Bioactive and Particle Reactive Trace Elements using ^{234}Th : Café Thorium's journey and contribution to the US GEOTRACES Program, Poster presented 10 December at AGU, Washington, D.C.
- Black, E.E.***, Anderson, R.F., Fleisher, M.Q., Holmes, K., Kienast, S., Weber, T.S., and Xu, H., 2024, The complexities of constraining carbon export in coastal zones: insights from radioisotopes in two North Atlantic basins, Poster presented Feb 22 at Ocean Sciences, New Orleans, USA.
- Hayes, C.T.* , Redmond, N., **Black, E.E.**, Anderson, R.F., Fleisher, M.F., Edwards, R.L., Li, X., Lam, P.J., and Pavia, F.J., 2024, Thorium-based marine particle sinking rates: what do they mean and how do they vary around the world?, Poster presented Feb 20 at Ocean Sciences, New Orleans, USA.
- Leal, A.* , Anderson, R.F., Fleisher, M.Q., **Black, E.E.**, Hayes, C.T., Redmond, N., Edwards, R.L., and Li, X., 2022, Comparison of water column and core top thorium-232 fluxes in the Pacific basin (GEOTRACES section GP15), Poster presented Feb 27-Mar 4 at Ocean Sciences, virtual meeting.

- Kemnitz, N.*, Hammond, D., Hautala, S., Charette, M., Moore, W., Henderson, P., Le Roy, E., Anderson, R.F., Fleisher, M.Q., and **Black, E.E.**, 2022, ^{227}Ac distribution along the GEOTRACES Meridional Transect as an indicator of solute transport, Poster presented Feb 27-Mar 4 at Ocean Sciences, virtual meeting.
- Healey, M.*, Kienast, S.S., **Black, E.E.**, Algar, C.K., Armstrong, M., deGelleke, L., 2022, Improving estimates of the biological carbon pump in coastal regions: Quantifying particulate organic carbon fluxes using ^{234}Th in the Bedford Basin, Nova Scotia, poster to be presented Feb 27-Mar 4 at Ocean Sciences, virtual meeting.
- Fleisher, M.Q.*, Anderson, R.F., **Black, E.E.**, Carracino, N., Edwards, R.L., Hayes, C.T.*, Lam, P.J., Li, X., Redmond, N., Rojas, S., and Schroedl, P., 2021, Particle dynamics in the central Pacific Ocean: Insights from Th and Pa isotopes, Session 13aO2. Talk presented 7 Jul at *Goldschmidt*, Lyon, France.
- Black, E.E.***, Charette, M.A., Lam, P.J., Anderson, R.F., Kipp, L.E., Xiang, Y., Vivancos, S.M., Kienast, S.S., and Buesseler, K.O., 2020, Carbon export and particulate trace metal cycling across the Western Arctic Ocean. Session CT14C-0870, Abstract ID 650959. Presented 16 – 21 Feb at *Ocean Sciences*, San Diego, CA.
- Kienast, S.S.*, **Black, E.E.**, and Algar, C.K., 2020, Towards a Better Understanding of Coastal Carbon Cycling and Sequestration: Quantifying Sinking Carbon in the Bedford Basin and Beyond. Session OB44F-0752, Abstract ID 646996. Talk presented 16 – 21 Feb at *Ocean Sciences*, San Diego, CA.
- Black, E.E.*** Anderson, R.F., Buesseler, K.O., Charette, M.A., Lam, P.J., Kipp, L.E., Vivancos, S.M., Xiang, Y., and Kienast, S.S., 2019, Tracking the Biological Carbon Pump in the Arctic Ocean. Poster presented 11 Sep at *Lamont Postdoctoral Symposium*, Lamont Doherty Earth Observatory, Palisades, NY.
- Black, E.E.***, Anderson, R.F., Buesseler, K.O., Charette, M.A., Lam, P.J., Kipp, L.E., Vivancos, S.M., Xiang, Y., and Kienast, S.S., 2018, Thorium Isotopes as Tracers of Particulate Export and Remineralization in the Arctic Ocean. Poster presented 19–21 Sep at *Research Alumni Conference: 'Frontiers in Ocean Sustainability: Co-Designing Research and Solutions'*, Halifax, NS.
- Black, E.***, Buesseler, K.*, Pike, S., Lam, P., and Charette, M., 2016, Thorium-234 distribution along the Eastern Pacific GEOTRACES transect and implications for export and remineralization of carbon and trace metals, Poster No. 218, Session 12d. Poster presented 26 Jun–1 Jul at *Goldschmidt*, Yokohama, Japan.
- Black, E.E.***, Buesseler, K.O., Pike, S.M., Lam, P.J., and Charette, M.A., 2016, ^{234}Th distribution along the Eastern Pacific GEOTRACES transect and implications for export and remineralization fluxes of carbon and TEIs, Abstract ID CT24A–0140. Poster presented 21–26 Feb at *Ocean Sciences*, New Orleans, LA.
- Black, E.***, Buesseler, K., Pike, S., Nishikawa, J., and Kanda, J., 2014, Spatial variability and the fate of cesium in coastal sediments near Fukushima, Japan, Poster No. 595, Session 114. Poster presented 23–28 Feb at *Ocean Sciences*, Honolulu, HI.

TEACHING AND MENTORING

MENTORING AND STUDENT COMMITTEE SERVICE

UR PhD Advisor

2022 – Present Karine Holmes (post-qualifying exam)

2022 – Present Mariya Cyriac (post-qualifying exam)

UR Undergraduate Advisor

2026 EES major advisor: Julia Dubey

2026 Research (summer) advisor: Samantha Zack

2024 – 2025 Research (thesis) advisor: Sarah Mason

2024 Discover summer program research project advisor: Sarah Mason

2023 – 2024 Research project advisor: Yutong He

2023 – 2024 Research project advisor: Carly Velicer
 2023 – 2024 Research (thesis) advisor: Nuo Chen
UR Committee Member and/or Thesis Reader
 2026 Thesis reader: Kylin Roberts (EES)
 2026 Thesis reader: Ryan Garber (EES)
 2025 Ph.D. Proposal Defense Committee Member: Gracie Creed (EES)
 2024 Ph.D. Proposal Defense Committee Member: Sydney Loudon (EES)
 2024 Ph.D. Proposal Defense Committee Member: Jesse Dugan (EES)
 2023 PhD Defense Committee Chair: Shikhar Rai (MechE)
 2022 Ph.D. Proposal Defense Committee Member: Madeline Every (EES)
 2022 Thesis reader: Anesse Pinpokintr (EES)

External Mentoring

2026 M.S. Thesis Committee Member: Alexandra Bettinelli (Alfred Wegener Institute)
 2023 – 2024 M.S. Thesis Committee Member: Gage Hunter (University of Wisconsin-Milwaukee),
 Defended June 2024.
 2021 – 2026 Ph.D. Thesis Committee Member: Madeline Healey (Dalhousie University), Defended
 July 2026.
 2020 – 2026 Student Mentor: Evie Fachon (Society for Women in Marine Science)
 2020 Student Mentor: Ocean Sciences Meeting Mentoring Program (2 mentees)

ADDITIONAL TEACHING, EDUCATIONAL PROGRAMS AND CERTIFICATES

2026 Industry Partner Collaboration on EES216/416: Semester-long incorporation of local
 consulting firms (Haley and Aldrich, Lozier Environmental) into course projects and
 deliverables. Students presented at Major Findings Fair poster event in April.
 2023 – 2024 College Course Development Fellowship program (CCDF): two-semester program
 through the UR Teaching Center to collaborate with AS&E faculty and staff to develop,
 plan, and implement a new EESC262/462 course.
 2023 Mindful Professor Certificate Program (Cohort 2 Fall) – 3-month pilot study at UR
 2018 – 2022 Dalhousie University Faculty Certification Program in Teaching and Learning: core
 course, studio courses, peer observations, teaching dossier, and reflections
 (<https://www.dal.ca/dept/clt/programs/FCTL.html>) – certificate awarded June 2022
 2021 LDEO Workshop on Inclusive and Culturally Competent Teaching in the Earth Sciences
 2016 MIT Kaufman Certification: 9-week course for the development of teaching skills
 2008 – 2009 Adult Education Instructor in English (15–20 students per class, 1 academic year): Priego
 de Cordoba, Spain
 2008 – 2009 K–6 Teacher in Bilingual Science and Physical Education (10–20 students per class, 1
 academic year): Cristóbal Luque Onieva, Córdoba, Spain
 2008 Teaching Assistant: Earth Resources (Winter), Hydrogeology (Spring), Earth Materials
 and Mineralogy (Summer), Dartmouth College, NH
 2007 Lab Lecturer and Teaching Assistant, Spring Semester, Igneous/Metamorphic Petrology:
 Dartmouth College, NH
 2007 Teaching Assistant: Natural Disasters (Winter Semester) and the Earth Sciences Field
 Program ‘The Stretch’ (Fall Semester), Dartmouth College, NH
 2006 Lab Lecturer and Teaching Assistant, Fall Semester, Introduction to Earth Sciences:
 Dartmouth College, NH

SERVICE AND OUTREACH ACTIVITIES

PROFESSIONAL SERVICE (2015-)

2026	Department Representative: New Building Construction Wet Lab Group (Apr - July)
2026	Admitted Candidates Webinar Panelist/EES Representative (UR, Mar)
2024 - 2025	Committee Member: Faculty Search in Earth Systems Science in Remote Sensing (UR, EES)
2024	Session convener: <i>Geochemical Tracers of Ocean Processes</i> (CT002), <i>New Thoughts to Old Questions: Quantifying Carbon Export and Attenuation and their Controlling Mechanisms in the Ocean</i> (OB012), Ocean Sciences, New Orleans, USA.
2024	Panelist: UR Sproull-Provost Faculty Review Panel
2023	Panelist: NSF OCE
2023 - 2024	Committee Member: Faculty Search in High Temperature Geochemistry (UR, EES)
2022 – Present	Curriculum Committee Member (UR, EES)
2022 – Present	Graduate Admissions Committee Member (UR, EES)
2022	Co-planner: UR EES Graduate Student Open House
2022	Session convener: <i>Temporal Variability of Bioactive Trace Elements in the Upper Ocean: Towards Constraining Drivers, Mechanisms and Timescales</i> , Ocean Sciences, Hawaii, USA.
2021	Volunteer: UR representative for the Department of Energy virtual student fair
2021	Session convener: <i>Particle fluxes in the oceans: biogeochemical cycles from source to sink</i> , Goldschmidt, France (due to covid the conference was conducted virtually).
2019	Session Co-chair: <i>Radionuclides in aqueous systems</i> , Aquatic Sciences, PR
2018 – Present	Proposal Reviewer: National Science Foundation (OCE, ~1 per year; Other NSF programs - EAR-FRES, GEO/OPP, etc. ~1 per year)
2015 – Present	Manuscript Reviewer: Journal of Geophysical Research: Oceans, Global Biogeochemical Cycles, G ³ , Deep-Sea Research Part I, Marine Chemistry, Limnology and Oceanography, Progress in Oceanography, Earth System Science Data, Continental Shelf Research, Limnology and Oceanography: Methods, Geophysical Research Letters, Nature Communications, Environmental Science and Technology

OUTREACH, INCLUSIVITY TRAININGS, AND ADDITIONAL SERVICE EFFORTS

2025	Instructor: Upward Bound, Plastics Pollution (Summer, UR)
2024	Undergraduate Research Fair EES Representative (Fall, UR)
2024	Guest career speaker: GE-251 Junior Seminar (Fall, Skidmore College)
2023	Guest career speaker: EESC209 Introduction to Geochemistry (Fall, UR)
2022	Panelist: Preparing for the academic job market (WHOI)
2021	Safe Space Certification and Training (UR)
2021	Participant: URGE – Unlearning Racism in Geoscience, 16 weeks program
2019	Open House Educational Volunteer (LDEO)
2018	Judge: Professional and Research Education Program Graduate Student Research Day (Dalhousie University, NS)
2017	Member of Broader Impacts Group (WHOI)
2017	National Network for Ocean and Climate Change Interpretation Science Fellow (NNOCCI): Science expert for informal science educators, program aimed at improving public communication of climate change and its impacts on marine life and systems.
2016 – 2017	Women's Committee Chair and Acting Chair (WHOI)