David C. Lund

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Education

Ph.D., Marine Geology, Massachusetts Institute of Technology/ Woods Hole Oceanographic Institution Joint Program in Oceanography — 2006

M.S., Oceanography, Oregon State University, Corvallis, OR — 1997

B.A., Geology, Carleton College, Northfield, MN — 1993

Professional Positions

University of Connecticut - Professor — 2019-present
Department of Marine Sciences, Groton, CT

University of Tasmania - Visiting Research Fellow — 2019-2020
Institute for Marine and Antarctic Studies, Hobart

University of Connecticut - Associate Professor — 2016-2019
Department of Marine Sciences, Groton, CT

University of Connecticut - Associate Professor w/o tenure — 2013-2016
Department of Marine Sciences, Groton, CT

Woods Hole Oceanographic Institution - Guest Investigator — 2013-2019
Department of Geology and Geophysics, Woods Hole, MA

University of Michigan - Assistant Professor — 2008-2013
Department of Geological Sciences, Ann Arbor, MI

California Institute of Technology - NOAA Postdoctoral Scholar — 2006-2008
Division of Geological and Planetary Sciences, Pasadena, CA

Woods Hole Oceanographic Institution - Graduate Research Assistant — 2000-2005
Department of Geology and Geophysics, Woods Hole, MA

Harvard University - Research Fellow — 1999-2000
Global Environmental Assessment Project, Cambridge, MA

National Oceanic and Atmospheric Administration - Sea Grant Fellow — 1998-99
Office of Global Programs, Silver Spring, MD

Oregon State University - Graduate Research Assistant — 1994-97
College of Oceanic and Atmospheric Sciences, Corvallis, OR

Honors and Awards

Provost's Recognition of Teaching Excellence, University of Connecticut 2016, 2017, 2018

NOAA Climate and Global Change Postdoctoral Fellowship 2006-2008
Two-year funding award to investigate the El Niño Southern Oscillation (ENSO)

John A. Knauss Sea Grant Fellowship, Washington, DC 1998-1999

Funded Research Grants ($4.4M total)

13) Collaborative Research - Resolving the LGM ventilation age conundrum: New radiocarbon records from high sedimentation rate sites in the deep western Pacific
Amount and timeline: *$850k over 3 years (June 2024 to May 2027)*
Agency and program: *NSF Marine Geology and Geophysics*
Principal investigators: *L. Stott (USC), D. Lund, and J. Beeson (OSU)*

12) Was the deep Atlantic dominated by southern source waters during the LGM? A conservative view based on the oxygen isotopic ratio of benthic foraminifera
Amount and timeline: *$450k over 3 years (June 2023 to May 2026)*
Agency and program: *NSF Marine Geology and Geophysics*
Principal investigator: *D. Lund*

11) Do metalliferous sediments record mid-ocean ridge hydrothermal activity? Constraining the roles of iron oxidation rate and ^{230}Th scavenging
Amount and timeline: *$440k over 3 years (Sept. 2020 to August 2023)*
Agency and program: *NSF Marine Geology and Geophysics*
Principal investigator: *D. Lund*

10) Tracking Southern Ocean sea ice extent and frontal positions: Novel techniques based on oxygen isotope and Mg/Ca analyses of foraminifera
Amount and timeline: *$400k over 3 years (June 2020 to May 2023)*
Agency and program: *NSF Paleo Perspectives on Climate Change*
Principal investigator: *D. Lund*

9) The Atlantic's role in ice age inception and termination: Assessing carbon storage and release with new Brazil Margin profiles from MIS 2 to MIS 6
Amount and timeline: *$380,000 over 3 years + $50k supplement (May 2018 to Dec. 2022)*
Agency and program: *NSF Paleo Perspectives on Climate Change*
Principal investigator: *D. Lund*

8) Anomalous submarine volcanism during glacial terminations: Exploring archives from the global mid-ocean ridge system
Amount and timeline: *$50,000 over 1 year (August 2018 to August 2019)*
Agency and program: *NSF Marine Geology and Geophysics EAGER Grant*
Principal investigator: *D. Lund*

7) Millennial-scale atmospheric CO_2 variability during the last deglaciation: Testing the biological pump hypothesis using upper ocean carbon isotope records
Amount and timeline: *$265,000 over 2 years (June 2017 to May 2019)*
Agency and program: *NSF Paleo Perspectives on Climate Change*
Principal investigator: *D. Lund*

Funded Research Grants (cont.)

6) Explosive submarine volcanism during glacial terminations: New sediment archives from the global mid-ocean ridge system
Amount and timeline: *$25,000 over 1 year (June 2017 to May 2018)*
Agency and program: *UCONN Research Excellence Program*
Principal investigator: *D. Lund*

5) Collaborative Research: Evaluating sea level modulation of hydrothermal activity
Amount and timeline: *$345,000 over 2 years (June 2016 to May 2018)*
Agency and program: *NSF Marine Geology and Geophysics*
Principal investigators: *D. Lund (lead PI) and P. Asimow (co-PI, Caltech)*

4) Diagnosing the origin of light carbon in the South Atlantic during the last deglaciation
Amount and timeline: *$311,000 over 3 years (June 2014 to May 2017)*
Agency and program: *NSF Paleo Perspectives on Climate Change*
Principal investigator: *D. Lund*

3) Western Equatorial Pacific rainfall during the Holocene - New interannual records from high resolution Borneo stalagmites
Amount and timeline: *$280,000 over 3 years (Sept. 2011 to August 2014)*
Agency and program: *NSF Paleo Perspectives on Climate Change*
Principal investigator: *D. Lund (lead PI) and S. Hoffmann (co-PI, postdoc)*

2) Antarctic Bottom Water circulation during the last deglaciation: Quantitative constraints from stable isotope tracer budgets
Amount and timeline: *$321,000 over 3 years (June 2011 to May 2014)*
Agency and program: *NSF Paleo Perspectives on Climate Change*
Principal investigator: *D. Lund*

1) Tropical hydrologic cycle variability during the Holocene: A proposal to investigate the role of the El Niño Southern Oscillation
Amount and timeline: *$130,000 over 2 years (Jan. 2006 to Dec. 2008)*
Agency and program: *NOAA Climate and Global Change Postdoctoral Fellowship*
Principal investigators: *D. Lund and J. Adkins (co-PIs)*

Publications

§postdoc, †graduate student, ‡undergraduate

42) Chase, Z., et al. The role of Antarctic sea ice in the Earth System: Perspectives informed by 130,000 years of sea ice records, *Climate of the Past*, in review (egusphere.copernicus.org /preprints/2025/egusphere-2025-3504).

41) †Garity, M., D. Lund, ‡J. McBride, ‡H. Jerris. Progressively greater biological carbon storage in the deep Atlantic during glacial inception, *Proceedings of the National Academy of Sciences*, 2025.

40) †Garity, M., and D. Lund, Multi-proxy evidence for Atlantic Meridional Overturning Circulation weakening during deglaciations of the past 150,000 years, *Paleoceanography and Paleoclimatology*, 2024.

Publications (cont.)

39) †Shub, A., D. Lund, D. Oppo, and †M. Garity, Brazil Margin stable isotope profiles for the last glacial cycle: Implications for watermass geometry and oceanic carbon storage, *Paleoceanography and Paleoclimatology,* 2024.

38) Muglia, J., et al., A global synthesis of high-resolution stable isotope data from benthic foraminifera of the last deglaciation, *Scientific Data*, doi.org/10.1038/s41594-023-02024-2, 2023.

37) Crosta, X., et al., Antarctic sea ice over the past 130,000 years - Part 1: What proxy records tell us, *Climate of the Past*, doi.org/10.5194/cp-18-1729-2022, 2022.

36) Yu, J., D. Oppo, Z. Jin, †M. Lacerra, X. Ji, N. Umling, D. Lund, and N. McCave, Millennial and centennial carbon releases from the Southern Ocean during the last deglaciation, *Nature Geoscience,* doi.org/10.1038/s41561-022-00910-9, 2022.

35) Lund, D., Chase, Z., K. Kohfeld, and E. Wilson. Tracking Southern Ocean sea ice extent with winter water: A new technique based on the oxygen isotopic signature of foraminifera, *Paleoceanography and Paleoclimatology,* doi:10.1029/2020PA004095, 2021.

34) Costa, K., et al., ^{230}Th normalization: New insights on an essential tool for quantifying sediment fluxes in the modern and Quaternary ocean, *Paleoceanography and Paleoclimatology,* doi:10.1029/2019PA003820, 2020.

33) Waelbroeck, C., et al., Consistently dated Atlantic sediment cores over the last 40 thousand years, *Scientific Data*, 6, 165, 2019.

32) †Lacerra, M., D. Lund, J. Gebbie, D. Oppo, J. Yu, and A. Schmittner. Less remineralized carbon in the intermediate-depth South Atlantic during Heinrich Stadial 1, *Paleoceanography and Paleoclimatology,* 24, 2019.

31) Umling, N., D. Oppo, P. Chen, J., Yu, Z. Liu, M. Yan, G. Gebbie, D. Lund, K. Pietro, Z. Jin, K. Costa, F. Toledo. South Atlantic subsurface warming and forcing mechanisms during deglaciation, *Paleoceanography and Paleoclimatology*, 34, 990-1005, 2019.

30) Lund, D., §J. Hertzberg, and †M. Lacerra. Carbon isotope minima in the South Atlantic during the last deglaciation: Evaluating the influence of air-sea gas exchange. *Environmental Research Letters,* 14, 2019.

29) Lund, D., F. Pavia, †E. Seeley, †S. McCart, P. Rafter, K. Farley, P. Asimow, and R. Anderson. Hydrothermal scavenging of ^{230}Th on the Southern East Pacific Rise during the last deglaciation. *Earth and Planetary Science Letters*, 510, 64-72, 2019.

28) Lund, D., †E. Seeley, P. Asimow, M. Lewis, †S. McCart, and ‡A. Mudahy. Anomalous volcanism along the Pacific Antarctic Ridge during glacial Termination 2, *Geochemistry, Geophysics, Geosystems,* 19, doi:10.1029/2017/GC007341.

27) Sikes, E., K. Allen, and D. Lund. Enhanced δ^{13}C and δ^{18}O differences between the South Atlantic and South Pacific during the last glaciation: The deep gateway hypothesis. *Paleoceanography*, 32, doi:10.1002/2017PA003118, 2017.

Publications (cont.)

26) ‡Lacerra, M., D. Lund, J. Yu, and A. Schmittner. Carbon storage in the mid-depth Atlantic during millennial-scale climate events. *Paleoceanography,* 21, doi:10.1002/2016PA003081, 2017.

25) Schmittner, A., et al. Calibration of the carbon isotope composition of benthic foraminifera. *Paleoceanography*, 32, 512-530, 2017.

24) §Hertzberg, J., D. Lund, A. Schmittner, and ‡A. Skrivanek. Evidence for a biological pump driver of atmospheric CO_2 rise during Heinrich Stadial 1. *Geophysical Research Letters*, 43, doi:10.1002/2016GL070723, 2016.

23) Lund, D., P. Asimow, K. Farley, T. Rooney, †E. Seeley, ‡E. Jackson, and ‡Z. Durham. Enhanced East Pacific Rise hydrothermal activity during the last two glacial terminations. *Science*, 35, 478-482, 2016.

22) †Chen, S., §S. Hoffmann, D. Lund, K. Cobb, J. Emile-Geay, and J. Adkins. A high-resolution speleothem record of western equatorial Pacific rainfall: Implications for Holocene ENSO evolution. *Earth and Planetary Science Letters*, 442, 61-71, 2016

21) Lund, D., †A. Tessin, †J. Hoffman, and A. Schmittner. SW Atlantic watermass evolution during the last deglaciation. *Paleoceanography,* 30, doi: 10.1002/2014PA002657, 2015.

20) Schmittner, A. and D. Lund. Carbon isotopes support Atlantic meridional overturning circulation decline as a trigger for early deglacial CO_2 rise. *Climate Past Discuss.*, 10, 2015.

19) Marchitto, T., W. Curry, J. Lynch-Stieglitz, S. Bryan, K. Cobb, and D. Lund. Improved oxygen isotope temperature calibrations for cosmopolitan benthic foraminifera. *Geochimica et Cosmochimica Acta*, 130, 2014.

18) Lund, D., Deep Pacific ventilation ages during the last deglaciation: Evaluating the influence of diffusive mixing and source region reservoir age. *Earth and Planetary Science Letters,* 381, 2013.

17) †Tessin, A., and D. Lund. Isotopically depleted carbon in the mid-depth South Atlantic during the last deglaciation. *Paleoceanography,* 28, doi:10.1002/palo.20026, 2013.

16) †Hoffman, J., and D. Lund. Refining the stable isotope budget for Antarctic Bottom Water: New results from the abyssal southwestern Atlantic. *Paleoceanography*, 27, doi:10.1029/2011PA002216, 2012.

15) Woodruff, J., R. Sriver, and D. Lund. Tropical cyclone activity and western North Atlantic stratification over the last millennium: A comparative review with viable connections. *Journal of Quaternary Science,* doi:10.1002/jqs.1551, 2011.

14) Lund, D., and P. Asimow. Does sea level influence mid-ocean ridge magmatism on Milankovitch timescales? *Geochemistry, Geophysics, and Geosystems,* 12, doi:10.1029/2011GC003693, 2011.

13) Lund, D., A. Mix, and J. Southon. Increase in deep Northeast Pacific ventilation age during the last deglaciation. *Nature Geoscience,* doi:10.1038/ngeo1272, 2011.

Publications (cont.)

12) †Sortor, R., and D. Lund. No evidence of a deglacial intermediate water $\Delta^{14}C$ anomaly in the Southwest Atlantic. *Earth and Planetary Science Letters,* 310, 65-72, 2011.

11) Lund, D., J. Adkins, and R. Ferrari. Abyssal Atlantic circulation during the Last Glacial Maximum: Constraining the ratio between transport and vertical mixing. *Paleoceanography*, 26, PA1213, doi:10.1029/2010PA001938, 2011.

10) Lynch-Stieglitz, J., W. Curry, and D. Lund. Florida Straits density structure and transport over the past 8,000 years. *Paleoceanography* 24, PA3209, doi:10.1029/2009PA001717, 2009.

9) Licciardi, J., J. Schaeffer, J. Taggert, and D. Lund. Holocene glacier fluctuations in the Peruvian Andes indicate northern climate linkages. *Science* 325, 1677-1679, 2009.

8) Lund, D., J. Lynch-Stieglitz, and W. Curry. Gulf Stream density structure and transport during the past millennium. *Nature* 444, doi:10.1038/nature05277, 2006.

7) Lund, D., and W. Curry. Florida Current surface temperature and salinity variability during the last millennium. *Paleoceanography* 21, PA2009, doi:10.1029/2005PA001218, 2006.

6) Lund, D. Regional abrupt climate change assessment in the United States. In *Assessments of Regional and Global Environmental Risks*. Farrell, A. and J. Jaeger, eds., Resources for the Future, Washington, D.C., pp. 138-165, 2006.

5) Lund, D., and W. Curry. Late Holocene variability in Florida Current surface density: patterns and possible causes. *Paleoceanography* 19, doi:10.1029/2004PA001008, 2004.

4) Buizer, J., J. Foster, and D. Lund. Global impacts and regional actions: Preparing for the 1997–98 El Niño**.** *Bulletin of the American Meteorological Society* 81, 2121–2140, 2000.

3) Mix, A., D. Lund, N. Pisias, P. Boden, L. Bornmalm, M. Lyle, and J. Pike. Rapid climate oscillations in the Northeast Pacific during the last deglaciation reflect northern and southern sources. In *Mechanisms of Global Climate Change at Millennial Time Scales*. Clark, P., R. S. Webb, and L. D. Keigwin, eds., AGU Monograph 112, pp. 127-148, 1999.

2) Lund, D., and A. Mix. Millennial-scale Deep Water Oscillations: Reflections of the North Atlantic in the Deep Pacific from 10 to 60 ka. *Paleoceanography* 13, 10-19, 1998.

1) Lyle, M., Koizumi, I., and the Leg 167 Scientific Party. Reflectance Properties of Leg 167 Sediments. *Ocean Drilling Project Leg 167 Scientific Results Volume,* College Station, TX, 1997.

Selected Invited Presentations

University of Southern California, Department of Earth Sciences, Los Angeles, CA	2020
University of Tasmania, Institute for Marine and Antarctic Studies, Hobart	2020
University of Tasmania, Department of Earth Sciences, Hobart	2020
NOAA Climate and Global Change Meeting, Steamboat Springs, CO	2019
Massachusetts Institute of Technology, EAPS, Cambridge, MA	2018

Selected Invited Presentations

Lamont-Doherty Earth Observatory, Geochemistry Seminar, Palisades, NY	2018
University of Tasmania, Institute for Marine and Antarctic Studies, Hobart	2017
United States Coast Guard Academy, Groton, CT	2016
Australian National University, Research School of Earth Sciences, Canberra	2015
Harvard University, Department of Earth and Planetary Sciences, Cambridge, MA	2014
Oregon State University, College of Oceanic and Atmospheric Sciences, Corvallis, OR	2013

Postdoctoral Fellows

Jennifer Hertzberg	2015-2017
Sharon Hoffman	2008-2010

Graduate Students

Ph.D. students (current):

2) Erin Leathrum	2024-present
1) Monica Garity	2019-present

M.S. students (graduated):

10) Ethan Taylor	2021-2024
9) Sarah McCart	2018-2020
8) Alec Shub	2018-2020
7) Matthew Lacerra	2017-2018
6) Melissa Cote	2015-2016
5) Emily Seeley	2014-2016
4) Sang Chen	2012-2014
3) Allyson Tessin	2011-2013
2) Rachel Sortor	2010-2012
1) Jamie Hoffman	2009-2011

Undergraduates

Current: Zachary Jones
Alumni: Hope Jerris (NSF REU), Jacquelyn McBride (NSF REU), Walker Melzen, Matt Lacerra, Sarah McCart, Anna Mudahy, Charlotte Beal (Carleton College), Rachel Sortor, Rachel Franzblau, Elliot Jackson, Zach Durham

High School Students

Current: Cornelia Hatfield (Marine Science Magnet High School)
Alumni: Ko Parlagreco (Marine Science Magnet High School)