

# Curriculum vitae

## PERSONAL INFORMATION

### Daniel James Repeta

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## WORK EXPERIENCE

- 1998–Present **Senior Scientist**  
Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution (United States)
- 2010 **Chair**  
Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution (United States)
- 1989–1998 **Associate Scientist**  
Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution (United States)
- 1985–1989 **Assistant Scientist**  
Department of Chemistry, Woods Hole Oceanographic Institution (United States)
- 1984 **NATO Postdoctoral Fellow**  
Institute du Chimie, Universite Louis Pasteur, Strasbourg (France)
- 1983 **NIH Postdoctoral Research Fellow**  
Columbia University (United States)

## EDUCATION AND TRAINING

- 09/1982 **Ph.D., Chemical Oceanography**  
Massachusetts Institute of Technology/Woods Hole Oceanographic Institution (United States)
- 09/1977 **B.S., Chemistry**  
University of Rhode Island (United States)

## ADDITIONAL INFORMATION

### RESEARCH ACTIVITIES

#### Research sectors

- Chemical oceanography
- Marine biogeochemical cycles
- Global change
- DOM-microbes interactions

**Recent Scientific Activities**

- Cycling of organic matter in seawater and sediments
- Chemistry and biochemistry of photosynthetic pigments in marine plankton
- Structural determination, biological production and fate complex polysaccharides and bioactive organic compounds in dissolved organic matter
- Use of stable (<sup>15</sup>N, <sup>13</sup>C) and natural abundance radioisotopes (<sup>14</sup>C, <sup>3</sup>H) in specific organic compounds as tracers
- Carbon preservation in marine sediments
- Microbial biogeochemistry in the North Pacific Ocean
- Microbial production of organic iodine

**PUBLICATIONS**

**106 papers JCR** (peer review), **203 Published Abstracts, Talks & Posters** (Since 1987)

**Last 5 years**

- Honjo, S., T. I. Eglinton, C. D. Taylor, K. M. Ulmer, S. M. Sievert, A. Bracher, C. German, V. Edgcomb, R. Francois, D. M. Iglesias-Rodriguez, B. Van Mooy, and D. J. Repeta (2014). Understanding the Role of the Biological Pump in the Global Carbon Cycle: An Imperative for Ocean Science. *Oceanography*, 27: 10-16. [doi.org/10.5670/oceanog.2014.78](https://doi.org/10.5670/oceanog.2014.78).
- Follett, C. L., D. J. Repeta, D. H. Rothman, L. Xu, and C. Santinelli (2014). Hidden cycle of dissolved organic carbon in the deep ocean. *Proc. Nat. Acad. Sci. USA*, 111: 16706-16711.
- Repeta, D. J. (2015). Composition and cycling of dissolved organic matter. In: *Marine Dissolved Organic Matter*, (D. Hansell and C. Carlson, Eds.), Elsevier, pp. 21-63.
- Van Mooy, B. A. S., A. Kruepe, S. T. Dyhrman, H. F. Fredricks, K. R. Frischkorn, J. E. Ossolinski, D. J. Repeta, M. Rouco, J. D. Seewald, and S. P. Sylva (2015). Major role of planktonic phosphate reduction in the marine phosphorous cycle. *Science*, **348**: 783-785.
- Boiteau, R. and D. J. Repeta (2015). An extended siderophore suite from *Synechococcus* sp. PCC 7002 revealed by LC-ICPMS-ESIMS. *Metallomics*, **7**: 877-884.
- Sosa, O. A., S. M. Gifford, D. J. Repeta, and E. F. DeLong (2015). High molecular weight dissolved organic matter enrichment selects for methylotrophs in dilution to extinction cultures. *ISME Journal*, 1-15, doi: 10.1038/ismej.2015.68.
- Santinelli, C., C. L. Follett, S. R. Brogi, L. Xu, and D. J. Repeta (2015). Carbon isotope measurements reveal unexpected cycling of dissolved organic matter in the deep Mediterranean Sea. *Marine Chem.*, **177**: 267-277.
- Rii, M. Y., S. Duhamel, R. Bidigare, D. M. Karl, D. J. Repeta, and M. J. Church (2016). Diversity and productivity of photosynthetic picoeukaryotes in biogeochemically distinct regions of the South East Pacific Ocean. *Limnol. Oceanogr.*, **61**: 806-824.
- Moran, M. A., E. B. Kujawinski, A. Stubbins, R. Fatland, L. I. Aluwihare, A. Buchan, B. C. Crump, P. C. Dorrestein, S. T. Dyhrman, N. J. Hess, B. Howe, K. Longnecker, P. M. Medeiros, J. Niggemann, I. Obernosterer, D. J. Repeta, and J. R. Waldbauer (2016). Deciphering ocean carbon in a changing world. *Proc. Nat. Acad. Sci. USA*, **113**: 3143-3151.
- Cobban, A., V. A. Edgcomb, G. Burgaud, D. J. Repeta, and E. R. Leadbetter (2016). Revisiting the pink-red pigmented basidiomycete mirror yeast of the phyllosphere. *MicrobiologyOpen*, Oct.5(5): 846-855, doi: 10.1002/mbo3.374. Epub 2016 May 10.
- Gifford, S. M., J. Becker, O. A. Sosa, D. J. Repeta, and E. F. DeLong (2016). Quantitative transcriptome analyses of a streamlined marine methylotroph grown on low and high molecular weight DOC. *mBio* 7 e01279-16. doi: 10.1128/mBio.01279-1622.
- Boiteau, R. M., N. J. Hawco, D. R. Mende, M. R. McIlvin, P. N. Sedwick, M. A. Saito, E. F. DeLong, and D. J. Repeta (2016). Microbes adapt to iron scarcity through siderophore production across the eastern tropical Pacific. *Proc. Nat. Acad. Sci. U.S.A.*, **113**: 14237-14242.
- Repeta, D. J., S. Ferrón, O. A. Sosa, C. A. Johnson, L. D. Repeta, M. A. Acker, E. F. DeLong, and David M. Karl (2016). Marine methane paradox explained by bacterial degradation of dissolved organic matter. *Nat. Geosci.*, **9**: 884-887.
- Boiteau, R. M., C. P. Till, A. Ruacho, R. M. Bundy, N. J. Hawco, A. M. McKenna, K. A. Barbeau, K. W. Bruland, M. A. Saito, and Daniel J. Repeta (2016). Structural characterization of natural nickel

and copper binding ligands along the US GEOTRACES Eastern Pacific Zonal transect. *Frontiers in Marine Science*, doi: 10.3389/fmars.2016.00243.

- Zigah, P. K., A. P. McNichol, L. Xu, C. Johnson, C. Santinelli, D. M. Karl, and D. J. Repeta (2017). Multiple sources and dynamic cycling of ocean dissolved organic carbon revealed by carbon isotopes. *Geophys. Res. Lett.* 44, 2407-24125.
- Duhamel, S., K. M. Bjorkman, D. M. Karl, and D. J. Repeta (2017). Phosphorus dynamics in the southeast subtropical Pacific Ocean. *Prog. Oceanogr.* 151, 261-274.
- Repeta, D. J. and R. M. Boiteau (2017). Organic Nutrient Chemistry and the Marine Microbiome. In: *The Chemistry Microbiomes: Proceedings of a Seminar Series*. Washington (DC): National Academies Press (US); 2017 Jul 19. 7.
- Catherine, L., L. Amaral-Zettler, H. Ducklow, D. J. Repeta, Andrew Rhyne, and Jeremy Rich (2017). Influence of phytoplankton-derived dissolved organic matter on marine bacterial community dynamics in the Western Antarctic Peninsula. *Frontiers in Marine Science*, 8: 2117, doi/10.3389/fmicb.2017.02117.
- Drenkard, E., A. Cohen, D. McCorkle, S. de Putron, V. Starczak, and D. J. Repeta (2018). Juvenile of the Atlantic coral, *Favia fragum* (Esper, 1797) do not invest energy to maintain calcification under ocean acidification. *J. Exp. Mar. Biol. Ecol.* 507: 61-69, <https://doi.org/10.1016/j.jembe.2018.07.007>.
- Bundy, R. M., Boiteau, C. McLean, K. A. Turk-Kubo, M. R. McIlvin, M. A. Saito, B. A. S. Van Mooy, and D. J. Repeta (2018). Distinct Siderophores Contribute to Iron Cycling in the Mesopelagic at Station ALOHA. *Front. Mar. Sci.*, 5: 61. doi: 10.3389/fmars.2018.00061.
- Boiteau, R.M., C. P. Till, T. H. Coale, J. N. Fitzsimmons, K. W. Bruland, and D. J. Repeta (2018). Patterns of iron and siderophore distributions across the California Current System. *Limnology and Oceanography*. <https://doi.org/10.1002/lno.11046>
- Becker, K.W., J. R. Collins, B. P. Durham, R. D. Groussman, A. E. White, H. F. Fredricks, J. E. Ossolinski, D. J. Repeta, P. Carini, E. V. Armbrust and B.A. S. Van Mooy (submitted-2018) Daily changes in phytoplankton lipidomes reveal mechanisms of energy storage in the open ocean. *Nature Communications*. <https://doi.org/10.1038/s41467-018-07346-z>
- O'Brien, R. E., K. Ridley, M. Canagaratna, J. Jayne, P. Croteau, D. Worsnop, S. Hapsari Budisulistiorini, J. D. Surratt, C. L. Follett, D. J. Repeta, and J. H. Kroll. (2019) Characterization of an Ultrasonic Nebulizer for Elemental Analysis of Microgram-Level Samples with Offline Aerosol Mass Spectrometry. *J. Atm. Meas. Tech.* 12:1659-1671.
- Lin, H.-T., D. J Repeta, L. Xu, M. S. Rappé. (2019) Selective removal of isotopically enriched dissolved organic carbon and addition of aromatics in basalt-hosted deep seafloor fluids. *Earth Planetary Sci.* 513: 156-165.
- Nouara, A., C. Panagiotopoulos, J. Balesdent, K. Violaki, E. Bard, D. J. Repeta, and R. Sempéré. (2019) Preparative chromatography for specific Delta <sup>13</sup>C isotopic analysis of individual carbohydrates from environmental samples. *Analytica Chimica Acta*, 1067; 137-146
- Sosa, O.A., Repeta, D.J., DeLong, E.F., and D.M. Karl. (2019) Phosphate-limited ocean regions select for bacteria harboring the carbon-phosphorus lyase pathway for phosphonate degradation. *Environ. Microbiol.*, 21: 2402-2414.
- Baltar, F., Bayer, B., Bednarsek, N., Deppeler, S., Escribano, R., Gonzalez, C., Hansman, R., Kanta Mishra, R., Moran, M.A., Repeta, D.J., Robinson, C., Sintes, E., Tamburini, C., Valentin, L., and G. Herndl (2019) Towards Integrating evolution, metabolism and climate change studies of marine ecosystems (2019) *Trends Ecol. Evol.* [doi.org/10.1016/j.tree.2019.07.003](https://doi.org/10.1016/j.tree.2019.07.003)

#### AWARDS and FELLOWSHIPS

- WHOI Vetleson Award, 2004
- Stanley W. Watson Chair in Oceanography, 2000
- National Institutes of Health, National Research Service Award, 1983-1984
- NSF/NATO Postdoctoral Fellowship Award, 1982
- Paul Fye Award for Best Student Paper, MIT/WHOI Joint Program, 1982
- Phi Beta Kappa, Graduated Highest Distinction, University of Rhode Island, 1977
- Analytical Chemistry Award, URI Chapter of the American Chemical Society, 1976

## PROFESSIONAL ACTIVITIES

- SCOR-UNESCO WG-78 Intercalibration of seawater pigment analyses (May 1986-December 1995)
- Panel member CHEMRAWN IV Upper Ocean Working Group, Keystone, CO (1987)
- Member, JGOFS Upper Ocean Working Group (1989)
- Session Chair, 14<sup>th</sup> International Meeting in Organic Geochemistry (1989)
- Steering Committee, Symposia on Future Challenges in Marine Organic Chemistry (1989-1990)
- JGOFS Pigment Intercalibration Exercise (1989-1990)
- IOC Group of Experts on Standards and Reference Materials (1990)
- Member, JGOFS Arabian Sea Working Group (1991)
- Indian Ocean Marine Affairs Commission (IOMAC), Marine Chemistry Working Group (1992)
- Steering Committee, DoE Ocean Margins Program (1993-1998)
- Dalhem Conference on Non-Living Organic Matter in the Environment (1994)
- External Review Committee, Oceanography Department, Brookhaven National Laboratory (1994)
- Conference Organizer, DoE Ocean Margins Program Annual Meeting (1994)
- Session Chair, ASLO winter/spring meeting (1997)
- Panel member, Future of Chemical Oceanography in the US (1998)
- NSF Chemical Oceanography, Proposal Review Panel (1998)
- Guest Editor, Deep Sea Research (2000)
- Hosted ONR workshop on "Colored Dissolved Organic Matter in Seawater" at WHOI (July 2002)
- Member, CNRS PROOF Oversight Panel: Marine Chemistry and Biology (December 2002-2003)
- Member, NSF Biocomplexity Panel (April 2003)
- Member, DOE Carbon Sequestration Panel (May 2003)
- Instructor on organic biomarkers and paleoclimate at the Austral Summer Institute, Concepcion, Chile (January 2004)
- CMORE Executive Committee (2006-2010)
- Instructor at the Agouon Summer Course in Marine Microbiology (Each June 2006-2014)
- Co-organizer, Production and Cycling of Dissolved Organic Matter in Aquatic Systems Studied through Experimental, Field, and Modeling Approaches. ASLO Winter meeting (February 2007)
- WHOI representative to Dept. of Energy to explore reviving DOE oceans programs (June 2007)
- Co-organizer & author of workshop report, "CMORE Futures: All Theme Science and Strategic Planning Workshop", MIT (November 2008)
- Rapporteur, Rising CO<sub>2</sub>, Ocean Acidification and Their Impacts on Marine Microbes Workshop, Honolulu, Hawaii (February 2009)
- Visiting Scientist (invited) Laboratoire de Microbiologie Géochimie et Ecologie Marines, CNRS Centre d'Océanologie de Marseille, Marseilles, France (June-July 2009)
- Co-organizer, IMBER-IMBIZO I workshop on biogeochemical cycling in the bathypelagic ocean, Miami (November 2009)
- Steering Committee and Co-organizer, IMBER-IMBIZO II workshop on elemental cycles and food web structure. Heraklion, Crete (October 2010)
- External Review Committee-NSERC (Canada) committee of experts (Discovery Grant program) ASLO, Salt Lake City, UT (February 2010)
- Workshop Organizer – CMORE BiGRAPA post-cruise workshop, MBARI, Monterey CA (March 19-21, 2011)
- Co-organizer, NSF Emerging Topics in Biogeochemistry- carbon preservation workshop. Hattiesburg, MS (March 2012)
- NSF Chemical Oceanography Panel (May 2014)
- GBMF DOM workshop, Nov. 17-20, 2014
- Gulf of Mexico Research Initiative Review Panel Member (7/15).
- Guest Managing Editor, *Marine Chemistry* Special Issue on the Biogeochemistry of Dissolved

Organic Matter (5-12, 2014)

- Associate Editor, *Frontiers in Microbiology*
- Reviewer for NSF proposals, Austrian Science Foundation proposals, and various peer-reviewed journals (*Science*, *Nature*, *Nature Geoscience*, *Marine Chemistry*, *Science Advances*, *Environmental Sci. & Technology*, *Frontiers in Marine Science*, etc.)
- Session Organizer, Linking marine microbes and the molecules of dissolved organic matter through data science, 2016 ASLO Winter Meeting.

#### WHOI EDUCATION-RELATED ACTIVITIES

- SURDNA Fellowship Committee, 1986
- Admissions Committee, 1986-1987; 2000-2001
- JCCO, 1988-1996 (Chair, 1992-1996)
- Education Council
- Education Assembly
- Search Committee, Associate Director and Dean for Education (J. Farrington appointment)
- Joint Program in Oceanography, Internal Review Committee
- Chair, Thesis Defense (J. Herring, A. Pearson, K. Smith)
- General Exam Committee
- Taught/ co-taught Marine Organic Geochemistry (MIT 12.746)
- Co taught Marine Chemistry Seminar
- Center for ocean sciences excellence in education (COSEE). Participated in workshops at University of Massachusetts, Boston (January 2005) and at WHOI (April 2005). I worked with middle school teachers in the Fairhaven, MA public school system to develop curriculum models incorporating marine sciences to teach chemistry.
- Advisor, JP Class of 2012

#### Other Education Related

- Thesis Examination Committee: Pierre Schaffer, Ist. Louis Pasteur, Strasbourg, France
- Thesis Examination Committee: Francesca Vidussi, LPMC, Villefranche-sur-Mer, France
- Ph.D. Thesis committee for Kevin Kroeger, BUMP student (2000, 2001, 2002)
- Ph.D. Thesis committee for Julie Callahan, UMB student (2000, 2001, 2002)
- Minyi Sun, SUNY, Stony Brook, Thesis Committee
- Ilka Peeken, Visiting Student, Christian-Albrechts Universitat, Kiel
- Salvatore Giovannini, LCPM, Villefranche-sur-Mer, France
- Pamela Rossel, Visiting student from the Univ. Concepcion, Chile (2004)
- Joanna York, Boston University Marine Program student (2002-2005)
- General Examination and Ph.D. thesis committee for Nathalie Morata, UCONN (2006-2009)
- Catherine Luria, Brown University (2012-2013)

#### FIELD EXPERIENCE

##### Participation in 37 Selected Field Programs

#### SUPERVISION

3 MIT UROP students  
 2 Ph.D. students  
 4 WHOI Postdoctoral Fellow  
 1 NSF Postdoctoral Fellow  
 13 Postdoctoral investigators  
 11 joint program students  
 15 summer student fellows  
 4 PT Helper

17 guest/visiting students  
12 guest/visiting investigators  
2 thesis committee member  
3 research assistant  
1 research associate  
1 research specialist

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