Steven Robert Beaupré

Curriculum Vitae, October 2011

Postdoctoral Investigator, Geology & Geophysics Department
Woods Hole Oceanographic Institution, 266 Woods Hole Rd. MS#8, Woods Hole, MA 02543
phone: 508-289-2862 · **fax:** 508-457-2183 · **email:** sbeaupre@whoi.edu

EDUCATION

Ph.D. Earth System Science Sep 2007
Dissolved Organic Carbon Concentrations and Isotope Ratios in the Northeast Pacific Ocean
University of California Irvine (UCI), Irvine, CA

M.S. Earth System Science Dec 2003
Carbon isotope ratios in the study of marine Dissolved Organic Carbon (DOC) photochemical degradation
University of California Irvine, Irvine, CA

B.S. Chemistry; Natural Products and Biochemistry option, *summa cum laude* Dec 1999
Senior thesis: Ultraviolet absorbance and photobleaching of CDOM in seawater
State University of New York, College of Environmental Science and Forestry (SUNY ESF), Syracuse, NY

RESEARCH EXPERIENCE

2010 – present Postdoctoral Investigator: Continuous-flow accelerator mass spectrometry (CFAMS) development, Marine DOC/POC isotope geochemistry. M. Roberts & A. McNichol, Geology & Geophysics Department / National Ocean Sciences Accelerator Mass Spectrometry (NOSAMS) Facility, Woods Hole Oceanographic Institution, Woods Hole, MA

2007 – 2009 Postdoctoral Scholar: Marine DOC isotope geochemistry
E.R.M. Druffel, J. Southon, & X. Xu, Earth System Science Dept, UCI, Irvine, CA

2000 – 2007 Graduate Student: Marine DOC $\Delta^{14}C$ method development, photochemistry, & kinetics
E.R.M. Druffel, Earth System Science Dept, UCI, Irvine, CA

2002 Research Assistant: Micrometeorology tower construction, soil/root respiration measurements
S. Trumbore & M. Goulden, Earth System Science Dept, UCI, Irvine, CA

2000 Summer Intern: $^{13}C/^{1}H$ NMR & mass spectrometry database construction (ACD/Labs)
D.G. Weaver, Chemical Development Dept, Bristol-Myers Squibb Co., Syracuse, NY

1998 – 2000 Undergraduate research assistant: Marine DOM optical and photochemical analyses
D.J. Kieber, Chemistry Dept, SUNY ESF, Syracuse, NY

1998 – 1998 NSF REU participant: Zero-valent metal remediation study & differential pulse polarography
B. Levine, Chemistry Dept, Clarkson University, Potsdam, NY

1996, 1997 Undergraduate summer research assistant: Particle detector/identifier construction
R. Mountain, Physics Dept, Syracuse University, Syracuse, NY

RESEARCH INTERESTS

Isotopic composition, distribution, and biogeochemical cycling of marine dissolved and particulate organic matter (DOM, POM); marine photochemistry; Continuous Flow Accelerator Mass Spectrometry (CFAMS); instrumental and methodological development

RESEARCH CRUISE PARTICIPATION (103 DAYS AT SEA)

2010 ***R/V Tioga*,** Woods Hole, MA to Buzzards Bay (Oct 13)

2010 ***R/V Atlantis***, AT16-1: Woods Hole, MA to North Atlantic Margin (Sep 10 – Oct 5)

2004 ***R/V New Horizon,*** PULSE-45: San Diego, CA to Sta. M, 34°50'N, 123°00'W (Oct 24 – Nov 1)

2002 ***R/V New Horizon,*** PULSE-40: San Diego, CA to Sta. M, 34°50'N, 123°00'W (Jun 7 – Jun 14)

1999 ***R/V Endeavor***, EN-326: Narragansett, RI to Gulf of Maine (Jul 8 – Jul 28)

1998 ***ARSV L.M. Gould***, LMG98-9: Punta Arenas, Chile to Palmer Sta., Antarctica (Oct 13 – Nov 20)

ACTIVITIES

Teaching

Instructor, *The Atmosphere*, UCI (Spring 2010)

Course Designer & Co-Instructor, *Honors Oceanography*, Orange Coast College (Spring 2010)

Instructor, *Marine Science Laboratory*, Orange Coast College (Spring 2010)

Instructor, *Marine Science Laboratory*, Orange Coast College (Fall 2009)

Instructor, *Physical Environment: an Introduction to Earth System Science*, UCI (Summer 2008)

Teaching Assistant, *Introduction to Oceanography*, UCI (Winter 2002)

Teaching Assistant, *Physical Environment*, UCI (Fall 2001)

Teaching Assistant, *Computing Methods*, SUNY ESF (1998)

Tutor, *Organic & General Chemistry, General Physics, Calculus*, SUNY ESF (1997 – 2000)

Service

Co-convener/chair, "Radiocarbon insights into the Global Carbon Cycle" sessions CO45C & CO51A, Ocean Sciences Meeting, Portland, OR (2010)

Journal Reviewer, *Global Biogeochemical Cycles*

Host, visiting scientists: *C. Carlson, R. Lindzen, L. Thompson, J. Kasting*, UCI (2003 – 2007)

Founding officer, trip leader, and advisor: Hiking Club at UCI (2002 – 2007)

Host to prospective graduate students, Earth System Science Dept, UCI (2001 – 2007)

Organizer, Graduate Student Journal Club, Earth System Science Dept, UCI (2001 – 2003)

Incoming Student Orientation Leader, SUNY ESF (1998 – 1999)

Officer, AΞS Honor Society, SUNY ESF (1997 – 1999)

Outreach Guest speaker, SUNY ESF Alumni Association, Woods Hole, MA (2011)

Guest speaker, Massasoit Science Transfer seminar series on careers in science, Massasoit Community College, Brockton, MA (2011)

Blog from *R/V Atlantis* during AT16-1, http://thedailybucketonline.blogspot.com (2010)

Presenter, Community Science Night, Orange Coast College (2009)

Guest Speaker, Faculty Outreach Collaborations Uniting Scientists, Students, & Schools (FOCUS) UCI (2008)

Guest Speaker, California Alliance for Minority Participation (CAMP), UCI (2008)

Guest Scientist, Ask-a-Scientist events. K-12 Orange County school district, CA (2006 – 2007)

Guest Speaker, Science and math for K-12, Fulton, NY (2000 – 2007)

Regional Science Olympiad event organizer, judge, and proctor. Syracuse, NY (1997 – 2000)

Ancillary Scientific glassblowing (2004 – present)

Wilderness First Aid: WMA certified (2004 – 2006), NOLS WMI certified (2006 – 2008)

PROFESSIONAL AFFILIATIONS

American Chemical Society (ACS)

American Geophysical Union (AGU)

Association for the Science of Limnology and Oceanography (ASLO)

American Scientific Glassblower's Society (ASGS)

HONORS & AWARDS

2008	Best graduate student research paper, Dept. Earth System Science, UCI
2006	Dissertations Symposium on Chemical Oceanography (DISCO) XX, Honolulu, HI
	Outstanding Student Paper Award, 2006 AGU Ocean Sciences Meeting, Honolulu, HI
2005 – 2006	Chancellor's Club Fund for Excellence Dissertation Fellowship, UCI
	La Verne Noyes Fellowship, UCI
2002	Outstanding Contributions to the Department of Earth System Science, UCI
2001 – 2004	National Science Foundation Graduate Research Fellowship, UCI
2001	UCI Alumni Association Tamura Fellowship, UCI
2000	California Space Grant (NASA), UCI
	State University of New York Chancellor's Award, SUNY ESF
1999	Ernest Sondheimer Memorial Award, SUNY ESF
	Alumni Association Memorial Scholarship, SUNY ESF
	Maple Leaf Award, SUNY ESF

	Robin Hood Oak Award, SUNY ESF
	Merck Award for Environmental Biochemistry, SUNY ESF
1998	Antarctica Service Medal, United States of America
	John Meyer Junior Chemistry Award, SUNY ESF
1996	CRC Press Freshman Chemistry Award, SUNY ESF
1995 – 1996	Syracuse Pulp & Paper Foundation (SPPF) Scholarship, SUNY ESF

PRESENTATIONS

1. **Beaupré, S.R.**, 2011. The global distribution of marine dissolved organic radiocarbon ($DO^{14}C$). *WHOI Postdoc Symposium*, Woods Hole Oceanographic Institution, Woods Hole, MA.

2. **Beaupré, S.R.**, 2011. Inferring the global distribution of marine dissolved organic radiocarbon ($DO^{14}C$). *Marine Chemistry & Geochemistry Departmental Seminar*, Woods Hole Oceanographic Institution, Woods Hole, MA.

3. **Beaupré, S.R.**, 2011. Radiocarbon insights into marine dissolved organic carbon (DOC). *NOSAMS National Advisory and Planning Board (NAPB) Meeting*, Woods Hole Oceanographic Institution, Woods Hole, MA.

4. **Beaupré, S.R.**, Roberts, M.L., Burton, J.R., 2011. Continuous flow accelerator mass spectrometry (CFAMS) gas ion source interface development. 2011 *NOSAMS National Advisory and Planning Board (NAPB) Meeting*, Woods Hole Oceanographic Institution, Woods Hole, MA.

5. **Beaupré, S.R.**, 2011. The global distribution of marine dissolved organic radiocarbon. *Gordon Research Conference on Chemical Oceanography*, Proctor Academy, Andover, NH.

6. von Reden, K.F., Roberts, M.L., Burton, J.R., **Beaupré, S.R.**, 2011. Optimizing a microwave gas ion source for continuous flow accelerator mass spectrometry (CFAMS). *14th International Conference on Ion Sources (ICIS)*, Giardini Naxos, Italy, 2011.

7. **Beaupré, S.R.**, 2011. A global radiocarbon mixing line for marine dissolved organic carbon (DOC). *Geology & Geophysics Department Seminar*, Woods Hole Oceanographic Institution, Woods Hole, MA.

8. Roberts, M.L., von Reden, K.F., Burton, J.R., McIntyre, C.P., **Beaupré, S.R.**, 2011. A gas-accepting ion source for accelerator mass spectrometry: progress and applications. *AMS-12 Accelerator Mass Spectrometry Conference*, Wellington, New Zealand.

9. **Beaupré, S. R.** 2011. From atoms to oceans: pursuing the global carbon cycle as a chemical oceanographer. *Massasoit Science Transfer (MST) seminar series*, Massasoit Community College, Brockton, MA. *invited*.

10. **Beaupré, S.R.,** Aluwihare, L.I., 2010. Constraining the 2-component model of Marine Dissolved Organic Radiocarbon. Eos Trans. AGU, 91(26), Ocean Sci. Meet. Suppl., Abstract CO45C-01.

11. **Beaupré, S.R.**, 2010. Serial UV-oxidation of marine dissolved organic carbon (DOC) and biogeochemical implications. *WHOI Postdoc Symposium*, Woods Hole Oceanographic Institution, Woods Hole, MA.

12. **Beaupré, S.R.**, 2009. Constraining the ^{14}C composition of marine dissolved organic carbon. *Department of Earth Sciences Seminar*, University of Southern California (USC), Los Angeles, CA. *invited.*

13. Druffel, E.R.M., Griffin, S., **Beaupré, S.R.**, and Hwang, J., 2009. Variability of dissolved inorganic radiocarbon at a surface site in the Northeast Pacific. *20th International Radiocarbon Conference, May 31 - June 5,* Kailua-Kona, HI.

14. Griffin, S., **Beaupré, S.R.**, Druffel, E.R.M., 2009. An alternative method of diluting dissolved organic carbon (DOC) high concentrate samples for ^{14}C analysis. *20th International Radiocarbon Conference, May 31 - June 5,* Kailua-Kona, HI.

15. **Beaupré, S.R.**, Druffel, E.R.M., 2008. UV-induced serial-oxidations of marine dissolved organic carbon (DOC) and biogeochemical implications. EOS Transactions of the American Geophysical Union 89 (53), Fall Meeting Suppl., Abstract OS11B-1130.

16. **Beaupré, S.R.,** Druffel, E.R.M., 2008. Marine dissolved organic carbon (DOC) serial-oxidations, radiocarbon, and biogeochemical implications, *oral presentation. IMBER IMBIZO Meeting*, Miami, FL.

17. **Beaupré, S.R.,** Druffel, E.R.M., 2008. Marine dissolved organic carbon (DOC) serial-oxidations, radiocarbon, and biogeochemical implications, *poster*. *IMBER IMBIZO Meeting*, Miami, FL.

18. **Beaupré, S. R.,** Druffel, E.R.M., 2008. Oceanic time-series of dissolved organic carbon (DOC) concentrations and $\Delta^{14}C$ values. *Ocean Sciences Meeting*, Orlando, FL.

19. Walker, B.D., **Beaupré, S.R.**, Roland, L.A., Guilderson, T.P., Druffel, E.R.M. and McCarthy, M.D., 2007. Carbon isotopic composition and reactivity across the dissolved organic matter continuum. *ASLO Aquatic Sciences Meeting*, Santa Fe, NM.

20. **Beaupré, S.R.**, 2006. Marine dissolved organic carbon isotope photochemistry. *Dissertations Symposium on Chemical Oceanography (DISCO) XX*, Honolulu, HI.

21. **Beaupré, S.R.**, 2006. Marine dissolved organic carbon. *Radiocarbon Short Course*, UC Irvine.

22. **Beaupré, S.R.**, Druffel, E.R.M. and Griffin, S., 2006. Marine DOC concentration and radiocarbon measurements in the NE Pacific. EOS Transactions of the American Geophysical Union, 87(36): Ocean Sci. Meet. Suppl., Abstract OS12K-04.

23. **Beaupré, S.R.**, Druffel, E.R.M. and Griffin, S., 2005. A modified technique for the measurement of marine DOC concentrations and isotope ratios. *Ocean Carbon and Climate Change Workshop*, Woods Hole Oceanographic Institution.

24. **Beaupré, S.R.**, 2005. Marine dissolved organic carbon. *Radiocarbon Short Course*, UC Irvine.

25. Santos, G.M., Southon, J.R., Griffin, S., **Beaupré, S.R.** and Druffel, E.R.M., 2005. Ultra small-mass ^{14}C-AMS sample preparation and analysis at the KCCAMS facility. Nuclear Instruments & Methods in Physics Research, Section B - Beam Interactions With Materials and Atoms.

26. **Beaupré, S.R.**, Hwang, J. and Druffel, E.R.M., 2004. Marine DOC radiocarbon methods and DOC/POC exchange. EOS Transactions of the American Geophysical Union, 85(47): Fall Meet. Suppl., Abstract OS51C-1324.

27. Druffel, E.R.M., Griffin, S., Hwang, J., Komada, T. and **Beaupré, S.R.**, 2003. Turnover of dissolved and particulate organic carbon in the open ocean. EOS Transactions of the American Geophysical Union, 84(52): Ocean Sci. Meet. Suppl., Abstract OS41C-02.

28. **Beaupré, S.R.**, Druffel, E.R.M., Griffin, S. and Kieber, D.J., 2003. Using carbon isotope ratios to assess DOC photochemistry. EOS Transactions of the American Geophysical Union, 84(52): Ocean Sci. Meet. Suppl., Abstract OS41E-01.

29. **Beaupré, S.R.**, Kieber, D.J. and Mopper, K., 1999. Ultraviolet absorbance and photobleaching in the Gulf of Maine and Northwest Atlantic Ocean. EOS Transactions of the American Geophysical Union, 80(49): Ocean Sciences Meet. Suppl., Abstract OS128.

30. Jankowski, J.J., **Beaupré, S.R.**, Kieber, D.J., Mopper, K. and Hofsetz, B.D., 1999. Concentration and photochemical production of nitrite in Antarctic seawater. EOS Transactions of the American Geophysical Union, 80(49): Ocean Sciences Meet. Suppl., Abstract OS271.

PUBLICATIONS

1. Walker, B.D., **Beaupre, S.R.**, Guilderson, T.P., Druffel, E.R.M., McCarthy, M.D. Molecular size as a master variable governing the age of marine dissolved organic matter. Science, *submitted.*

2. von Reden, K.F., Roberts, M.L., Burton, J.R., **Beaupré, S.R.** Optimizing a microwave gas ion source for continuous flow accelerator mass spectrometry (CFAMS). Review of Scientific Instruments, Proceedings of the 14th International Conference on Ion Sources (ICIS), *submitted.*

3. Longworth, B.E., Robinson, L.F., Roberts, M.L., **Beaupré, S.R.**, Jenkins, W.J., 2011. Rapid AMS analysis of carbonates by direct sputtering. Nuclear Instruments and Methods in Physics Research B, *submitted*.

4. Roberts, M.L., Von Reden, K.F., Burton, J.R., McIntyre, C.P., **Beaupré, S.R.**, 2011. A gas-accepting ion source for Accelerator Mass Spectrometry: Progress and Applications. AMS-12 Conference Proceedings, *submitted*.

5. Druffel, E.R.M., **Beaupré, S.R.**, Ziolkowski, L.A., 2011. Chapter 5: Radiocarbon in the Ocean. In: Schuur, E.A.G., Trumbore, S.E. (Eds.), Radiocarbon in Ecology and Earth System Science, *accepted.*

6. Xu, X., Santos, G.M., Czimczik, C., **Beaupré, S.R.**, Pack, M.A., Hopkins, F., Stills, A., Lupascu, M., Ziolkowski, L.A., 2011. Chapter 9: Preparation for radiocarbon analysis. In: Schuur, E.A.G., Trumbore, S.E. (Eds.), Radiocarbon in Ecology and Earth System Science, *accepted*.

7. Walker, B.D., **Beaupré, S.R.**, Guilderson, T.P., Druffel, E.R.M., McCarthy, M.D., 2011. Large-volume ultrafiltration for the study of radiocarbon signatures and size vs. age relationships in marine dissolved organic matter. Geochimica et Cosmochimica Acta 75 (18), 5187-5202.

8. McCarthy, M.D., **Beaupré, S.R**., Walker, B.D., Voparil, I., Guilderson, T.P., Druffel, E.R.M., 2010. Chemosynthetic Origin of ^{14}C-depleted dissolved organic matter in a ridge-flank hydrothermal system. Nature Geoscience, DOI:10.1038/NGEO1015.

9. **Beaupré, S.R.,** Aluwihare, L.I., 2010. Constraining the two-component model of marine dissolved organic radiocarbon. Deep-Sea Research II 57 (16), 1494-1503.

10. Burd, A.B., Hansell, D.A., Steinberg, D.K., Anderson, T.R., Arístegui, J., Baltar, F., **Beaupré, S.R.**, Beusseler, K.O., DeHairs, F., Jackson, G.A., Kadko, D., Koppelmann, R., Lampitt, R.S., Nagata, T., Reinthaler, T., Robinson, C., Robison, B., Tamburini, C., Tanaka, T., 2010. Assessing the apparent imbalance between geochemical and biochemical indicators of meso- and bathypelagic biological activity:

What the @$#! is wrong with present calculations of carbon budgets? Deep-Sea Research II 57 (16), 1557-1571.

11. Druffel, E.R.M., **Beaupré, S.R.**, Griffin, S., Hwang, J., 2010. Variability of dissolved inorganic radiocarbon at a surface site in the northeast Pacific Ocean. Radiocarbon 52 (2-3), 1150-1165.

12. Griffin, S., **Beaupré, S.R.** and Druffel, E.R.M., 2010. An alternate method of diluting dissolved organic carbon seawater samples for ^{14}C analysis. Radiocarbon. Radiocarbon 52 (2-3), 1224 – 1229.

13. **Beaupré, S.R.**, Druffel, E.R.M., 2009. Constraining the propagation of bomb-radiocarbon through the dissolved organic carbon (DOC) pool in the northeast Pacific Ocean. Deep-Sea Research I, 56(10): 1717-1726.

14. Druffel, E.R.M., Bauer, J.E., Griffin, S., **Beaupré, S.R.**, Hwang, J., 2008. Dissolved inorganic radiocarbon in the North Pacific Ocean and Sargasso Sea. Deep-Sea Research I, 55 (4), 451-459.

15. **Beaupré, S.R.**, Druffel, E.R.M. and Griffin, S., 2007. A low-blank photochemical extraction system for concentration and isotopic analyses of marine dissolved organic carbon. Limnology and Oceanography: Methods, 5: 174-184.

16. Santos, G.M., Southon, J.R., Griffin, S., **Beaupré, S.R.** and Druffel, E.R.M., 2007. Ultra small-mass AMS ^{14}C sample preparation and analyses at KCCAMS/UCI Facility. Nuclear Instruments & Methods in Physics Research B, 259(1): 293-302.

17. Druffel, E.R.M., Griffin, S., **Beaupré, S.R.** and Dunbar, R.B., 2007. Oceanic climate and circulation changes during the past four centuries from radiocarbon in corals. Geophysical Research Letters, 34(9 L09601): L09601, doi:10.1029/2006GL028681.

18. Druffel, E.R.M., Griffin, S., Hwang, J., Komada, T., **Beaupré, S. R.**, Druffel-Rodriguez, K. C., Santos, G. M., & Southon, J. 2004. Variability of monthly radiocarbon during the 1760s in corals from the Galapagos Islands. Radiocarbon, 46(2): 627-631.