SUNITA R. SHAH

Geology and Geophysics Department, Woods Hole Oceanographic Institution
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EDUCATION

Ph.D.	**Harvard University** Department of Earth and Planetary Sciences, 2008 Advisor: Ann Pearson	Cambridge, MA
A.M.	**Harvard University** Earth and Planetary Sciences, 2006	Cambridge, MA
M.S.	**University of Michigan** Atmospheric and Space Sciences, 2001	Ann Arbor, MI
B.A.	**Columbia University** Biochemistry (Chemistry), 1999	New York, NY

KCCAMS Facility, UC Irvine
Radiocarbon in Ecology and Earth System Science Short Course, 2007

PROFESSIONAL EXPERIENCE

2013 – Visiting Investigator
Geology and Geophysics Department
Woods Hole Oceanographic Institution, Woods Hole, MA

2010 – 2013 *NOSAMS Postdoctoral Scholar & Postdoctoral Investigator*
Geology and Geophysics Department
Woods Hole Oceanographic Institution, Woods Hole, MA
Sponsors: Dr. Ann P. McNichol & Dr. Benjamin A. S. Van Mooy

2009-2010 *National Research Council Postdoctoral Associate*
Materials Science and Technology & Marine Geosciences
U.S. Naval Research Laboratory, Washington, D.C.
Advisors: Dr. Kenneth S. Grabowski & Dr. Richard B. Coffin

1999-2000 *Marine Geochemistry Technician*
Costal and Marine Science Center
U.S. Geological Survey, Woods Hole, MA
Advisors: Dr. Marilyn R. Bucholtz ten Brink & Dr. Michael H. Bothner

FUNDING AND AWARDS

2010-2012	NOSAMS Postdoctoral Scholar Fellowship, WHOI ($90,000)
2010	MARUM Fellowship, Center for Marine Environmental Sciences, Bremen – declined
2009-2010	National Research Council RAP Postdoctoral Award, NRL Directors Fund ($147,000)
2008	NSF Dissertations in Chemical Oceanography Symposium (DISCO) XXI
2006	NOSAMS Graduate Student Internship, WHOI – partial award
2005	Alfred W. Stickney Fellowship, EPS Department, Harvard University
2001	Biosphere-Atmosphere Research and Training Fellowship, NSF-IGERT – declined
2000-2001	Rackham Engineering Award, U. of Michigan College of Engineering
1999	Brian Bent Award for Excellence in Teaching, Chemistry Dept., Columbia U.

MANUSCRIPTS UNDER REVIEW

12. Schouten, S., Hopmans, E.C., Rosell-Melé, A., Pearson, A., . . . **Shah, S.R.**, *et al*. An interlaboratory study of TEX_{86} and BIT analysis of sediments, extracts and standard mixtures. *Submitted to G-Cubed.*

11. **Shah, S.R.**, Griffith, D.R., McNichol, A.P., Galy V., Eglinton, T.I. Prominent bacterial heterotrophy and sources of ^{13}C-depleted fatty acids to the interior Canada Basin. *Biogeosciences Discussions* **10**, 6695-6736, 2013. doi: 10.5194/bgd-10-6695-2013.

PEER-REVIEWED PUBLICATIONS

10. Ussler, W., Preston, C., Tavormina, P., Pargett, D., Jensen, S., Roman, B., Marin, R., **Shah, S.R.**, Girguis, P.R., Birch, J.M., Orphan, V., Scholin, C. (2013) Autonomous Application of Quantitative PCR in the Deep Sea: In Situ Surveys of Aerobic Methanotrophs Using the Deep-sea Environmental Processor. *Environmental Science and Technology*, Articles ASAP. doi: 10.1021/es4023199

9. Close, H.G., **Shah, S.R.**., Ingalls, A.E., Diefendorf, A.F., Brodie, E.L., Hansman, R.L., Freeman, K.H., Aluwihare, L.I., Pearson, A. (2013) Export of submicron particulate organic matter to mesopelagic depth in an oligotrophic gyre. *Proceedings of the National Academy of Sciences, early edition*. doi: 10.1073/pnas.1217514110.

8. **Shah, S.R.**, Joye, S.B., Brandes, J.A., McNichol, A.P. (2013) Carbon isotopic evidence for microbial control of carbon supply to Orca Basin, Gulf of Mexico at the seawater-brine interface. *Biogeosciences,* 10, 3175-3183. doi: 10.5194/bg-10-3175-2013.

7. Wankel, S.D., Joye, S.B., Samarkin, V.A., **Shah, S.R.,** Friederich, G., Melas-Kyriazi, J., Girguis, P.R. (2010) New constraints on diffusive methane fluxes and rates of anaerobic methane oxidation in a Gulf of Mexico brine pool via deep sea *in situ* mass spectrometry. *Deep Sea Research I* **57**, 2022-2029. doi: 10.1016/j.dsr2.2010.05.009.

6. Liu, Z., Pagani, M., Zinniker, D., DeConto R., Huber, M., Brinkhuis H., **Shah, S.R.**, Lecki R.M., Pearson, A. (2009) Global cooling during the Eocene-Oligocene Climate Transition. *Science* **323**, 1187-1190*.* doi: 10.1126/science.1166368

5. Schouten, S., Hopmans, E.C., van der Meer, J., Mets, A., Bard, E., Bianchi, T.S., Diefendorf A., Escala M., Freeman, K.H., Furukawa, Y., Huguet C., Ingalls A., Menot-Combes G., Nederbragt, A.J., Oba, M., Pearson, A., Pearson, E.J., Rosell-Mele, A., Schaeffer, P., **Shah, S.R.**, Shanahan, T.M., Smith, R.W., Smittenberg, R., Talbot, H.M., Uchida, M., Van Mooy, B.A.S., Yamamoto, M., Zhang Z.H. and Sinninghe Damsté, J.S. (2009) An interlaboratory study of TEX_{86} and BIT analysis using high-performance liquid chromatography–mass spectrometry, *Geochemistry Geophysics Geosystems*, **10**, Q03012, doi:10.1029/2008GC002221.

4. **Shah, S.R.**, Mollenhauer G., Ohkouchi N., Eglinton, T.I., Pearson, A. (2008) Origins of archaeal tetraether lipids in sediments: Insights from radiocarbon analysis. *Geochimica et Cosmochimica Acta* **72**, 4577-4594. doi:10.1016/j.gca.2008.06.021.

3. **Shah, S.R.** and A. Pearson. (2007) Ultra-microscale (5-25µg C) analysis of individual lipids by ^{14}C AMS: Assessment and correction for sample processing blanks. *Radiocarbon* **49**, 69-82.

2. Ingalls, A.E.*, **Shah, S.R.***, Hansman, R.L., Aluwihare, L.I., Santos, G.M., Druffel, E.R.M. and A. Pearson. (2006) Quantifying archaeal community autotrophy in the mesopelagic ocean using natural radiocarbon. *Proceedings of the National Academy of Sciences* **103**, 6442-6447. doi: 10.1073/pnas.0510157103. *co-first authors

1. Mecray, E.L., M.R. Buchholtz ten Brink, **Shah, S**. (2000) "Metals in the Surface Sediments of Long Island Sound." Chapter 6 In: Geo-Referenced Sea-Floor Mapping and Bottom Photography in Long Island Sound. V.F. Paskevich and L.J. Poppe, Eds., USGS Open-File Report 00-304.

INVITED TALKS

May 2013 **College of Earth, Ocean, and Environment Invitational Seminar Series**, University of Delaware

Isotopic indications of organic carbon sources and bacterial metabolism in the Canada Basin

Feb. 2013 **Large Lakes Observatory,** University of Minnesota Duluth
Isotopic Indications of Microbial Metabolic Functions from Canada Basin to Santa Monica Basin

Sept. 2012 **NOSAMS Annual Review Board Meeting**, WHOI
Microbial control of carbon supply to Orca Basin, Gulf of Mexico

Mar. 2012 **ExxonMobil Corporate Research Lab Seminar**, Clinton, NJ
Radiocarbon signatures of archaeal metabolic diversity

Jan. 2012 **Bigelow Laboratory for Ocean Sciences Seminar**, Boothbay Harbor, ME
Functional Diversity of Marine Archaea: Insights from Radiocarbon Studies

Apr. 2011 **Geology and Geophysics Department Meeting**, WHOI
Radiocarbon analysis of archaeal membrane lipids: Towards a better understanding of how tetraether-based paleo-proxies work

Jan. 2010 **MARUM Symposium on the Ocean in the Earth System**, Universitat Bremen
Radiocarbon-based insights into the biogeochemistry of marine Archaea

Jan. 2009 **Department of Marine Sciences Seminar**, University of North Carolina at Chapel Hill
Interpreting Archaeal Lipids in Sediments

Oct. 2008 **Dissertations in Chemical Oceanography Symposium**, Honolulu, HI
Exploring the Source of Sedimentary Archaeal Lipids: Insights from Compound-Specific Radiocarbon Analysis

Oct. 2008 **Biology Lunch Bunch Seminar**, U. of North Carolina at Chapel Hill
Exploring the Source of Sedimentary Archaeal Lipids by Comparative Radiocarbon Analysis of Alkenones and GDGTs

Jul. 2008 **Naval Research Laboratory Seminar**, Washington D.C.
Exploring the Source of Sedimentary Archaeal Lipids by Comparative Radiocarbon Analysis of Alkenones and GDGTs

Oct. 2007 **Marine Chemistry and Geochemistry Seminar**, WHOI
Origins of Archaeal Tetraether Lipids in Sediments: Insights from Comparative Radiocarbon Analysis

CONFERENCE AND WORKSHOP PRESENTATIONS (FIRST-AUTHOR ONLY)

Dec. 2012 **Shah, S.R.**, Joye, S.B., Brandes, J.A., McNichol, A.P. Carbon isotopic evidence for microbial control of carbon supply to Orca Basin at the brine-seawater interface. *AGU Fall Meeting, poster.*

Aug. 2012 **Shah, S.R.**, Griffith, D.R., Galy, V., McNichol, A.P., Van Mooy, B.A.S., Eglinton, T.I. Isotopic Indications of Microbial Metabolic Activities in the Arctic Ocean. Gordon Conference Organic Geochemistry, *poster.*

Feb. 2012 **Shah, S.R.**, Popendorf, K.J., Van Mooy, B.A.S. Towards Stable Carbon Isotopic Compositions of Intact Polar Lipids in the Sargasso Sea. *ASLO Ocean Sciences, poster.*

Sept. 2011 **Shah, S.R.,** McNichol, A.P., Gagnon, A.R, M.C. Lardie Gaylord, D. Gerlach, W.J. Jenkins. Compound-specific sample preparation by elemental analyzer, on-line combustion of volatile compounds and small-volume graphitization reactors. *International Workshop on Small-scale Radiocarbon Analysis, ETH Zurich, talk.*

Aug. 2008 **Shah, S.R.**, Pearson A., Mollenhauer G., Eglinton T.I. Origins of Archaeal Tetraether Lipids in Sediments: Insights from Comparative Radiocarbon Analysis. *Gordon Conference for Organic Geochemistry, poster.*

Dec. 2007 **Shah, S.R.**, Pearson A., Mollenhauer G., Eglinton T.I. Exploring the Source of Sedimentary Archaeal Lipids by Comparative Radiocarbon Analysis of Alkenones and GDGTs. *AGU Fall meeting, talk.*

Dec. 2006 Ingalls, A.E., **Shah, S.R.**, Hansman, R.L., Aluwihare, L.I., Santos, G.M., Druffel, E., Pearson, A. Quantifying Archaeal Community Autotrophy in the Mesopelagic Ocean Using Natural Radiocarbon. *AGU Fall meeting, poster.*

Aug. 2003 **Shah, S.R.,** Fisher, M., Pearson, A.E., Carbon Isotope Dynamics in a Permanently Stratified Freshwater Lake. *Gordon Conference for Chemical Oceanography, poster.*

TEACHING EXPERIENCE

2006	Teaching Fellow, Core Curriculum – The Atmosphere, Harvard University
2005	Teaching Fellow, Core Curriculum – How to Build a Habitable Planet, Harvard
2002	Instructor, Earth System Science high school enrichment program, Columbia
2002	Teaching Assistant, Climate and Hydrology section, MPA program, Columbia
1999	Lab Instructor, Organic Chemistry Lab, Columbia University
1998-1999	Lab Instructor, General Chemistry Lab, Columbia University
1998	Teaching Assistant, Data Structures and Algorithms in C, Columbia University

MENTORING AND OUTREACH

2009 –2012	Graduate Student - Mara Dougherty Radiocarbon analysis of FAMEs from Arctic Seep Sediments University of Maryland Department of Chemistry
2006	REU Undergraduate Student – Erin Knappen Roberts Wesleyan University
2005	REU Undergraduate Student – Karen Chow Arizona State University
2006 – 2008	Earth Sciences Tutor, Pforzheimer Residental House Harvard University

2005 – 2006	Undergrad Mentor, Women's Science Mentoring Program Harvard University

PROFESSIONAL SERVICE AND AFFILIATIONS

Elected Member	WHOI Womens Committee 2012-2013
Reviewer	*Nature* *Geochimica et Cosmochimica Acta* *Organic Geochemistry* *Deep Sea Research I & II* *Biogeosciences Journal* *JGR – Biogeosciences* *Frontiers in Extreme Microbiology* NSF - Sedimentary Geology and Paleobiology
Memberships	American Chemical Society, American Geophysical Union, Association for the Sciences of Limnology and Oceanography, The Oceanography Society