

## Sunita R. Shah

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### Education and Professional Experience

- 2002-present Graduate School of Arts and Sciences, Harvard University, Cambridge, MA  
Ph.D. Earth and Planetary Science, expected June 2007
- 2000-2001 College of Engineering, University of Michigan, Ann Arbor, MI  
M.S. Atmospheric and Space Science, December 2001.
- 1999-2000 Coastal and Marine Geology, U.S. Geological Survey, Woods Hole, MA  
Marine Geochemistry Lab and Field Technician
- 1995-1999 Columbia College, Columbia University, New York, NY  
B.A. Biochemistry, Concentration: Chemistry, May 1999

### Fellowships and Awards:

- 2005-2006 Stickney Fellowship, (EPS Dept., Harvard University)
- 2001-2001 Biosphere-Atmosphere Research and Training Fellowship (NSF-IGERT)
- 2000-2001 Rackham Engineering Award (College of Engineering, University of Michigan)
- 1999 Brian Bent Award for Excellence in Teaching (Chemistry Dept., Columbia University)

### Research Experience:

Graduate Student Research Assistant

*Earth and Planetary Sciences Department, Harvard University*

Research Advisor: Ann Pearson

- Will make comparisons between radiocarbon content of sedimentary alkenones and archaeal lipids to assess the vulnerability of archaeal lipids to advective transport associated with fine-grained sediment.
- Studied the natural radiocarbon abundance of mesopelagic bacterial and archaeal biomass in the North Central Pacific to determine their carbon metabolic functions.
- Currently developing “metabolic fingerprints” for bacterial and archaeal autotrophic pathways by assessing the stable carbon isotopic composition of individual biomolecules from pure cultures.
- Constructed and calibrated a moving wire interface for a DeltaPlus IRMS.

Graduate Student Research Assistant

*Atmospheric, Oceanic and Space Sciences Department, University of Michigan*

Research Advisors: Mary Anne Carroll, Joyce Penner

- Monitored meteorological parameters and chemical species (CO, O<sub>3</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>) from a tower-based observatory in a forest canopy ecosystem.
- Correlated organic carbon delivery to the deep ocean from dust particles associated with Asian storms using time-series ocean sediment trap data, IMPACT and GRANTOUR aerosol transport model results and satellite data.

## Marine Geochemistry Lab and Field Technician

*Center for Coastal and Marine Geology, U.S. Geological Survey*

Principal Investigators: Marilyn Bucholtz ten Brink, Michael Bothner

- Surveyed sedimentary characteristics and pollution sources in Long Island Sound, New York Bight and Massachusetts Bay through analysis of sediment core and surface grab sediments.

## Undergraduate Research Assistant

*Chemistry Department, Columbia University*

Research Advisors: Tatyana Polenova, Ann McDermott

- Investigated the mechanism for photo-induced nuclear polarization in photosynthetic reaction centers using solid state NMR.

## Teaching Experience:

*Harvard University*

Teaching Fellow	Spring 2006	Science Core – The Atmosphere
	Spring 2005	Science Core – How to Build a Habitable Planet

*Biosphere2*

Instructor	Summer 2002	Earth System Science high school enrichment program
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*Columbia University*

Teaching Assistant	Spring/Summer 2002	Climate and Hydrology section, MPA program
	Fall 1998	Data Structures and Algorithms in C
Lab Instructor	Summer 1999	Organic Chemistry Lab
	Spring 1999	General Chemistry Lab
	Fall 1998	General Chemistry Lab
	Spring 1998	General Chemistry Lab

## Publications:

Shah, S.R., and A. Pearson. (2006) Ultra-microscale analysis of individual lipids by  $\Delta^{14}\text{C}$  analysis: Assessment and correction for sample processing blanks. *Submitted to Nucl. Instrum. Meth. B.*

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. *Proc. Natl. Acad. Sci.* **103**, 6442-6447.

Mecray, E.L., M.R. Buchholtz ten Brink, and S. Shah. (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.

## Selected Presentations (*italics denote presenter*):

*Pearson, A., Eglinton, T.I., Aluwihare, L.I., McNichol, A.P., Druffel, E.R.M., Seewald, J.S., Ingalls, A.E., DosSantos, G., Shah, S.R., Hansman, R.L., Hayes, J.M.* Assessing microbial metabolisms in-situ: Insights from (radio)carbon isotopic analyses at the molecular level. Presented at Goldschmidt Conference, 2005.

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