Adrienne Hoarfrost

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Education

UNC-Chapel Hill – PhD in Marine Sciences, advisor: Carol Anosti 2018
UNC-Chapel Hill – MS in Marine Sciences, advisor: Carol Arnosti 2015
Dartmouth College – BA in Biology (Geobiology) 2011

Positions & Employment

2019 - Postdoctoral Fellow; Dept. Biochemistry & Microbiology, Rutgers University, Advisor: Yana Bromerg
2015-2018 PhD candidate; Dept. Marine Sciences, UNC-Chapel Hill, Advisor: Carol Arnosti
2012-2015 Graduate Research Assistant, Dept. Marine Sciences, UNC-Chapel Hill, Advisor: Carol Arnosti
2011-2012 Lab Technician, Harvard University, Advisor: Peter Girguis
2010 Undergraduate Research Assistant, Harvard University, Advisor: Peter Girguis
2009 Research Intern, Dartmouth Geisel School of Medicine, Advisor: Paul Beisswenger
2008-2009 Research Intern, Dartmouth Hitchcock Medical Center, Advisor: Brant Oliver
2008 Research Intern, Oregon Health & Sciences University, Advisor: Kari Buck

Publications

Hoarfrost, A., Brown, N., Brown, C.T., Arnosti, C. (in final review at *Bioinformatics*) MetaSeek: A data discovery tool for next-generation sequencing data. Live at http://www.metaseek.cloud/.

Hoarfrost, A., Nayfach, S., Ladau, J., Yooseph, S., Dupont, C., Pollard, K., Arnosti, C. (in submission at *ISME*) Global ecotypes in the ubiquitous marine SAR86 clade.

Hoarfrost, A., Balmonte, J.P., Gawarkiewicz, G., Ghobrial, S., Ziervogel, K., Arnosti, C. (in submission at *Frontiers in Marine Science*), Gulf Stream ring intrusion on the Mid-Atlantic Bight shelf affects microbially-driven carbon cycling.

Balmonte, J.P., Buckley, A., Hoarfrost, A., Ghobrial, S., Ziervogel, K., Teske, A., Arnosti, C. (2018), Community structural differences shape microbial responses to high molecular weight organic matter. *Environ. Microbiol. 21 (2), 557-571.*

Hoarfrost, A., and C. Arnosti (2017), Heterotrophic Extracellular Enzymatic Activities in the Atlantic Ocean Follow Patterns Across Spatial and Depth Regimes, *Front. Mar. Sci*., 4, 200, doi:10.3389/fmars.2017.00200.

Hoarfrost, A., R. Snider, and C. Arnosti (2017), Improved measurement of extracellular enzymatic activities in subsurface sediments using competitive desorption treatment, *Front. Earth Sci., 5(13)*, 13. doi:10.3389/feart.2017.00013.

Adams, M. M., A. Hoarfrost, A. Bose, S. B. Joye, and P. R. Girguis (2013), Anaerobic oxidation of short-chain alkanes in hydrothermal sediments: potential influences on sulfur cycling and microbial diversity, *Front. Microbiol., 4(110),* doi:10.3389/fmicb.2013.00110.

Selected Recent Presentations

Hoarfrost, A. Opportunities and challenges facing deep learning for subsurface microbiology in the era of data-intensive bioinformatics. Invited speaker, Microorganisms and Organic Carbon in the Marine Subsurface Workshop, Knoxville, TN, Mar 2018.

Hoarfrost, A., Nayfach, S., Ladau, J., Arnosti, C., Yooseph, S., Dupont, C., Pollard, K. Predicting Global Distributions of SAR86 Phylogeny and Functional Capacities Across Environmental Niches. Presented at Ocean Sciences Meeting, Portland, OR, Feb 2018.

Hoarfrost, A., Brown, N., Arnosti, C. Sequencing Data Discovery and Integration for Earth System Science with MetaSeek. American Geophysical Union Annual Meeting, New Orleans, LA, 2017.

Hoarfrost, A. Global-Scale Patterns in Microbial Communities and Functions using Machine Learning. Deep Life Modeling and Visualization Workshop, Ascona, Switzerland, 2016.

Hoarfrost, A., Arnosti, C. Microbial Extracellular Enzymatic Hydrolysis of Organic Carbon Along Depth and Latitudinal Gradients in the South Atlantic. Association for the Sciences of Limnology and Oceanography Annual Meeting, 2015.

Awards, Funding, & Recognition

- NASA Astrobiology Postdoctoral Fellowship, 2019-2021.
- Royster Society of Fellows Dissertation Completion Fellowship, 2018.
- AI Grant Finalist, September 2017.
- Deep Carbon Observatory Deep Life Modeling and Visualization Graduate Fellowship, 2016-2017.
- UNC Graduate Student Mentor Award, Spring 2016.
- Center for Dark Energy Biosphere Investigations (C-DEBI) Graduate Fellowship, 2014-2015.
- NSF GRFP Honorable Mention, 2014.
- Richter Memorial Fund Recipient for Independent Research, 2010.
- Barr 1968 Memorial Scholarship for accomplishment in the sciences and performing arts, 2009.

Selected Professional Development, Service & Outreach Activities

- Census of Deep Life Metadata Standards Working Group, 2017-present.
- Deep Carbon Observatory Modeling & Visualization Workshop, Invited Participant, 2015-2018.
- Next-Generation Sequencing Analysis Workshop, Augusta, MI, August 2015.
- Deep Carbon Observatory (DCO) Summer School in Big Sky, MT, July 2014.
- President, Graduate Action Group (UNC Dept of Marine Sciences), 2014-2015.
- Senator and Finance Committee Member, Graduate and Professional Student Federation Senate at UNC-Chapel Hill, 2013-2014.
- Science Judge, Blue Heron Bowl NC (high school marine science bowl), 2014.

Teaching & Mentoring

- Mentor to three undergraduate students in the Arnosti Lab at UNC, 2013-present.
- Graduate Teaching Assistant (UNC): Energy Flow in the Environment and Society (Fall 2013), Marine Physiological Ecology (Spring 2013), and The Marine Environment (introductory oceanography course, Fall 2012).
- Mentor to two high school interns in the Girguis Lab at Harvard University, 2011-2012.
- Undergraduate Teaching Assistant (Dartmouth), Genetics, Summer 2009.

Field Experience

- R/V Endeavor, North Atlantic (2016). Effects of organic carbon source on carbon cycling activities.
- R/V Endeavor, Mid Atlantic Bight (2015). Impacts of ring water intrusions on microbial enzymatic activities.

- R/V Knorr, South Atlantic (2013). Latitudinal and depth-driven patterns in heterotrophic functional capacities.
- R/V Atlantis, Juan de Fuca Ridge. (2010) Cruise with the Atlantis submarine to study microbial methane dynamics at hydrothermal vents.