

ADAM V. SUBHAS

PERSONAL INFORMATION

email asubhas@whoi.edu
website adamsubhas.com
address 3 West Falmouth Highway, Falmouth, MA 02540
phone (M) (908) 327 0319 · (W) (508) 289 2399

EDUCATION

October 2017-
Present Woods Hole Oceanographic Institution

NOSAMS
Postdoctoral
Scholar

Developing tools to measure the thermodynamics and kinetics of calcium carbonate reactions in seawater. Quantifying the relative preservation of coccoliths and foraminifera in deep-sea sediments.
Mentors: Dr. Matt LONG & Dr. Daniel McCORKLE & Dr. Ann McNICHOL

June 2017-
August 2017 California Institute of Technology

Postdoctoral
Investigator

Prepared for and participated in a 30-day research cruise from Hawaii to Alaska in the N. Pacific (C-DISK IV).
Co-chief scientists: Prof. Jess F. ADKINS & Prof. William M. BERELSON (USC)

October 2011-
May 2017 California Institute of Technology

Ph.D.
Geochemistry

Thesis: *Controls on the Dissolution Kinetics of Calcite in Seawater*
Description: Measured sensitively the dissolution rates of biogenic and inorganic calcites in seawater. Developed new tools to probe the chemical controls on calcite reactivity.
Advisors: Prof. Jess F. ADKINS & Prof. William M. BERELSON (USC)

2005-2009 Haverford College

B.S. Chemistry

GPA: 3.8 · *Biochemistry Concentration*
Thesis: *Modeling the Self-Assembly and Optical Properties of Meso-Tetrahis (4-sulfonatophenyl) Porphine using Density Functional Theory.*
Advisor: Joshua SCHRIER

PUBLICATIONS AND PATENTS

Published

- **Subhas, A.V.**, Adkins, J.F., Erez, J., Ziveri, P., Langer, G., Rollins, N.E., Berelson, W.M., 2018: The dissolution kinetics of biogenic calcites in seawater and a possible role for magnesium and organic carbon. *In press at Marine Chemistry.*
- Dong, S., **Subhas, A.V.**, Rollins, N.E., Naviaux, J., Adkins, J.F., Berelson, W.M., 2018: A Kinetic Pressure Effect on Calcite Dissolution in Seawater. *Geochimica et Cosmochimica Acta*, **238**, 411-423.
- **Subhas, A.V.**, Adkins, J.F., Erez, J., Rollins, N.E., Berelson, W.M., 2017: Catalysis and Chemical Mechanisms of Calcite Dissolution in Seawater *Proceedings of the National Academy of Sciences*, **114**(31), 8175-8180.
- Haynes, L.L., Honisch, B., Dyez, K., Eggins, S., Holland, K., Rosenthal, Y., Fish, C., **Subhas, A.V.**, 2017: Calibration of the B/Ca proxy in the planktic foraminifer *O. universa* to Paleocene seawater conditions. *Paleoceanography*, 32.

- **Subhas, A.V.**, Rollins, N.E., Berelson, W.M., Dong, S., Erez, J. Adkins, J.F., 2015: Novel Determination of the Dissolution Kinetics of Inorganic Calcite in Seawater. *Geochimica et Cosmochimica Acta*, **170**, 51-68.
- Thiagaragan, N., **Subhas A.V.**, Southon, J.R., Eiler, J.M., Adkins, J.F., 2014: Abrupt pre-Bolling-Allerod warming and circulation changes in the deep ocean. *Nature* **511**(7507), 75-78.
- Paris, G., Sessions, A.L., **Subhas, A.V.**, Adkins, J.F., 2013: Measurement of $\delta^{34}\text{S}$ and $\Delta^{33}\text{S}$ in small amounts of dissolved sulfate. *Chemical Geology* **345**, 50-61.
- Thiagarajan, N., Gerlach, D., Roberts, M.L., Burke, A., McNichol, A., Jenkins, W.J., **Subhas, A.V.**, Thresher, R.E., Adkins, J.F. 2013: Movement of deep-sea coral populations on climatic timescales. *Paleoceanography* **28**(2), 227-236.
- **Subhas, A.V.**, Whealdon, J., Schrier, J., 2011: Predicting organic thin-film transistor carrier type from single molecule calculations. *Computational and Theoretical Chemistry* **966**, 70-74

In Review/Prep

- Naviaux, J., **Subhas, A.V.**, Rollins, N.E., Adkins, J.F., Berelson, W.M., 2018: The role of temperature in the dissolution kinetics of calcite in seawater. *In revision at Geochimica et Cosmochimica Acta*.
- **Subhas, A.V.**, Dong, S., Adkins, J.F., Rollins, N.E., Berelson, W.M.: The carbonic anhydrase activity associated with sinking and suspended particles in the North Pacific. *To be submitted to Limnology and Oceanography*

Patents

- **Subhas, A.V.**, Berelson, W.M., Rollins, N.E., Adkins, J.F., Erez, J. Method and Apparatus for CO₂ sequestration. United States Patent 9,988,653

FIELD EXPERIENCE

<i>Summer 2017</i>	<i>30 days</i>	R/V Kilo Moana	Measurement of <i>in situ</i> calcite dissolution rates in the North Pacific using a ¹³ C tracer technique. Linking water column dissolution rates to surface ecology, particle export, and fluxes to the sediments. Further application of a carbonic anhydrase assay system.
<i>Summer 2015</i>	<i>2 days</i>	R/V Yellowfin	Pilot cruise for the development of <i>in situ</i> carbonate dissolution rate measurements and a field-based assay of carbonic anhydrase activity.
<i>Winters 2013,2014</i>	<i>60 Days</i>	Interuniversity Institute in Eilat, Israel	Two seasons of open-ocean planktonic and benthic foraminifera collection and subsequent laboratory culturing on the Red Sea.
<i>Spring 2012</i>	<i>10 Days</i>	Mormon Mountains	Field assistant for Erika Swanson Ph.D., structural geology and mapping.
<i>Winter 2008-9</i>	<i>33 Days</i>	R/V Thompson	Educational Liason. Used the ROV Jason2 to collect deep-sea corals in the Southern Ocean.

TEACHING/MENTORING EXPERIENCE

- 2018 WHOI GUEST STUDENT MENTOR. Mentored Alex Quizon (Williams College class of 2021).
- 2012-2015 CALTECH TEACHING ASSISTANT. Earth's Oceans: introduction to chemical, physical, and biological oceanography. Wrote and graded problem sets and exam questions, organized supplementary teaching sessions.
- Spring 2014 USC. GEOL-601. Lecture on carbonate biomineralization
- 2011-2012 TECTONICS OBSERVATORY OUTREACH EDUCATOR. Organized learning experiences in geochemistry and radiometric dating for elementary and middle school students. Visited Longfellow Elementary School to teach about geology and fossils to second grade students.

GRANTS, FELLOWSHIPS, AND AWARDS

- Fellowships*
- 2017-2019 · WOODS HOLE OCEANOGRAPHIC INSTITUTION POSTDOCTORAL SCHOLARSHIP
 - 2015-2017 · RESNICK SUSTAINABILITY INSTITUTE GRADUATE FELLOWSHIP
 - 2012-2015 · NSF GRADUATE RESEARCH FELLOWSHIP
- Grants*
- 2018 · ROBERT A. JAMES AND ANNE K. JAMES FOUNDATION · *Assessing the Preservation of Chemical Signatures in Foraminiferal Shells*
 - 2015-2016 · CALTECH INNOVATION INITIATIVE · *Development of a Device to Sequester Anthropogenic CO₂*
 - 2013 · BSF PROF. RAHAMIMOFF TRAVEL GRANT · *Travel funding between the U.S. and Israel for Foraminiferal Culturing.*
- Awards*
- 2009 · MAGNA CUM LAUDE
 - 2009 · PHI BETA KAPPA SOCIETY
 - 2005 · EAGLE SCOUT

INVITED TALKS

- 2018 NOSAMS ADVISORY BOARD MEETING
- LAMONT-DOHERTY EARTH INSTITUTE GUEST SEMINAR
- 2017 WHOI MARINE CHEMISTRY & GEOCHEMISTRY DEPARTMENT SEMINAR
- UNIVERSITY OF WASHINGTON SCHOOL OF OCEANOGRAPHY GUEST SEMINAR
- CALTECH ENVIRONMENTAL SCIENCE AND ENGINEERING DEPARTMENT SEMINAR
- 2016 HARVARD CLIMATE SYMPOSIUM
- 2015 PICARRO WEBINAR SERIES
- PRINCETON UNIVERSITY ENVIRONMENTAL GEOLOGY AND GEOCHEMISTRY SEMINAR
- 2009 KOSHLAND INTEGRATED NATURAL SCIENCE CENTER BOARD OF TRUSTEES MEETING

WORK EXPERIENCE

- 2009-2011 Laboratory Technician
- Professional* CALIFORNIA INSTITUTE OF TECHNOLOGY. Maintenance of trace metal laboratories, Uranium-series analysis of deep sea corals and speleothems,

development of MC-ICPMS methods for U-series and Sulfur isotope measurements.

2007-2009 Academic Computing Center Helpdesk

Part Time

Haverford College. Hardware/software troubleshooting for students and faculty.

REFERENCES

Jess F. Adkins THESIS ADVISOR. · Geological and Planetary Sciences, Caltech, MC 131-24, 1200 E. California Blvd., Pasadena, CA 91125 jess@gps.caltech.edu. 626-395-8550

Alex Sessions ACADEMIC ADVISOR. · Geological and Planetary Sciences, Caltech, MC 100-23, 1200 E. California Blvd., Pasadena, CA 91125 als@gps.caltech.edu. 626-395-6445

William M. Berelson CO-THESIS ADVISOR. · Department of Earth Sciences, University of Southern California, 3651 Trousdale Parkway, Los Angeles, CA 90089 berelson@usc.edu. 213-740-5828

Jonathan Erez COLLABORATOR. · Institute of Earth Sciences, Hebrew University of Jerusalem, Safra Campus, Givat Ram, Jerusalem 9190401 erez@vms.huji.ac.il. 972-2-65-84882

Daniel McCorkle POSTDOCTORAL MENTOR. · Woods Hole Oceanographic Institution, 266 Woods Hole Rd. MS #8, Woods Hole, MA 02543 dmccorkle@whoi.edu. 508-289-2949

EXTRACURRICULAR INTERESTS

Ultimate Frisbee · Drums · Cooking · Biking · Hiking

September 13, 2018