

DR. JESSE R. FARMER

Department of Geosciences | Princeton University
Department of Climate Geochemistry | Max-Planck-Institut für Chemie
(252) 626-2329 | jesse.farmer@princeton.edu | jfarmersalmanac.com

EDUCATION AND PROFESSIONAL EXPERIENCE

- Postdoctoral Research Associate, Department of Geosciences, Princeton University** 2017-Present
and Department of Climate Geochemistry, Max-Planck-Institute für Chemie
• Advisors: Dr. Daniel Sigman, Dr. Gerald Haug & Dr. Alfredo Martinez-Garcia
- Ph.D., Department of Earth and Environmental Sciences, Columbia University** 2011-2017
• Dissertation: “Quaternary carbon cycling in the Atlantic Ocean: Insights from boron and radiocarbon proxies”
• Sponsor: Dr. Bärbel Hönisch. Advisory Committee: Dr. Jerry McManus and Dr. Peter deMenocal
- M.A., Department of Earth and Environmental Sciences, Columbia University** 2011-2013
• Master’s Thesis: “Investigating the boron isotopic composition of deep-sea bamboo corals: seawater pH, calcification, and ocean acidification”
- Research Assistant, U.S. Geological Survey** 2009-2011
• Eastern Geology and Paleoclimate Science Center, Reston, VA. Advisor: Dr. Thomas Cronin
- Sc. B Geological Sciences (Honors), Brown University** 2005-2009
• Senior Honors Thesis: “Evaluating the Use of Organic Paleotemperature Proxies in Estuaries: Application of U^{k}_{37} and TEX_{86} to Narragansett Bay, Rhode Island”
• Advisors: Dr. Timothy Herbert and Dr. Warren Prell

FUNDING

- National Science Foundation Graduate Research Fellowship, \$136,000 2012-2016
- LDEO Climate Center, “Late Quaternary Arctic Ocean Paleoceanography and Carbon Cycling: Linkages to Regional and Global Climate”, J. Farmer (PI), \$10,000 2015-2016
- USGS Technical Liaison, “Boron isotope measurements on Arctic Ocean benthic foraminifers”, B. Hönisch (PI) and J. Farmer (co-PI), \$13,770 2013-2014
- National Science Foundation Scholarship to attend Urbino Summer School (USSP), \$3,000 2012
- V.M. Goldschmidt Travel Grant, \$600 2012

PEER-REVIEWED PUBLICATIONS

10. Saenger, C., R. Gabitov, J. Farmer, J. Watkins and R. Stone, 2017. Linear correlations in bamboo coral $\delta^{13}C$ and $\delta^{18}O$ sampled by SIMS and micromill: Evaluating paleoceanographic potential and biomineralization mechanisms using $\delta^{11}B$ and Δ_{47} composition. *Chemical Geology* 454, 1-14, doi:10.1016/j.chemgeo.2017.02.014.
9. Dassié, E., et al. (including J. Farmer), 2017. Saving our Marine Archives. *EOS* 98, doi:10.1029/2017EO068159.

8. Farmer, J., B. Hönisch and J. Uchikawa, 2016. Single laboratory comparison of MC-ICP-MS and N-TIMS boron isotope analyses in marine carbonates. *Chemical Geology* 447, 173-182, doi:10.1016/j.chemgeo.2016.11.008.
7. Welte, C., L. Wacker, B. Hattendorf, M. Christi, J. Fohlmeister, S.F.M. Breitenbach, L.F. Robinson, A.H. Andrews, A. Freiwald, J. Farmer, C. Yeman, H.-A. Synal and D. Günther, 2016, Laser ablation-accelerator mass spectrometry: An approach for rapid radiocarbon analyses of carbonate archives at high spatial resolution, *Analytical Chemistry* 88(17), 8570-8576, doi:10.1021/acs.analchem.6b01659.
6. Farmer, J., L. Robinson and B. Hönisch, 2015. Growth rate determinations from radiocarbon in bamboo corals (genus *Keratoisis*). *Deep-Sea Research I* 105, 26-40, doi:10.1016/j.dsr.2015.08.004.
5. Farmer, J., B. Hönisch, L. Robinson and T. Hill, 2015. Effects of seawater-pH and biomineralization on the boron isotopic composition of deep-sea bamboo corals. *Geochimica et Cosmochimica Acta* 155, 86-106, doi:10.1016/j.gca.2015.01.018.
4. Cronin, T.M., J. Farmer, R. Marzen, E. Thomas and J.C. Varekamp, 2014. Late Holocene sea level variability and Atlantic Meridional Overturning Circulation. *Paleoceanography* 29, doi:10.1002/2014PA002632.
3. Farmer, J., T.M. Cronin and G.S. Dwyer, 2012. Ostracode Mg/Ca Paleothermometry in the North Atlantic and Arctic Oceans: Evaluation of a Carbonate Ion Effect. *Paleoceanography* 27, doi:10.1029/2012PA002305.
2. Cronin, T.M., G.S. Dwyer, J. Farmer, H. Bauch, R. Spielhagen, M. Jakobsson, J. Nilsson, W.M. Briggs, Jr. and A. Stepanova, 2012. Deep Arctic Ocean warming during the last glacial cycle. *Nature Geoscience* 5, 631-634, doi:10.1038/ngeo1557.
1. Farmer, J., T.M. Cronin, A. de Vernal, G.S. Dwyer, L.D. Keigwin and R. Thunell, 2011. Western Arctic Ocean temperature variability during the last 8000 years. *Geophysical Research Letters*, L049714, doi:10.1029/2011GL049714.

ORAL PRESENTATIONS

“Ocean amplification of Plio-Pleistocene climate evolution,” Climate Geochemistry Department Meeting, Max-Planck Institut für Chemie, March 2017

“Bring out the Boron: $\delta^{11}\text{B}$ offsets and deep ocean carbon storage at the Mid-Pleistocene Transition,” Yale University, November 2016

“Outside the pH box: Boron isotopes in synthetic calcite under varying solution chemistry,” AGU Fall Meet. 2015, PP51D-06

“Transfer of bomb radiocarbon to the intermediate ocean: Reconstructions from North Atlantic bamboo corals” Radiocarbon in the Environment Conference, Belfast UK, August 2014

“Boron isotopes in Bamboo corals: The deep-sea coral pH proxy challenge” National Oceanography Centre Southampton, UK and University of Bristol, UK Seminar, August 2014

“Can Sea Surface Temperature Records Improve our Understanding of Holocene Sea-Level Variability?”
Lamont-Doherty Biology and Paleoenvironment Seminar, February 2014

“Western Arctic Ocean temperature variability during the last 8000 years” Lamont-Doherty Geochemistry Seminar, March 2012

POSTER PRESENTATIONS

Farmer, J., B. Hönisch, L. Haynes, D. Kroon, D.B. Bell, S. Jung, M. Jaume-Seguí, M.E. Raymo, S. Goldstein and L.D. Pena. 2016. Trace element evidence for abrupt changes in deep South Atlantic Ocean nutrient and carbonate chemistry across the Mid-Pleistocene Transition. AGU Fall Meet. 2016, PP31B-2279.

Farmer, J., B. Hönisch and L. Robinson. 2013. Radiocarbon variability in modern deep-sea bamboo coral skeletons from the North Atlantic. AGU Fall Meet. 2013, PP51A-1929.

Farmer, J., B. Hönisch, L. Robinson and T. Hill. 2013. What controls the boron isotopic composition of deep-sea bamboo corals? Seawater pH vs. biomineralization. International Conference in Paleoceanography XI.

Farmer, J., B. Hönisch, L. Robinson, T. Hill and M. LaVigne. 2012. Boron isotopes in deep-sea bamboo corals. Goldschmidt 2012.

Farmer, J., B. Hönisch, T. Hill, M. LaVigne and L. Robinson. 2011. Boron isotopes in deep-sea bamboo corals: pH, vital effects, and environmental factors. AGU Fall Meet. 2011, PP41A-1740.

Cronin, T.M., J. Farmer, E. Thomas and J.C. Varekamp. 2011. Sea-Level variability during the Medieval Climate Anomaly and Little Ice Age. AGU Fall Meet. 2011, GC43D-0969.

Farmer, J., T.M. Cronin, R. Thunell, L.D. Keigwin, G.S. Dwyer and D. Willard. 2010. Holocene climate variability in the Beaufort Sea, Arctic Ocean from benthic foraminifers, stable isotopes and pollen. AGU Fall Meet. 2010, PP21B-1689.

Willard, D.A., C.E. Bernhardt, T.M. Cronin, J. Farmer, W. Newell and J.P. Halka. 2010. Evidence for Deglacial, Younger Dryas and Early Holocene climate variability, Chesapeake Bay. AGU Fall Meet. 2010, PP41B-1635.

Cronin, T.M., G.S. Dwyer, J. Farmer and M. Yasuhara. 2010. Factors influencing Mg/Ca ratios in the ostracode *Krithe* from northern hemisphere oceans. International Conference on Paleoceanography X.

Salacup, J.M., J. Farmer, T.D. Herbert and W. Prell. 2009. Estuarine Alkenones: A high-resolution record of sea-surface temperature from Narragansett Bay over the past millennia. AGU Fall Meet. 2009, PP52A-06.

Willard, D., W. Aleman, L. Edwards, J. Farmer, J. Self-Trail. 2009. Marine and terrestrial biotic response to climate variability across the Paleocene-Eocene boundary in the eastern United States. AGU Fall Meet. 2009, PP41A-1492.

PROFESSIONAL AND VOLUNTEER ACTIVITIES

- Lead Organizer, 2015 Department of Earth and Environmental Sciences, Columbia University Graduate Student Field Trip: Reading the Carbonate Record, Exuma, Bahamas
- Lead Convener, 2013 AGU Fall Meeting Session “Reconstructing Past Carbon Cycle Perturbations: Novel Developments and Applications”
- Co-convener, Lamont-Doherty Earth Observatory Graduate Student Symposium 2013
- Ad-hoc reviewer for: *Geophysical Research Letters*, *Quaternary Science Reviews*, *Chemical Geology*, *The Holocene*, *Journal of Quaternary Science*, and National Science Foundation P2C2 Program
- Science blogger for *State of the Planet*, *Coastal Review Online*, and *J Farmer’s Almanac*

AWARDS

- | | |
|---|------|
| Finalist, Columbia University Graduate Student Presidential Teaching Award | 2015 |
| Sara Fitzgerald Langer Book Prize, Lamont-Doherty Earth Observatory
“To a pre-oral graduate student who has contributed to both academic and student life” | 2012 |
| National Science Foundation Graduate Research Fellowship | 2012 |
| Senior Award, Brown University
“In recognition of outstanding academics, research and service to the Department of Geological Sciences” | 2009 |

TEACHING EXPERIENCE

- | | |
|---|-------------|
| Teaching Assistant for “Introduction to Chemical Oceanography” | 2015 |
| • Taught four lectures on carbonate chemistry and marine sediments; Trained students in use of data visualization software; Designed and graded problem sets and class project on ocean chemistry | |
| Teaching Assistant for “Chemistry of Continental Waters” | 2014 |
| • Taught two lectures on atmospheric structure, composition, and chemistry; Designed and graded problem sets and class project on precipitation chemistry | |
| Teaching Assistant for “Oceanography” | 2012 & 2013 |
| • Taught lectures on history of oceanography, paleoceanography, and co-led Arctic Ocean Case Study; Led weekly office hours, review sessions, and designed questions for exams and homework assignments | |
| Undergraduate Teaching Assistant for “Stratigraphy and Sedimentation” and “Earth: Evolution of a Habitable Planet” | 2008 & 2009 |
| • Assisted undergraduate students in developing science writing skills and data analysis techniques | |

FIELD EXPERIENCE

- | | |
|---|------|
| Piston coring of mangrove swamps, sinkholes, and back-beach Lagoons, Exuma, Bahamas | 2015 |
| Laboratory culturing of live-collected planktic foraminifera, Catalina Island CA | 2013 |
| Vibracoring of Nottoway Swamp, Courtland VA | 2010 |

Atlantic Coastal Plain coring of Pliocene-age Yorktown Formation	2010
Box-coring of Western North Atlantic continental slope for ostracode Mg/Ca calibration <i>R/V Oceanus</i> Expedition 461, 5 days	2010
Abrupt Glacial Lake Drainage Study Coring of Holocene Lake Vermont and Champlain Sea sediments	2009
Livingston coring of Narragansett Bay, RI estuarine sediments	2008
SeaBird CTD profiling of hypoxic events, Narragansett Bay, RI	2007

PROFESSIONAL MEMBERSHIPS

American Geophysical Union	2009-Present
Geochemical Society	2012-Present
New York Academy of Sciences	2011-Present