

Daniel M. Sigman – Curriculum Vitae

Dusenbury Professor of Geological and Geophysical Sciences, Department of Geosciences, Guyot Hall, Princeton University, Princeton, NJ 08544, tel: (609)-258-2194, e-mail: sigman@princeton.edu

Education

B.S., 1991, Stanford University, Geology, with Distinction
Ph.D., 1997, MIT/WHOI Joint Program in Oceanography
Thesis title: “The Role of Biological Production in Pleistocene Atmospheric Carbon Dioxide Variations and the Nitrogen Isotope Dynamics of the Southern Ocean”

Professional Experience

Assistant Professor of Geosciences, Princeton University (2000-2006)
Dusenbury Preceptor, Princeton University (2004-2006)
Professor of Geosciences, Princeton University (2006-2009)
Dusenbury Professor of Geological and Geophysical Sciences, Princeton University (2009-)

Fellowships

Woods Hole Oceanographic Institution, Summer Student Fellow (1990)
National Science Foundation, Graduate Fellow (1991-1994)
Joint Oceanographic Institutions, Schlanger Ocean Drilling Program Fellow (1995-1997)
Dept. of Geosciences, Princeton University, Harry Hess Postdoctoral Fellow (1998-1999)

Honors

Phi Beta Kappa (1991)
Macelwane Medal of the American Geophysical Union (2004, also confers AGU Fellowship)
Friedrich Wilhelm Bessel Award of the Alexander von Humboldt Foundation (2004)
National Science Foundation CAREER Award (2005)
MacArthur Fellowship (2009)
Science Innovation Award (Heinz Lowenstam Medal) of the European Association of Geochemistry (2012)
Geochemical Fellow, Geochemical Society/European Association of Geochemistry (2014)
Graduate Mentoring Award, Princeton University (2015)

Courses taught (underlined are active)

GEO 102 Climate: Past, Present, and Future
FRS 1XX The Ocean Environment
GEO 318/ENV 318 Observing the Marine Environment
GEO 322/ENV 322 Biogeochemical Cycles and Global Change
GEO 364 Earth Chemistry: Major Realms of the Planet (w/ M. Bender)
GEO 520 Stable Isotope Geochemistry With An Environmental Focus
GEO 535 Biogeochemical Cycles and Earth History
GEO 700 Reading Course: Stable Isotope Geochemistry

GEO 700 Reading Course: Global Geochemical Modelling

[Publications](#); [Google Scholar Profile](#)

Former Ph.D. students

Collaborated with Karen L. Casciotti, advisee of Bess Ward, “Molecular and Stable Isotopic Characterization of Enzymes Involved in Nitrification and Nitrifier-Denitrification,” November, 2002

Currently: Professor, Stanford University

Collaborated with Curtis Deutsch, advisee of Jorge Sarmiento, “Biogeochemical constraints on the modern and glacial oceanic nitrogen cycle,” November, 2003

Currently: Professor, Princeton University

Meredith Galanter Hastings, “Studies of reactive nitrogen in the atmosphere using global modeling and stable isotope measurements,” May, 2004

Currently: Professor, Brown University

Collaborated with Ben Z. Houlton, advisee of Lars Hedin (Ecology and Evolutionary Biology), “Isotopic evidence for the climate-dependence of nitrogen cycles across old tropical rainforests, Mt. Haleakala, Hawaii,” April, 2005

Currently: Professor, UC Davis

Angela N. Knapp, “The Stable Isotopic Composition of Dissolved Organic Nitrogen and Nitrate in the Subtropical Ocean”, January, 2006

Currently: Associate Professor, University of South Florida

External advisor for Julie Granger, advisee of Philippe Tortell, University of British Columbia, “Coupled nitrogen and oxygen isotope fractionation of nitrate imparted during its assimilation and dissimilatory reduction by unicellular plankton,” August, 2006

Currently: Associate Professor, University of Connecticut

Brigitte G. Brunelle, “Nitrogen isotope constraints on the biogeochemistry and paleoclimatology of the Subarctic North Pacific,” September, 2009

Currently: Project Scientist, Basic and Applied Research Office, National Geospatial-Intelligence Agency

Peter J. DiFiore, “Nitrate Isotope Dynamics in the Southern Ocean,” April, 2010

Currently: Managing Director, Neuberger Berman

Haojia Ren, “Development and Paleoceanographic Application of Planktonic Foraminifera-Bound Nitrogen Isotopes,” October, 2010

Currently: Associate Professor, Taiwan National University

Collaborated with Sarah E. Fawcett, advisee of Bess Ward, “The Role of Nitrate Assimilation by Eukaryotic Phytoplankton as a Central Characteristic of Ocean Productivity”, May, 2012

Currently: Associate Professor, University of Cape Town

External advisor for Marietta Straub, advisee of Gerald Haug, ETH Zurich, “Application of Foraminifera-Bound Nitrogen Isotopes to Atlantic Paleoceanography,” November, 2012

Currently: Head of chemical radiopharmaceutical group, Lausanne University Hospital, Lausanne, Switzerland

External advisor for Anja Studer, advisee of Gerald Haug, ETH Zurich, “Plio-Pleistocene Nutrient Consumption in the Polar Oceans Reconstructed from Diatom-Bound Nitrogen Isotopes,” March, 2013

Currently: Research Associate, University of Basel, Switzerland

Mathis P. Hain, “Glacial/Interglacial and Deglacial Changes in Ocean Circulation and their Consequences for the Global Carbon Cycle: A Model Study,” September, 2013

Currently: Associate Professor, University of California at Santa Cruz

Kristen L. Karsh, “Physiological and Environmental Controls on the Nitrogen and Oxygen Isotope Fractionation of Nitrate During Its Assimilation by Marine Phytoplankton,” December, 2013

Currently: Marine Microbial Physiologist, University of Tasmania

Xingchen T. Wang, “Nitrogen Isotopes in Scleractinian Corals: Modern Ocean Studies and Paleoceanographic Applications,” April, 2016

Currently: Assistant Professor, Boston College

Dario Marconi, “Use of the Nitrate Isotopes in the Ocean Interior to Explore the Isotopic Composition of Sinking Nitrogen and its Implications for Marine Biogeochemical Cycles,” May, 2017

Currently: Postdoctoral Fellow, Max Planck Institute for Chemistry, Mainz

External advisor for Sandi Smart, Stellenbosch University, “Modern-Ocean Ground-Truthing of Planktic Foraminifer Nitrogen Isotopes: A Proxy for Surface Ocean Nutrient Conditions,” December, 2019

Currently: Postdoctoral Fellow, University of Cape Town

Jessica Lueders-Dumont, advisee of Bess Ward, (second advisor), “Nitrogen Isotopes of Otolith-Bound Organic Matter: A New Tool for Trophic Reconstruction Using Modern And Fossil Otoliths”, May, 2019

Currently: Postdoctoral Research Fellow, Smithsonian Tropical Research Institute

Emma Kast, “Development and Application of Biogenic Mineral-Bound Nitrogen Isotope Measurements to the Million-Year Timescale,” September, 2020

Currently: Agouron Geobiology Fellow, Trinity Hall Research Fellow, University of Cambridge

Victoria Luu, “Modern-Ocean Ground-Truthing of Nitrogen Isotopes in Scleractinian Corals: A Proxy for Surface Ocean Nutrient Conditions”, November, 2021

Currently: Special Assistant to the Assistant Administrator, NOAA Oceanic and Atmospheric Research, U.S. Department of Commerce

Xuyuan Ai, “On the role of the Southern Ocean in the glacial-interglacial cycles of the past 460,000 years: Changes in wind-driven upwelling and ocean front position revealed by reconstructed surface ocean nutrient conditions and temperatures”, January, 2023
Currently: Postdoctoral Fellow, Max Planck Institute for Chemistry, Mainz, Germany

Former M.S. students

External advisor for Sandi Smart, University of Cape Town, “Wintertime nitrate isotope dynamics in the Atlantic sector of the Southern Ocean,” February, 2014
Currently: Adjunct Professor, University of Alabama

Former postdoctoral investigators

Rebecca Robinson Graham (9/01 – 8/05)
Ph.D. from University of Michigan, Dept. of Geological Sciences
Currently: Associate Professor, University of Rhode Island, School of Oceanography

Moritz Lehmann (5/02 – 5/04)
Ph.D. from ETH Zurich, Dept. of Earth Sciences
Currently: Professor, University of Basel, Institute for Environmental Geoscience

Agatha de Boer (5/03 – 12/05; co-advised by Robbie Toggweiler of GFDL)
Ph.D. from University of Southern Florida, Dept. of Oceanography
Currently: Associate Professor, Stockholm University

Maria Prokopenko (1/05 – 8/07)
Ph.D. from University of Southern California, Dept. of Earth Sciences
Currently: Visiting Professor, Pomona College

Julie Granger (5/07 – 8/11)
Ph.D. from University of British Columbia, Department of Earth and Ocean Science
Currently: Associate Professor, University of Connecticut

Kritee K. (7/08 – 9/10)
Ph.D. from Rutgers University, Institute of Marine and Coastal Sciences
Currently: Senior Scientist, Environmental Defense Fund

Katye Altieri (9/09-7/13)
Ph.D. from Rutgers University, Institute of Marine and Coastal Sciences
Currently: Senior Lecturer, University of Cape Town, South Africa

François Fripiat (9/11-8/13)
Ph.D. from Université Libre de Bruxelles
Currently: Assistant Professor, Université Libre de Bruxelles

Patrick Rafter (10/09 – 2/14)
Ph.D. from Scripps Institute of Oceanography
Currently: Project Scientist, University of California, Irvine

Sarah Fawcett (6/12 – 9/15)

Ph.D. from Princeton University, Department of Geosciences,
Currently: Associate Professor, Department of Oceanography, University of Cape Town,
South Africa

Sebastian Kopf, Agouron Geobiology Postdoctoral Fellow (6/14-6/16)

Ph.D. from California Institute of Technology
Isotope effects of denitrification studied with steady state cultures
Currently: Assistant Professor, Department of Geological Sciences, University of
Colorado Boulder

Pearse Buchanan, Fulbright Postdoctoral Scholar (1/18-12/18)

Ph.D. from University of Tasmania
Currently: Postdoctoral Fellow, Carnegie Institute of Washington

Jesse Farmer (1/17-12/22), Postdoctoral Researcher

Ph.D. from Columbia University
Currently: Assistant Professor, UMass Boston