

Elizabeth Marie Shoenfelt, Ph.D.

Department of Earth, Atmospheric and Planetary Sciences 54-1412

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Education

Columbia University, New York, NY and **Lamont-Doherty Earth Observatory**, Palisades, NY

- Ph.D. in Earth and Environmental Sciences, Geochemistry Dec 2018
- Ph.M. in Earth and Environmental Sciences, Geochemistry May 2017
- M.A. in Earth and Environmental Sciences, Geochemistry May 2015
- Committee: Benjamin Bostick, Gisela Winckler, Robert Anderson. Cumulative GPA: 4.1

Princeton University, Princeton, NJ

- A.B. with High Honors (*magna cum laude*) from the Department of Geosciences June 2013
- Environmental Biogeochemistry, Environmental Studies Certificate

Professional Experience

W. O. Crosby Postdoctoral Fellowship Starting Jan 2019

- Massachusetts Institute of Technology (MIT) Department of Earth, Atmospheric, and Planetary Sciences, Cambridge, MA

National Science Foundation Graduate Research Fellowship Funded Sept 2015 - Sept 2018

- With 12 months of personal funding and cost-of-education allowance for 3 years, \$138,000 total

Accepted as Dean's Fellow into Columbia University with first year of funding from the Department of Earth and Environmental Sciences Mar 2013

Research Funding

LDEO Climate Center Research Funding 2015 - 2017

- Includes research funding for 2 proposals totaling nearly \$20,000

Funded synchrotron beamtime for X-ray absorption spectroscopy and microprobe 2015 - present

- At the Advanced Photon Source (Argonne National Laboratory) and at the Stanford Synchrotron Radiation Light-source (SLAC National Accelerator Laboratory)
- Obtained through a proposal ranking process and funded by the Department of Energy

Publications

Elizabeth M. Shoenfelt, Gisela Winckler, Frank Lamy, Robert Anderson, Benjamin Bostick. Highly bioavailable dust-borne iron delivered to the Southern Ocean during glacial periods. *PNAS* **115**(44), 11180-11185 (2018).

Elizabeth M. Shoenfelt, Jing Sun, Gisela Winckler, Michael Kaplan, Alejandra Borunda, Kayla Farrell, Patricio Moreno, Diego Gaiero, Cristina Recasens, Raymond Sambrotto, Benjamin C. Bostick. High particulate iron(II) content in glacially sourced dusts enhances productivity of a model diatom. *Science Advances* **3**(6) (2017).

B. Mishra, **Elizabeth Shoenfelt**, Q. Yu, J. Fein, S. Myneni. Mercury-thiol complexes on bacterial cell envelopes. *Chemical Geology* **464**, 137-146 (2017).

Claresta Joe-Wong, **Elizabeth Shoenfelt**, Emily Hauser, Nyssa Crompton, and Satish Myneni. Estimation of Reactive Thiol Concentrations in Dissolved Organic Matter and Bacterial Cell Membranes in Aquatic Systems. *Environmental Science & Technology* **46**(18), 9854-9861 (2012). doi: 10.1021/es301381n

Awards

Princeton U. Dept. of Geosciences, Chairman's Award in Undergraduate Research June 2013

Presentations/Panels

- Short talk, Dust Impact on Climate and Environment working group workshop “The role of dust in climate change: A biogeochemistry perspective” in Las Cruces, Chile, including travel grant *Jan 2018*
- Oral Presentation, American Geophysical Union (AGU) Fall Meeting, New Orleans *Dec 2017*
- Poster Presentation, Synchrotron Environmental Science Symposium 7, Brookhaven National Laboratory *Oct 2017*
- Invited Geochemistry Seminar, Lamont Doherty Earth Observatory (LDEO) *May 2017*
- Poster for Shoenfelt *et al.* (2017), AGU Fall Meeting, San Francisco *Dec 2016*
- Short pop-up talk, Biogeochemical Cycling of Trace Elements Within the Ocean GEOTRACES and Ocean Carbon & Biogeochemistry Program synthesis workshop, LDEO *Aug 2016*
- Oral Presentation of Master’s research, Goldschmidt Geochemistry Conference, Prague *Aug 2015*
- Invited talk, Princeton Geosciences Alumni Panel, Princeton Undergraduate Geosciences Society *Nov 2014*
- Oral Presentation of Senior Thesis, American Chemical Society meeting, New Orleans *Apr 2013*
- Poster Presentation, Claresta Joe-Wong *et al.* 2012, Goldschmidt Geochemistry Conference, Montreal *June 2012*

Teaching Experience

Laboratory Instructor for Columbia College’s Earth’s Environmental Systems: Climate course *Jan - May 2016 & 2017*

- Course led by Professors Gisela Winckler and Mingfang Ting
- Gave Guest Lecture in Apr 2017

Discussion Section Instructor for Columbia College’s Earth Resources Course *Sept - Dec 2016*

- Course led by Professor Peter Keleman

Teaching Assistant for Columbia U. School of International and Public Affairs *June - Aug 2014*

- For the Master of Public Administration in Environmental Science and Policy program
- Assistant for Environmental Chemistry and Environmental Health and Toxicology summer courses

Leadership/Service

Graduate Fellowship in Academic Administration, Corporate Research Funding *Sept 2017 - May 2018*

- With Columbia University’s Office of the Executive Vice President for Research
- With title of Senior Graduate Fellow in the Office of Research Initiatives for the Spring 2018 semester

Designed and conducted iron extraction experiment for GEOTRACES booth at LDEO Open House *Oct 2016 & 2017*

- Demonstrated that different iron in the foods we eat are more or less soluble based on their chemical form, and explained similarity to iron in the ocean

Mentor for Barnard College Undergraduate Senior Thesis Students *June 2014 - June 2016*

- Primary point of contact for one female student each year, providing training on relevant protocols and support for thesis writing and presentations.

Mentor for the Secondary School Field Research Program, LDEO *Summers 2014, 2015, & 2017*

- A program for high school students and teachers to conduct research on the Hudson River
- Primarily serves populations underrepresented in science from public high schools in New York City
- Meets weekly with 1-2 high school participants in the program to discuss research, college life, published work, etc.

Princeton University Alumni Interviewer *Dec 2013 - present*

- Conducts in-person interviews in Manhattan and telephone interviews for international applicants
- Spoke on alumni panel for admitted students at Southern and Northern Westchester Admitted Students Welcome Reception, April 2015
- Represented Princeton University at the Hunter College High School College Fair in Manhattan (Apr 2015) and at the Manhattan College and Career Readiness Fair for public high schools in NYC (Nov 2015)

Invited Reviewer

- *Geology*
- *Environmental Chemistry*

References

1. Benjamin Bostick

- Affiliation: Lamont Associate Research Professor at the Lamont-Doherty Earth Observatory, Columbia University
- Address: 431 Comer Columbia University's Lamont-Doherty Earth Observatory 61 Route 9W - PO Box 1000 Palisades, NY 10964-8000 USA
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- Email: bostick@ldeo.columbia.edu

2. Gisela Winckler

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- Fax: (845) 365-8155
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3. Satish Myneni

- Affiliation: Professor of Geosciences in the Department of Geosciences, Princeton University
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4. Robert Anderson

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