

Katherine N. Marengo

Department of Geology
Bryn Mawr College
Bryn Mawr, PA 19010

Education

Ph.D., 2008, Geological Sciences, University of Southern California
M.S., 2006, Geological Sciences, University of Southern California
B.A., 2003, Geology, *summa cum laude*, with Honors in Geology, The College of Wooster

Professional Experience

Senior Lecturer, Bryn Mawr College, September 2023-present

Lecturer (continuing), Bryn Mawr College, Fall 2017-August 2023

Lecturer (interim), Bryn Mawr College, Fall 2010-Spring 2011, Fall 2012-Spring 2013, Fall 2013, Fall 2014-Spring 2015, Fall 2015-Spring 2016, Fall 2016

Laboratory Research Associate, Bryn Mawr College, Fall 2009-Spring 2010, Fall 2011-Spring 2012, Spring 2014, Spring 2017

National Science Foundation EAR Postdoctoral Fellow, Bryn Mawr College, Fall 2009-Spring 2010, Fall 2011-Spring 2012

Lecturer, University of California Riverside, Spring 2009

Postdoctoral Scholar, University of California Riverside, Fall 2008

Teaching Experience

- **GEOL 209, Natural Hazards and Human Populations:** Spring 2018, 2019, 2021, 2022
- **BIOL 236, Evolution:** co-taught with Biology faculty, Fall 2012, Spring 2018
- **GEOL 399, Senior Capstone Seminar:** co-taught with Geology faculty, Fall 2015-Spring 2016, Fall 2017-present

Lecturer, University of California Riverside:

- **GEO 003/BIO 010, Headlines in the History of Life:** Spring 2009
- **GEO 118, Sedimentology and Stratigraphy:** Spring 2009

Teaching Assistant, University of Southern California:

- **GEOL 105, Planet Earth:** Spring and Fall 2006
- **GEOL 107, Oceanography:** Spring 2007
- **GEOL 108, Crises of a Planet:** Fall 2005, Summer 2006

Student Research Projects Supervised at Bryn Mawr College

Claire Johnson '16, 2014, 2015-2016, BMC Summer Science Research Program and independent research: *Thrombolite-stromatolite-sponge mounds in the Fillmore Formation, Utah: A look into Ordovician reef building and Microbial-metazoan reef building during the Ordovician "metazoan reef gap"*; graduate work in paleontology at the University of Southern California; pursuing a Master of Landscape Architecture degree at Cornell

Alliya Akhtar '13, 2011, BMC Summer Science Research Program: *A Middle Ordovician sponge-microbial mound from western Utah: Evidence of a critical transition in the evolutionary history of reefs*; Ph.D. in Low-temperature Geochemistry at Princeton University; postdoctoral researcher at William Paterson University

Alice Clark '12 (Haverford College), 2011, BMC Summer Science Research Program: *Developing educational paleontology displays for the Department of Geology at Bryn Mawr College*

Rachael Lubitz '11, 2010-2011, **senior thesis project**: *The Kanosh Formation: A case study of a mixed carbonate-silica stromatolite*

Geological Society of America, Technical Session Co-chair, “Paleontology: Paleoecology and Paleoenvironmental Reconstructions,” GSA annual meeting, October 21, 2014

Reviewer of disciplinary application problems in environmental studies, environmental science, and geoscience for online modules developed by the LACOL QLAB Project, Summer 2020

Reviewer for the National Science Foundation, *Nature Ecology and Evolution*, *Geology*, *Geobiology*,

Organized and hosted visiting speakers: Patricia Kelley (University of North Carolina Wilmington), March 22, 2018; Ted Daeschler (Academy of Natural Sciences of Drexel University), April 22, 2016; Mark Wilson (The College of Wooster), March 21, 2013; James Hagadorn (Denver Museum of Nature and Science), Feb. 26, 2013

Organized on-campus visits by Geology Department alumnae to speak with current geology majors: Spring 2019, Fall 2018, Spring 2018, Spring 2016

Assisted with annual Geology Department field trips: Florida Keys (Fall 2021), Southern California (Fall 2019), Death Valley (Spring 2019), Four Corners Region (Fall 2017), Bahamas (Spring 2016), Southern California (Fall 2014), Death Valley (Spring 2014), Costa Rica (Spring 2012), Bahamas (Spring 2011), Death Valley (Spring 2010)

Assisted with course field trips led by other faculty: 360° “Nicaragua: Places and Names” trip to Nicaragua (Fall 2023); 360° “Coasts in Transition” trip to Belize (Spring 2017); Marine Geology (GEOL 314)–Carbonate Petrology (GEOL 350) joint field trip to the Florida Keys (Fall 2013)

Peer-reviewed Publications (* denotes current/former undergraduate student co-author)

Marengo, K.N., and Hagadorn, J.W., 2019. Big bedding planes: Outcrop size and spatial heterogeneity influence trace fossil analyses. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 513, p. 14-24.

Marengo, P.J., Martin, K.R.*, **Marengo, K.N.**, and Barber, D.C., 2016. Increasing global ocean oxygenation and the Ordovician Radiation: Insights from Th/U of carbonates from the Ordovician of western Utah. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 458, p. 77-84.

Marengo, P.J., **Marengo, K.N.**, Lubitz, R.L.*, and Niu, D.*, 2013. Contrasting long-term global and short-term local redox proxies during the Great Ordovician Biodiversification Event: A case study from Fossil Mountain, Utah, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 377, p. 45-51.

Marengo, K.N., and Bottjer, D.J., 2011. Quantifying bioturbation in Ediacaran and Cambrian rocks. *in* Laflamme, M., Schiffbauer, J.D., and Dornbos, S.Q., (eds.), *Quantifying the Evolution*

Marengo, K.N., and Bottjer, D.J., 2007. Ecosystem engineering in the fossil record: early examples from the Cambrian Period. *in* Cuddington, K., Byers, J.E., Wilson, W.G., and Hastings, A., (eds.), *Ecosystem Engineers: Plants to Protists*, Elsevier Inc., Burlington, MA, p. 163-184.

Bailey, J.V., Corsetti, F.A., Bottjer, D.J., and **Marengo, K.N.**, 2006. Microbially mediated environmental influences on metazoan colonization of matground ecosystems: evidence from the Lower Cambrian Harkless Formation. *Palaios*, v. 21, p. 215-226.

Grants

International Association of Sedimentologists, Student Research Grant, 2007
Geological Society of America, Graduate Student Research Grant, 2004, 2006
USC Dept. of Earth Sciences, Graduate Student Research Award, 2004, 2005, 2006
Evolving Earth Foundation, Student Research Grant, 2005
Sigma Xi, Grant-in-Aid of Research, 2004
The Paleontological Society, Stephen J. Gould Grant, 2004
Henry J. Copeland Grant for Independent Study, 2002

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Wilson, M.A., Buttler, C.J., and **Marengo, K.N.**, 2021. Studying fossil encrusting bryozoan astogeny and paleoecology with acetate peels of basal layers: a simple and fast non-destructive technique. International Bryozoology Association Australarwood X and Larwood Meeting, 29-30 September 2021, Programme and Abstracts, p. 46.

Zheng, T.*, Marengo, P., and **Marengo, K.N.**, 2021. Lamination-scale geochemistry of microbialites: Investigating the combined effects of primary mineralogy and diagenesis in microbialites from the Upper Cambrian and Lower Triassic of the western US. Geological Society of America Abstracts with Programs, v. 53, n. 6, doi: 10.1130/abs/2021AM-370064.

Osawa, H., Oji, T., Onodera, K., Takayanagi, H., Iryu, Y., Gonchigdorj, S., Marengo, P.J., **Marengo, K.N.**, and Dornbos, S.Q., 2019. Ediacaran-Cambrian boundary assignment by stable carbon isotope profile in Khuvsgul Group, Northern Mongolia. 1st Asian Paleontological Congress, Beijing, China.

Marengo, K.N., and Hagadorn, J.W., 2019. Missing the big (bedding plane) picture: Small samples do not always capture the lateral heterogeneity of bioturbation. *PaleoBios*, v. 36 (Supplement 1), p. 232-233.

Yost, E.V.*, **Marengo, K.N.**, and Marengo, P.J., 2018. Petrographic investigation of invertebrate fossil diversity in the Cambro-Ordovician Notch Peak Formation, Lakeside Mountains, Utah. Geological Society of America Abstracts with Programs, v. 50, n. 6, doi: 10.1130/abs/2018AM-319486.

Clothier, C.*, Marengo, P.J., and **Marengo, K.N.**, 2018. Carbon isotopic chemostratigraphy of the microbialite-bearing Cambro-Ordovician Notch Peak Formation, Lakeside Mountains, Utah. Geological Society of America Abstracts with Programs, v. 50, n. 6, doi: 10.1130/abs/2018AM-320410.

Marengo, K.N., 2017. Reef-building at the dawn of the GOBE: The rise of metazoan framework constituents in Lower-Middle Ordovician reefs, western Utah, USA. Geological Society of America Abstracts with Programs, v. 49, n. 6, doi: 10.1130/abs/2017AM-306373.

Yang, Y.*, **Marengo, K.N.**, and Marengo, P.J., 2017. Investigating the role of amorphous fabrics associated with *Calathium* in the Lower Ordovician Fillmore Formation, Utah, USA, using petrography and geochemistry. Geological Society of America Abstracts with Programs, v. 49, n. 6, doi: 10.1130/abs/2017AM-296378.

Johnson, C.M.*, **Marengo, K.N.**, and Marengo, P.J., 2015. Macro- and microfacies interpretations of the microbialite-sponge Hintze's Reef in the Lower Ordovician Fillmore Formation, House Range, western Utah. Geological Society of America Abstracts with Programs, v. 47, n. 7, p. 564.

Marengo, K.N., Johnson, C.M.*, and Marengo, P.J., 2014. Thrombolite-stromatolite-sponge mounds during the Cambro-Ordovician microbialite resurgence: Insights from the Lower

Phillips, D.E.*, Marengo, P.J., **Marengo, K.N.**, 2012. The carbonate associated sulfate proxy during the GOBE: investigating the impacts of global redox changes on shallow marine environments during a time of biodiversification. Geological Society of America Abstracts with Programs, v. 44, n. 7, p.562.

Marengo, K.N., and Akhtar, A.A.*, 2011. Middle Ordovician sponge-microbial mounds from western Utah: transitional precursors of later metazoan-dominated reefs. Geological Society of America Abstracts with Programs, v. 43, n. 5, p. 503.

Lubitz, R.L.*, **Marengo, K.N.**, and Marengo, P.J., 2011. Reexamining the depositional setting of the Kanosh Formation (Middle Ordovician, Utah): integrating geochemistry into a sedimentary and paleoecological study. Geological Society of America Abstracts with Programs, v. 43, n. 5, p. 96.

Marengo, K.N., 2010. A Middle Ordovician sponge-algal mound from western Utah: implications for the radiation of hard-substrate-attaching organisms. Geological Society of America Abstracts with Programs, v. 42, n. 5, p. 634.

Marengo, K.N., and Bottjer, D.J., 2010. Onshore initiation of the agronomic revolution: quantitative evidence from Lower Cambrian strata in the Great Basin. Geological Society of America Abstracts with Programs, v. 42, n. 5, p. 480.

Marengo, K.N. and Bottjer, D.J., 2010. A bioturbation-induced ecological transition: quantitative evidence from the Lower Cambrian of California and Nevada, USA. Third International Palaeontological Congress, London, UK.

Marengo, K.N. and Droser, M.L., 2009. Investigating the role of changing substrates in the Ordovician radiation: Great Basin, USA. Southern California Geobiology Symposium, Riverside, California.

Marengo, K.N. and Bottjer, D.J., 2008. Quantifying Early Cambrian bioturbation along an onshore-offshore transect: Great Basin, USA. Geological Society of America Abstracts with Programs, v. 40, n. 6, p. 508.

Marengo, K.N. and Bottjer, D.J., 2007. Quantitative analysis of bedding plane bioturbation: new insights from the Upper Cambrian of Wisconsin. Geological Society of America Abstracts with Programs, v. 39, n. 6, p. 207.

Marengo, K.N. and Bottjer, D.J., 2007. Lower Cambrian shelf ichnofabric: a bedding plane phenomenon. Ninth International Ichnofabric Workshop, Calgary, Alberta, Canada.

Marengo, K.N. and Bottjer, D.J., 2006. Lower Cambrian trace fossils of eastern California: engineering an ecological revolution. Second International Paleontological Congress, Beijing, China.

Marengo, K.N. and Bottjer, D.J., 2006. Lower Cambrian trace fossils of eastern California: engineering an ecological revolution. Southern California Geobiology Symposium, Riverside, California.

Nicholson, K.A. and Bottjer, D.J., 2005. Lower Cambrian trace fossils of eastern California: engineering an ecological revolution. Geological Society of America Abstracts with Programs, v. 37, n. 7, p. 486.

Nicholson, K.A. and Bottjer, D.J., 2005. Bioturbation in Lower Cambrian siliciclastics: investigating an early record of metazoan substrate engineering. Second International Symposium on the Cambrian System, Acta Micropalaeontologica Sinica, v. 22 (supplement), p. 122-123.

Nicholson, K.A. and Bottjer, D.J., 2005. Lower Cambrian trace fossils of eastern California: an early record of substrate engineering. North American Paleontological Convention, Paleobios, v. 25, supplement to n. 2, p. 90.

Nicholson, K.A. and Bottjer, D.J., 2004. Ecosystem engineers during the Cambrian Explosion: trace fossil record from the Lower Cambrian of eastern California. Geological Society of America Abstracts with Programs, v. 36, n. 5, p. 522.

Bailey, J., Corsetti, F.A., Bottjer, D., and **Nicholson, K.**, 2004. Fossil assemblages in Lower Cambrian microbial matground sediments and implications for early benthic and infaunal ecologies. Geological Society of America Abstracts with Programs, v. 36, n. 5, p. 522.

Nicholson, K. and Bottjer, D., 2004. Investigating mat-busters from the Early Cambrian. California Paleontological Conference, Paleobios, v. 24, supplement to n. 1, p. 6.

Nicholson, K.A. and Wilson, M.A., 2003.h

Additional Academic Experience

Paleontological Society Short Course: "Pedagogy and Technology in the Modern Paleontology Classroom," GSA Annual Meeting, Indianapolis, IN, 2018

Applied Ichnology Short Course, AAPG Annual Convention, Long Beach, CA, 2007

Invertebrate Zoology course at Friday Harbor Laboratories (University of Washington), Summer 2004

Albion College Geology Field Camp in Wyoming, Montana, and South Dakota, Summer 2003