

BLAKE DYER

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EDUCATION

Ph.D. Geosciences — Adviser: Adam C. Maloof *2010-2015*

Princeton University, Princeton, NJ

Dissertation: “Stratigraphic expression and numerical modeling of meteoric diagenesis in carbonate platforms during the Late Paleozoic Ice Age”

B.S. Earth Sciences (Geochemistry) — Adviser: Cin-Ty A. Lee *2006-2010*

Rice University, Houston, TX

Research Focus: “Open-system behavior during pluton–wall-rock interaction as constrained from a study of endoskarns in the Sierra Nevada Batholith, California”

PROFESSIONAL EXPERIENCE

Postdoctoral Research Scientist, *2016*→
Lamont-Doherty Earth Observatory of Columbia University

I am currently working in the Bahamas on sea level, glacial isostatic adjustment, and climate during the last interglacial (MIS 5e).

Postdoctoral Research Associate, Princeton University *2015-2016*

A short project developing a model to harness modern maps of carbonate environments to extract relative sea level change from ancient stratigraphic sections.

RESEARCH INTERESTS

The goal of my research is to better understand how sediments record the Earth-system response to changing boundary conditions. The information stored in the sedimentary rock record offers a broad range of past environmental variability that serves as a powerful baseline to differentiate naturally occurring change from human induced change and can reveal feedbacks that may become critically important in predicting future climate change. I investigate this sedimentary record by merging modern data science tools and models with geospatial, geochemical and stratigraphic data collected over extensive field seasons. My PhD research focused specifically on the relationships between sea level fall, diagenesis, and the global carbon cycle during the late Paleozoic Ice Age. More recent projects include developing methods to quantify discrete signals of qualitative stratigraphic observations to improve correlation and infer environmental change from vertically stacked carbonate strata. Additionally, I am actively engaged in new field work in the Bahamas to refine the mantle viscosity assumptions that are key to interpreting the sedimentary record of sea level during the last interglacial.

SUBMITTED

- 6 Rovere, A., Casella, E., Harris, D.L., Lorscheid, T., Nandasena, N.A.K., **Dyer, B.**, Sandstrom, M.R., Stocchi, P., D'Andrea, W.J., Raymo, M.E. 2017. Mega-boulders are not evidence for increased storm intensity during the Last Interglacial, *Proceedings of the National Academy of Sciences*, *In Review*.

PUBLISHED

- 5 Lee, C.T. A, Caves, J., Jiang, H., Cao, W., Lenardic, A., McKenzie, N.R., Planavsky, N., Shorttle, O., **Dyer, B.**, Yin, Q. 2017. Deep mantle roots and continental emergence: implications for whole-Earth elemental cycling, long-term climate, and the Cambrian explosion, *International Geology Review*, 1-18.
- 4 **Dyer, B.**, Higgins, J.A., Maloof, A.C. 2016. A probabilistic analysis of meteorically altered $\delta^{13}\text{C}$ chemostratigraphy from Late Paleozoic Ice Age carbonate platforms, *Geology*, *In Press*.
- 3 **Dyer, B.**, Maloof, A.C., Higgins, J.A. 2015. Glacioeustasy, meteoric diagenesis, and the carbon cycle during the middle Carboniferous, *Geochemistry, Geophysics, Geosystems*, 16, doi:10.1002/2015GC006002.
- 2 **Dyer, B.**, Maloof, A.C. 2015. Physical and chemical stratigraphy suggest small or absent glacioeustatic variation during formation of the Paradox Basin cyclothems, *Earth and Planetary Science Letters*, 419: 63-70.
- 1 **Dyer, B.**, Lee, C. T. A., Leeman, W. P., Tice, M. 2011. Open-system behavior during pluton–wall-rock interaction as constrained from a study of endoskarns in the Sierra Nevada Batholith, California, *J. Petrology* 52 (10): 1987-2008.

WRITING IN PROGRESS

- 9 **Dyer, B.**, D'Andrea, W.J., Sandstrom, M.R., Austermann, J., Rovere, A., Raymo, M.E., 2017. The history of sea level and isostatic adjustment recorded in Bahamian geomorphology. *In Prep*.
- 8 **Dyer, B.**, Maloof, A.C., Purkis, S.J. 2017. Extracting sea level change from carbonate stratigraphy with hidden Markov models, *In Prep*.
- 7 **Dyer, B.**, Higgins, J.A., Maloof, A.C. 2017. Ca isotope stratigraphic expression of meteoric diagenesis, *In Prep*.

PROFESSIONAL PRESENTATIONS

ORAL: GSA Annual Meeting	(upcoming) <i>Oct 2017</i>
ORAL: UCLA Earth and Planetary Sciences	<i>29 Feb 2017</i>
ORAL: IRESS (Industry-Rice Earth Science Symposia)	<i>24 Feb 2017</i>
ORAL: Penn State Geosciences Colloquium	<i>14 Feb 2017</i>
POSTER: AGU Fall Meeting	<i>16 Dec 2016</i>

ORAL: BPE Seminar LDEO-Columbia University	21 Nov 2016
ORAL: Rutgers University EPS Colloquium	16 Nov 2016
ORAL: PALSEA2 (PALeo constraints on SEA level rise)	19 Sep 2016
ORAL: Northeastern Geobiology Symposium - Harvard University	29 Apr 2016
ORAL: GSA Annual Meeting	04 Nov 2015
POSTER: GSA Annual Meeting	03 Nov 2015
POSTER: Goldschmidt Conference	20 Aug 2015
ORAL: Northeastern Geobiology Symposium - Princeton University	07 Feb 2015
ORAL: University of Copenhagen	14 Jan 2015
POSTER: AAPG Annual Convention and Exhibition	20 May 2013
POSTER: AGU Fall Meeting	14 Dec 2007

FUNDING (\$17,500 TOTAL)

The Climate Center of Lamont Doherty Earth Observatory – \$10,000 <i>A robust chronology for the interglacial stratigraphic record of the Bahamas</i>	2016
ExxonMobil Graduate Student Geoscience Grant – \$7,500 <i>High resolution coupled physical and chemical stratigraphy of Late Paleozoic Ice Age Cyclothems</i>	2011

GEOLOGIC FIELD WORK (14 MONTHS)

The Bahamas [2 months] <i>Constraining the effect of glacial isotostatic adjustment and global mean sea level on the stratigraphic record of the last interglacial</i>	2016 & 2017
The Western US [9 months] <i>Stratigraphic expression and numerical modeling of meteoric diagenesis in carbonate platforms during the Late Paleozoic Ice Age</i>	2010-2014
South Australia [3 months] <i>The Marinoan glaciation and the Wonoka anomaly</i>	2010
California [1 week] <i>Xenoliths of the Owens Valley cinder cones</i>	2009

TEACHING EXPERIENCE

GEO 370/570: Sedimentology (Princeton University) Teaching Assistant aiding students in independent field projects during a 10 day field trip on Andros Island, Bahamas and weekend field trip to Kentucky.	2014
GEO 203: Introduction to the Solid Earth (Princeton University)	2013

Teaching Assistant primarily responsible for weekly hour long supplementary lectures, problem set design and grading, and a weekend long field trip to upstate New York.

ESCI 334: Geologic and Geophysical Techniques (Rice University) *2010*

Teaching Assistant providing aid in a week long mapping exercise in Big Bend, Texas, and assignment grading.

WIES 117: Natural History Through Backpacking (Rice University) *2009*

At Rice University, another undergraduate student (Jeremy Caves) and I designed and taught a course on backpacking and the study of natural history. We had lecture once a week and led 10 students on seven field trips, including a 7 day backpacking excursion through the Gila Wilderness of New Mexico. Field trips were designed around projects that taught students how to learn geology, ornithology, and botany in a field setting.