

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 reconstructing past sea level, glacial isostatic adjustment, and climate during the last interglacial (MIS 5e).

Postdoctoral Research Associate, Princeton University *2015-2016*

A research project where I developing a statistical 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 sedimentary rocks records 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 during detailed field work. 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 change during the last interglacial.

SUBMITTED

- 7 **Dyer, B.**, Maloof, A.C., Purkis, S.J., P.M. Harris, 2017. Extracting sea level change from carbonate stratigraphy, *Earth and Planetary Science Letters*, *Under Review*.

PUBLISHED

- 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. Giant boulders and Last Interglacial storm intensity in the North Atlantic, *Proceedings of the National Academy of Sciences*, *In Press*.
- 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. 2017. A probabilistic analysis of meteorically altered $\delta^{13}\text{C}$ chemostratigraphy from Late Paleozoic Ice Age carbonate platforms, *Geology*, *45(2)*, 135-138, doi: <https://doi.org/10.1130/G38513.1>.
- 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

- 8 **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*.
- 9 **Dyer, B.**, Higgins, J.A., Maloof, A.C. 2017. Ca isotope stratigraphic expression of meteoric diagenesis, *In Prep*.

PROFESSIONAL PRESENTATIONS

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

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

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>	<i>2016</i>
ExxonMobil Graduate Student Geoscience Grant – \$7,500 <i>High resolution coupled physical and chemical stratigraphy of Late Paleozoic Ice Age Cyclothem</i>	<i>2011</i>

GEOLOGIC FIELD WORK (15 MONTHS)

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

MENTORING EXPERIENCE

Since 2010, I have advised 6 high school students in both lab and programming based projects. Outside of regular coursework, I have helped train 8 students (undergraduate and early graduate) in stratigraphy and field methods during 11 months of field work, and I have directly supervised 11 undergraduates in a lab dedicated to measuring the carbon and oxygen isotopes of carbonate rocks.

TEACHING EXPERIENCE

Princeton University [as teaching assistant]:	
GEO 370/570: Sedimentology	<i>2014,2016</i>
GEO 203: Introduction to the Solid Earth	<i>2013</i>
Rice University [as teaching assistant]:	
ESCI 334: Geologic and Geophysical Techniques	<i>2010</i>
Rice University [as primary instructor]:	
WIES 117: Natural History Through Backpacking	<i>2009</i>