Blake Dyer

Lamont-Doherty Earth Observatory, Columbia University

61 Route 9W, Palisades, NY, 10964, USA

http://www.blakedyer.com

blake.c.dyer@gmail.com

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 a quantitative framework to extract relative sea level change from facies transitions in vertically stacked carbonate strata, and a new field project that aims to refine the mantle viscosity assumptions used to interpret the sedimentary record of sea level during the last interglacial.

Journal Articles

submitted

5 Lee, C.T. A, Caves, J., Jiang, H., Cao, W., Lenardic, A., McKenzie, N.R., Planavsky, N., Shorttle, O., **Dyer, B.**, Yin, Q. 2016. Deep mantle roots and continental emergence: implications for whole-Earth elemental cycling, long-term climate, and the Cambrian explosion, *Science Advances*, *In Review*.

published

4 **Dyer, B.**, Higgins, J.A., Maloof, A.C. 2016. A probabilistic analysis of meteorically altered δ^{13}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

7 **Dyer, B.**, Maloof, A.C., Purkis, S.J. 2017. Extracting sea level change from carbonate stratigraphy with hidden Markov models, *In Prep*.

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

Professional Presentations

ORAL: UCLA Earth and Planetary Sciences	*29 Feb* ***2017***
ORAL: IRESS (Industry-Rice Earth Science Symposia)	*24 Feb* ***2017***
ORAL: Penn State Geosciences Colloquium	*14 Feb* ***2017***
POSTER: AGU Fall Meeting	*16 Dec* ***2016***
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 ***2016***
A robust chronology for the interglacial stratigraphic record of the Bahamas

ExxonMobil Graduate Student Geoscience Grant – $7,500 ***2011***
High resolution coupled physical and chemical stratigraphy of Late Paleozoic Ice Age Cyclothems

Geologic Field Work (13 months)

The Bahamas [3 weeks] ***2016 & 2017***
Constraining the effect of glacial isotostatic adjustment on the stratigraphic record of the last interglacial

The Western US [9 months] ***2010-2014***
Stratigraphic expression and numerical modeling of meteoric diagenesis in carbonate platforms during the Late Paleozoic Ice Age

South Australia [3 months] ***2010***
The Marinoan glaciation and the Wonoka anomaly

California [1 week] ***2009***
Xenoliths of the Owens Valley cinder cones

Teaching Experience

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

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 and 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.