Andrew J. Moodie

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Department of Earth Science
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Career Goals

To complete a Doctorate degree in the geosciences.
To have a successful career as an engaged professor of geoscience

Research Interests

I employ a quantitative and process based perspective to study the fluvial processes that shape Earth's surface. I am particularly interested in avulsion processes and the deposition of sediment in alluvial fans and deltas. My research is motivated by a need to link long-term delta evolution with the sustainability of deltas globally.

Education

Doctor of Philosophy, Earth Science from Rice University — Spring 2019

- 4.00 cumulative GPA (4.33 scale)
- Nunmerical modeling and field study of sediment transport and delta evolution, Yellow River, China

Bachelor of Science, with High Honors in Geology, Lehigh University — May 2014

- Minor in Economics
- Senior Honors Thesis: Exhumation, dynamic topography, and drainage divides of active and ancient orogenic settings: the Gibraltar Arc and Appalachians

Work Experience

Graduate Advisor	Rice University, HART SafeClear; Houston, TX	2015–2016
Senior Intern and Field Tech.	Peak Environmental; Woodbridge, NJ	2013
Intern and Field Tech.	Peak Environmental; Woodbridge, NJ	2012

Teaching Experience

ESCI 334	Geological Techniques (field trip only), Rice University	2017
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ESCI 334	Geological Techniques (field trip only), Rice University	2015
EES 2	Intro to Environmental Science, Lehigh University	2014
EES 11	Environmental Geology, Lehigh University	2012–2014

Grants and Fellowships

National Science Foundation Graduate Research Fellowship (NSF GRFP) — 2016–2019

Field Work

ESCI 635	Piceance Basin, CO, "PETM in the strat. record", three days	2017
NSF Coastal SEES	Yellow River, China, Data collection survey, six weeks	2016
ESCI 546	County Clare, Ireland, "Namurian deltaic cyclothems", nine days	2016
ESCI 635	White Sands, NM, "Initiation of aeolian dune fields", five days	2015
NSF Coastal SEES	Yellow River, China, Data collection survey, six weeks	2015

Department and Community Service

Undergraduate Research Symposium, Judge	Rice University	2016
GeoUnion, Treasurer	Rice University	2015

Awards

Chair's Award (Departmental Service)	Rice University	2017
Alison Henning Teaching Award in Earth Science	Rice University	2016
Vic Johnson Field Camp Scholarship	Lehigh University	2013

Practical and Analytical Proficiency

Geologic:	Sediment transport, autogenic channel processes, natural drainage systems, stratigraphy, dynamic topography, structural geology, hydrogeology, mapping and cross-sections, field work
Technologies:	QGIS/ArcGIS, Generic Mapping Tools, Unix, MS Suite, image and vector design, Git
Programming:	Matlab, R, Python, bash, LaTeX
Other:	Scientific writing, independent research, economics (electricity, labor, micro), proficiency in German, fluid dynamics

Short Courses

Integrated Basin Analysis	ExxonMobil, Northeastern GSA, in Lancaster, PA	2014

Professional Associations

NSF Graduate Research Fellowship Program Fellows
American Geophysical Union, Earth and Planetary Surface Processes
Geological Society of America
American Association of Petroleum Geologists
GeoUnion, Rice University
Rice AAPG chapter, Rice University
Society of Environmental Scientists, Lehigh University

Refereed Publications

[1] *Moodie, Andrew J.*, Jeffrey A. Nittrouer, Hongbo Ma, Brandee N Carlson, and Gary Parker. "A quasi-2d delta-growth model accounting for multiple avulsion events, validated by robust data from the Yellow River delta, China." In: *Journal of Geophysical Research – Earth Surface* (). In press.

[2] *Moodie, Andrew J.*, Frank J. Pazzaglia, and Claudio Berti. "Exogenic and autogenic controls on the location and migration of continental divides." In: *Basin Research* (). inpreperation.

[3] Hongbo Ma, Jeffrey A. Nittrouer, Kensuke Naito, Xudong Fu, Yuanfeng Zhang, *Moodie, Andrew J.*, Yuanjian Wang, Baosheng Wu, and Gary Parker. "The Exceptional Sediment Load of Fine-grain Dispersal Systems: Example of the Yellow River, China." In: *Science Advances* (2017).

Other Publications

[1] *Moodie, Andrew J.* "Evaluating the long-term sustainability of deltas." In: *Outcroppings – Rice Earth Science Newsletter* 1 (2016), pp. 30–33.

[2] *Moodie, Andrew J.* "Dynamic topography and drainage divides in active and ancient orogenic settings, the Gibraltar Arc and Appalachians." Undergraduate Honors Thesis. Bethlehem, PA: Lehigh University, 2014.

Scientific Presentations with Abstracts

[1] Brandee N Carlson, Jeffrey A. Nittrouer, Gail C. Kineke, *Moodie, Andrew J.*, Hongbo Ma, and Lisa Kumpf. "The coastline evolution of an abandoned deltaic lobe and the fate of its relict distributary channel: a case study from the Huanghe (Yellow River) delta, China." In: American Geophysical Union Fall Meeting. 2016.

[2] Hongbo Ma, Jeffrey A. Nittrouer, Kensuke Naito, *Moodie, Andrew J.*, and Gary Parker. "The exceptional sediment load of a fine-grain meandering river and relation to bedform geometry: an appealing example from the lower Yellow River, China." In: Geological Society of America Abstracts with Programs. Vol. 48-7. 2016.

[3] *Moodie, Andrew J.*, Jeffrey A. Nittrouer, Hongbo Ma, Brandee N Carlson, and Gary Parker. "A quasi-2d delta-growth model accounting for multiple avulsion events, validated by robust data from the Yellow River delta, China." In: American Geophysical Union Fall Meeting. 2016.

[4] Brandee N. Carlson, Jeffrey A. Nittrouer, Hongbo Ma, and *Moodie, Andrew J.* "Channel infilling processes on the Huanghe (Yellow River) deltaic coastal plain, China." In: Geological Society of America Abstracts with Programs. Vol. 47-7. 2015.

[5] Hongbo Ma, Jeffrey A. Nittrouer, *Moodie, Andrew J.*, Brandee N. Carlson, and Gary Parker. "Role of river bends for the formation and evolution of channel bedforms: Combined field studies and numerical modeling from the tidally influenced zones of the Yellow River, China and Mississippi River, USA." In: American Geophysical Union Fall Meeting. 2015.

[6] *Moodie, Andrew J.*, Hongbo Ma, Jeffrey A. Nittrouer, Brandee Carlson, and Gail C. Kineke. "Spatiotemporal channel-bed evolution patterns observed for the Huanghe (Yellow River), China: Implications for evaluating system response and complexity to external perturbations." In: Geological Society of America Abstracts with Programs. Vol. 47-7. 2015.

[7] Claudio Berti, David J. Anastasio, Frank J. Pazzaglia, Gilles Y. Brocard, *Moodie, Andrew J.*, Josep M. Pares, Paseo S. d. A. Cenieh, and Juan I. Soto. "Drainage network reorganization and divide migration in response to active tectonics in the Betic Range, Spain." In: Geological Society of America Abstracts with Programs. Vol. 46-6. 2014.

[8] *Moodie, Andrew J.* and Frank J. Pazzaglia. "Exhumation, dynamic topography, and drainage divides in active and ancient orogenic settings: the Gibraltar Arc and Appalachians." In: Geological Society of America Abstracts with Programs. Vol. 46-2. 2014.

Other Scientific Presentations

Oral	Mohrig research group, UT Austin	2017
Poster	AAPG Rice Industry Geoscience Series	2016
Oral	ExxonMobil and Rice University deltas symposium	2016
Poster	Industry-Rice Earth Science Symposium	2016
Poster	International Workshop of the Yellow River Delta	2015
Poster	Industry-Rice Earth Science Symposium	2015
Poster	Lehigh College of Arts and Sciences Symposium	2014
Oral	Lehigh EES Undergraduate Research Symposium	2014

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