

ANASTASIA PILIOURAS

Assistant Professor
Department of Geosciences
Pennsylvania State University
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EDUCATION

- 2016 **Ph.D. in Geological Sciences**, University of Texas at Austin
Dissertation: Ecogeomorphology of fluviodeltaic systems: Effects of vegetation on delta morphodynamics
- 2011 **B.A. in Earth Science – Geology**, University of Pennsylvania
Thesis: The Effect of Potential Vorticity on Delta Channel Morphodynamics: Examining Elongating versus Bifurcating Behavior

PROFESSIONAL POSITIONS

- starting 2022 **Assistant Professor**, Department of Geosciences, Pennsylvania State University
- 2019-2021 **Scientist**, Earth and Environmental Sciences Division, Los Alamos National Laboratory
- 2016-2019 **Postdoctoral Research Associate**, Earth and Environmental Sciences Division, Los Alamos National Laboratory

AWARDS AND HONORS

- 2021 **Los Alamos Awards Program** for leadership of Geoscientists United for Inclusion, Diversity, and Equity
Los Alamos National Laboratory
- 2021 **Spot Award** for having a highly positive influence on co-workers and promoting inclusivity and psychological safety
Los Alamos National Laboratory
- 2020 **Spot Award** for excellence in mentoring
Los Alamos National Laboratory
- 2016 **National Science Foundation Postdoctoral Fellowship** (*declined*)
- 2016 **Mendenhall Postdoctoral Research Fellowship** (*declined*)
United States Geological Survey, Reston, VA
- 2014 **Banks Fellowship**
Jackson School of Geosciences, University of Texas at Austin
- 2013 **Honorable Mention**
National Science Foundation Graduate Research Fellowship Program
- 2012 **Award for Excellence in Research**
Morphodynamics and Quantitative Stratigraphy Group, Jackson School of Geosciences
- 2011 **Endowed Graduate Fellowship**
Jackson School of Geosciences, University of Texas at Austin
- 2011 **Magna Cum Laude** with distinction in Earth Sciences
University of Pennsylvania
- 2011 **Henry Darwin Rogers Award for Excellence in Geology**
Department of Earth and Environmental Science, University of Pennsylvania

GRANTS

2021	New Mexico Small Business Assistance Program (\$34k, PI) “Effects of wetland restoration on carbon storage in the Valles Caldera”
2021	Special Rapid Response Program, Biogeochemistry at Terrestrial-Aquatic Interfaces (\$60k, PI) Center for Space and Earth Sciences, Los Alamos National Laboratory “Seasonal changes in delta hydrologic connectivity and effects on nutrient transport”
2020	New Mexico Small Business Assistance Program (\$34k, co-PI) “Effects of wetland restoration on carbon budgets in the Valles Caldera”
2019	Rapid Response Program, Research and Development Grant (\$35k, PI) Center for Space and Earth Sciences, Los Alamos National Laboratory “Thermokarst lake morphology and impact on heat fluxes in permafrost landscapes”
2019-2022	Earth and Environmental System Modeling (\$80k/yr out of \$2.9M/yr total, co-I) Biological and Environmental Research, Office of Science, US Department of Energy “InterFACE: Interdisciplinary Research for Arctic Coastal Environments” Task lead: Coastal Change Leadership team member: Integrated Coastal Typologies
2018-2021	Regional and Global Model Analysis program (\$232k/yr out of \$2.7M/yr total, co-I) Biological and Environmental Research, Office of Science, US Department of Energy “High-Latitude Application and Testing of Earth System Models” Task lead: The impact of changes in riverine fluxes on Arctic warming
2018	Emerging Ideas Program, Research and Development Grant (\$28k, PI) Center for Space and Earth Sciences, Los Alamos National Laboratory “Sea ice sediment entrainment during spring flood conditions”
2013	ExxonMobil Geoscience Grant (\$7.5k) ExxonMobil

ADVISING

Los Alamos National Laboratory

2021	Mentor , Rachel Ulrich, Post-Masters Researcher
2021	Mentor , Paige Tunby, DOE Minority Serving Institution Partnership Program (MS student, University of New Mexico)
2021	Mentor , Jayaram Hariharan, Graduate Research Assistant, NSF INTERN Program (PhD candidate, University of Texas at Austin)
2020	Mentor , Tabatha Clevenger, Student Undergraduate Laboratory Intern Program (undergraduate student, Vassar College)
2020	Mentor , Ryan Herring, Student Undergraduate Laboratory Intern Program (MS student, Yonsei University)
2019-2021	Co-Mentor , Rachel Glade, Postdoctoral Research Associate (now Asst. Professor, University of Rochester)
2019-2020	Co-Mentor , Mulu Fratkin, Post-Masters Researcher
2019	Co-Mentor , Joanmarie Del Vecchio, Graduate Research Assistant, (PhD 2021, Penn State University; now Postdoctoral Fellow, Dartmouth College)
2019	Mentor , Deon Knights, Graduate Research Assistant, NSF INTERN Program, (PhD 2020, Ohio State University; now NSF Postdoctoral Fellow, West Virginia University)
2017-2018	Mentor , Rebecca Lauzon, Graduate Research Assistant (PhD 2018, Duke University)

University of Texas at Austin

- 2014-2016 **Graduate Mentor**, Rose Palermo, Undergraduate Honors Research Program (BS 2016, UT Austin; now PhD candidate, MIT/WHOI)
- 2013-2016 **Mentor**, GeoFORCE Program, multiple students, Jackson School of Geosciences
- 2012-2013 **Graduate Mentor**, Brandee Carlson, Undergraduate Honors Research Program (BS 2013, UT Austin; now NSF Postdoctoral Fellow, CU Boulder)

PROFESSIONAL AND SERVICE ACTIVITIES

- 2021-2022 **Past President**, Association for Women Geoscientists – Laramide Chapter
- 2021 **Member**, Unlearning Racism in Geosciences pod, Earth and Planetary Surface Processes section, American Geophysical Union
- 2020-2021 **Co-chair**, Geoscientists United for Inclusion, Diversity, and Equity (GUIDE), Earth and Environmental Sciences Division, Los Alamos National Laboratory
- 2019-2021 **President**, Association for Women Geoscientists – Laramide Chapter
- 2019 **Workshop Organizer**, STEM Pathways for Girls, Santa Fe
- 2018-2020 **Judge**, Northeastern New Mexico Regional Science and Engineering Fair; Central New Mexico Regional Science and Engineering Research Challenge
- 2018 **Mentoring 365 program mentor**, American Geophysical Union Fall Meeting
- 2018 **Workshop Organizer**, Expanding Your Horizons STEM conference for girls, Santa Fe
- 2018 **Special Awards Judge**, Association for Women Geoscientists, New Mexico State Science and Engineering Fair
- 2017-present **Judge**, Outstanding Student Presentation Awards, American Geophysical Union Fall Meeting
- 2017-2019 **Secretary**, Association for Women Geoscientists – Laramide Chapter
- 2017 **Undergraduate Mentoring Program mentor**, American Geophysical Union Fall Meeting
- 2017 **Guest Instructor**, Colorado College Physical Geology field trip, White Sands National Monument, New Mexico
- 2016-2017 **Career and Research Advice Mentorship mentor**, American Geophysical Union Fall Meeting
- 2016 **Workshop Assistant**, Expanding Your Horizons STEM conference for girls, Santa Fe
- ongoing **Reviewer**: *Earth Surface Dynamics*, *Earth Surface Processes and Landforms*, *Environmental Research Letters*, *Environmental Research Communications*, *Geology*, *Geomorphology*, *Geophysical Research Letters*, *Journal of Geophysical Research – Earth Surface*, *NASA (panel)*, *NSF (panel + external)*, *Sedimentology*, *Water Resources Research*

CONFERENCE SESSIONS

- 2021 **Session Convener**, River & Floodplains, Estuaries & Tidal Flats, American Geophysical Union Fall Meeting
- 2021 **Session Chair**, Structure, Function, and Evolution of Permafrost Rivers, Deltas, and Coasts, Regional Conference on Permafrost
- 2021 **Session Convener**, Flooding and Permafrost Thaw, Regional Conference on Permafrost
- 2020 **Session Convener**, Flow, Transport, & Morphology: Linkages between erosion, transport, deposition and morphology across scales, American Geophysical Union Fall Meeting
- 2019 **Primary Session Convener**, Signatures of Environmental Signals on Earth's Surface and Subsurface, American Geophysical Union Fall Meeting
- 2018 **Primary Session Convener**, Signatures of Climate Change in Surface Processes, American Geophysical Union Fall Meeting

- 2018 **Session Convener**, The influence of vegetation and large wood on water, sediment, and nutrient dynamics in fluvial and coastal environments, American Geophysical Union Fall Meeting
- 2018 **Session Chair**, Coastal Systems, DOE Earth and Environmental System Modeling meeting
- 2017 **Primary Session Convener**, Monitoring Coastal Change: Physical, Biological, and Chemical Dynamics on the Coast, American Geophysical Union Fall Meeting
- 2016 **Primary Session Convener**, Ecogeomorphology: Sediment-Biota Feedbacks that Shape Land and Seascape, American Geophysical Union Fall Meeting
- 2015 **Primary Session Convener**, Experimental Studies in Surface Processes, American Geophysical Union Fall Meeting

INVITED PRESENTATIONS

- 2021 American Geophysical Union Fall Meeting
- 2021 Source to Sink seminar Series, North Carolina State University
- 2020 American Geophysical Union Fall Meeting
- 2020 Geological Society of America Annual Meeting
- 2020 Massachusetts Institute of Technology
- 2020 University of Northern Colorado
- 2020 University of Texas at Austin
- 2019 American Geophysical Union Fall Meeting (x2)
- 2019 The Ohio State University
- 2018 University of California Irvine
- 2017 Rice University
- 2016 U.S. Geological Survey, Reston

PUBLICATIONS

†undergraduate student advisee †graduate student advisee ^graduate student

In prep

- Piliouras, A.**, A. Sendrowski, B. Carlson, W. Kim, and D. Mohrig. (*in prep*). River discharge, tides, and vegetation control delta island hydrodynamics in the Wax Lake Delta.
- Fratkin, M. M. and **A. Piliouras**. (*in prep*). Spatial variability in thermokarst lake morphology and implications for talik extent.
- Douglas[^], M. M., G. Li, M. P. Lamb, J. C. Rowland, P. C. Kemeny, A. J. West, J. Schwenk, **A. Piliouras**, A. J. Chadwick, and W. W. Fischer. (*in prep*). Organic carbon storage and cycling by river meandering in discontinuous permafrost.

In review or revision

- Gibson, G., S. M. Elliott, **A. Piliouras**, J. Kinney and N Jeffery. (*in review*). Assessing the potential impact of river chemistry on Arctic coastal production. *Frontiers in Marine Science: Coastal Ocean Processes*.
- Telfeyan, K., **A. Piliouras**, A. Myers-Pigg, B. Newman, N. Ward, J. Moran, and J. C. Rowland. (*in review*). Resolving spatiotemporal variations of tidal hydrodynamics in a macrotidal marsh-forest setting using geochemical and stable isotope methods. *Hydrological Processes*.
- Overeem, I., J. Nienhuis, and **A. Piliouras**. (*in revision*). Arctic deltas are ice-dominated, but what is their future? *invited contribution to Nature Reviews: Earth and Environment*.

Published

- (15) Palermo[†], R., **A. Piliouras**, T. Swanson, A. Ashton, and D. Mohrig. (2021). The effects of storms and a transient sandy veneer on the interannual planform evolution a low-relief coastal cliff and wave-cut platform at Sargent Beach, Texas, USA. *Earth Surface Dynamics*. doi: 10.5194/esurf-2021-29
- (14) Douglas[^], M. M., U. F. Lingappa, M. P. Lamb, J. C. Rowland, A. J. West, G. Li, P. C. Kemeny, A. J. Chadwick, **A. Piliouras**, J. Schwenk, and W. W. Fischer. (2021). Impact of river channel lateral migration on the microbial ecology of a discontinuous permafrost floodplain. *Applied and Environmental Microbiology*. doi: 10.1128/AEM.01339-21
- (13) **Piliouras, A.**, R. Lauzon⁺, and J. C. Rowland. (2021). Unraveling the combined influence of ice and permafrost on delta morphodynamics. *Journal of Geophysical Research – Earth Surface*. doi: 10.1029/2020JF005706
- (12) Jayasinghe[^], A, S. Elliot, **A. Piliouras**, J. Clement Kinney, G. Gibson, N. Jeffery, F. Hoffman, J. Kumar, and O. Wingenter. (2020). Modeling functional organic chemistry in Arctic rivers: An idealized Siberian system. *Atmosphere*. doi: 10.3390/atmos11101090.
- (11) Knights⁺, D., A. Sawyer, R. Barnes, **A. Piliouras**, J. Schwenk, D. A. Edmonds, and A. Brown. (2020). Nitrate removal across ecogeomorphic zones in Wax Lake Delta, Louisiana (USA). *Water Resources Research*. doi: 10.1029/2019WR026867.
- (10) Vulis[^], L., A. Tejedor, J. Schwenk, **A. Piliouras**, J. C. Rowland, and E. Foufoula-Georgiou. (2020). Channel network control on seasonal lake area dynamics on Arctic deltas. *Geophysical Research Letters*. doi: 10.1029/2019GL086710.
- (9) Schwenk, J., **A. Piliouras**, and J. C. Rowland. (2020). Determining flow directions in river channel networks using planform morphology and topology. *Earth Surface Dynamics*. doi: 10.5194/esurf-2019-19.
- (8) **Piliouras, A.** and J. C. Rowland. (2020). Arctic river delta morphologic variability and implications for riverine fluxes to the coast. *Journal of Geophysical Research – Earth Surface*. doi: 10.1029/2019JF005250.
*featured in *Eos* Research Spotlight
- (7) **Piliouras, A.** and W. Kim. (2019). Upstream and downstream boundary conditions control the physical and biological development of river deltas. *Geophysical Research Letters*. doi: 10.1029/2019GL084045
- (6) Lauzon⁺, R., **A. Piliouras**, and J. C. Rowland. (2019). Ice and permafrost effects on delta morphology and channel dynamics. *Geophysical Research Letters*. doi: 10.1029/2019GL082792.
*featured on *AGU Blogosphere* and *phys.org*
- (5) **Piliouras, A.** and W. Kim. (2018). Delta size and plant patchiness as controls on channel network organization in experimental deltas. *Earth Surface Processes and Landforms*. doi: 10.1002/esp.4492.
- (4) Carlson[†], B., **A. Piliouras**, T. Muto, and W. Kim. (2018). Control of basin water depth on channel morphology and autogenic timescales in deltaic systems. *Journal of Sedimentary Research*. doi: 10.2110/jsr.2018.52.
- (3) **Piliouras, A.**, W. Kim, and B. Carlson[†]. (2017). Balancing aggradation and progradation on a vegetated delta: The importance of fluctuating discharge in depositional systems. *Journal of Geophysical Research – Earth Surface*. doi: 10.1002/2017JF004378.
*featured in *Eos* Research Spotlight and *JGR-ES* Journal Highlights
- (2) **Piliouras, A.**, W. Kim, G. Kocurek, D. Mohrig, and J. Kopp. (2014). Sand on Salt: Controls on dune subsidence and determining salt substrate thickness. *Lithosphere*. doi: 10.1130/L323.1.
- (1) Falcini, F., **A. Piliouras**, R. Garra, A. Guerin, D. J. Jerolmack, J. Rowland, and C. Paola. (2014). Hydrodynamic and suspended sediment transport controls on river mouth morphology. *Journal of Geophysical Research – Earth Surface*. doi: 10.1002/2013JF002831.

BOOK CHAPTERS

Arendt, C. A., E. G. Hyland, and **A. Piliouras**. (2020). The geological consequences of global climate change. *Encyclopedia of Geology, 2nd Edition*, Elsevier.

PUBLISHED DATASETS

Piliouras, A., R. Lauzon, and J. C. Rowland. (2020). Numerical Modeling Experiments of Combined Effects of Ice and Permafrost on Delta Morphodynamics. HiLAT-RASM. *Environmental Systems Science Data Infrastructure for a Virtual Ecosystem*. doi: 10.15485/1682304.

Piliouras, A. and J. C. Rowland. (2019). Arctic delta Landsat image classifications. High latitude application and testing of Earth system models. *Environmental Systems Science Data Infrastructure for a Virtual Ecosystem*. doi: 10.15485/1505624.

Piliouras, A., and W. Kim (2019). Delta size and plant density experiments. *SEAD Internal Repository*. doi: 10.26009/s0QMHSQP.

Piliouras, A., and W. Kim (2019). Vegetated delta experiments with high discharge. *SEAD Internal Repository*. doi: 10.26009/s0YYHFYI.

Piliouras, A. and W. Kim. (2019). DeltaVeg – delta experiments with alfalfa. *SEAD Internal Repository*. doi: 10.260009/s01BL4TZ.

Carlson, B., **A. Piliouras**, and W. Kim. (2019). Basin depth control on autogenic delta-building processes. *SEAD Internal Repository*. doi: 10.260009/s0TNB1MW.

Piliouras, A. and W. Kim. (2017). Sand on Salt – dune subsidence into a mobile substrate (PDMS). *SEAD Virtual Repository*. doi: 10.5967/M09K487M.