

# Travis Swanson

Department of Geology and Geography  
Georgia Southern University  
P.O. Box 8149, Statesboro, GA 30460

tswanson@georgiasouthern.edu  
+1-210-865-7760  
[www.tswanson.net](http://www.tswanson.net)

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## EDUCATION

- Ph.D., Geological Sciences August 2015  
The University of Texas at Austin, Jackson School of Geosciences  
Dissertation: Bedform interaction and preservation ([pdf link](#))  
Advisor: Dr. David Mohrig  
Co-Advisor: Dr. Gary Kocurek
- M.S., Geological Sciences May 2010  
The University of Texas at Austin, Jackson School of Geosciences  
Thesis: Heat Transport and Tracing within the Hyporheic Zone of a Pool-Riffle-Pool Sequence ([pdf link](#))  
Advisor: Dr. Bayani Cardenas
- B.S., Hydrogeology / Environmental Geology August 2007  
The University of Texas at Austin, Jackson School of Geosciences

## PROFESSIONAL EXPERIENCE

- Georgia Southern University, Department of Geology and Geography 2019-Present  
Assistant Professor Statesboro, GA
- Rice University, Department of Earth, Environmental and Planetary Sciences 2016-2019  
Shell Center for Sustainability Postdoctoral Research Fellow Houston, TX
- Shell Exploration and Production International Inc. – Clastics research 2015-2016  
Clastics Research Geologist Houston, TX
- The University of Texas at Austin, Jackson School of Geosciences 2010-2015  
Research Assistant Austin, TX
- Shell Exploration and Production International Inc. – Clastics research Summer 2014  
Post Grad Intern Houston, TX
- The University of Texas at Austin, Jackson School of Geosciences 2008-2010  
Teaching Assistant Austin, TX
- The University of Texas at Austin, Bureau of Economic Geology 2006-2007  
Undergraduate Research Assistant Austin, TX

## SELECTED HONORS, AWARDS and GRANTS

- International Association of Sedimentologists Postdoctoral Research Grant 2018  
Shell Outstanding Researcher Award 2014  
Nestle Waters Inc. “Every Drop Counts” Scholarship 2012  
Geological Society of America Student Grant 2009  
ConocoPhillips SPIRIT Scholar 2009  
Information Technology Services’ Commitment, Attitude, Service, Teamwork Award 2006

## **COURSE INSTRUCTION EXPERIENCE** (Link: [Course instructor survey results](#))

Georgia Southern University	
Environmental Geology	Fall 2019
Environmental Geology Lab	Fall 2019
Rice University	Spring 2018
Course co-instructor: Siliciclastic Depositional Systems	
The University of Texas at Austin	
Lab instructor: Sustaining a planet	Fall 2010
Teaching assistant: Introduction to hydrogeology	Spring 2010
Field instructor: Hydrogeology field camp	Summer 2009
Teaching assistant: Introduction to hydrogeology	Fall 2019
Lab instructor: Groundwater hydrology	Spring 2009
Field instructor: Hydrogeology field Camp	Summer 2008
Lab instructor: Earth's climate: past, future, and present	Fall 2008

## **SELECTED SERVICE EXPERIENCE**

Invited field instructor at the 37 <sup>th</sup> National Association of Black Geologists Field Trip: Morphology, Sedimentology & Hydrology of Panther and Spring Creek at Montgomery Co. Preserve. (Link: <a href="#">flyer PDF</a> )	Fall 2018
Science Olympiad test writer and proctor, Rice University, Houston, TX	Spring 2018
Outstanding student presentation award judge: AGU Fall Meeting, New Orleans	Winter 2017
The Texas coast and its response to sea-level change. World Oceans Day at The Houston Museum of Natural Science, Houston, TX. (Link: <a href="#">media coverage</a> )	Summer 2017
Peer Reviewer (Link: <a href="#">Publons Profile</a> )	2012 – Present
Geophysical Research Letters (4)	
Water Resources Research (3)	
Journal of Geophysical Research - Earth Surface (2)	
Journal of Sedimentary Research (1)	
Earth Surface Processes and Landforms (1)	
Sedimentology (1)	
Island Arc (1)	

## **PEER REVIEWED PUBLICATIONS** (Link: [Google Scholar Profile](#))

\*undergraduate collaborator first author (total: 2)

### ***In preparation***

Cardenas, B. T., D. Mohrig, T. A. Goudge, C. M. Hughes, J. S. Levy, T. Swanson, J. Mason, F. Zhao, *in preparation for Sedimentology*, The anatomy of exhumed river-channel belts: Reconstructing bedform- to belt-scale river kinematics from the Cretaceous Cedar Mountain Formation, Utah, USA.

Cardenas, B. T., **T. Swanson**, T. A. Goudge, R. W. Wagner, D. Mohrig, *in preparation for Journal of Geophysical Research: Planets*, The effect of remote sensing resolution limits on aeolian sandstone measurements and the reconstruction of ancient dune fields on Mars: Numerical experiment using the Page and Entrada Sandstones, Earth.

\*Palermo, R., A. Piliouras, **T. Swanson**, and D. Mohrig, *in preparation for resubmission to Marine Geology*, Connecting change in shoreline morphology to change in retreat rate following Hurricanes Ida and Harvey at Sargent Beach, Texas, USA.

### ***Published***

10. Cardenas, B. T., G. Kocurek, D. Mohrig, **T. Swanson**, S. Brothers, and C. Hughes, 2019, Preservation of autogenic processes and allogenic forcings within set-scale aeolian architecture II: the scour-fill dominated Jurassic Page Sandstone, Arizona, *Journal of Sedimentary Research* ([preprint](#))
9. **Swanson, T.**, D. Mohrig, G. Kocurek, B. T. Cardenas, M. Wolinsky, 2019, Preservation of autogenic processes and allogenic forcings within set-scale aeolian architecture I: numerical experiments, *Journal of Sedimentary Research* ([preprint](#))
8. **Swanson, T.**, D. Mohrig, G. Kocurek, M. Perillo, and J. Venditti, 2017, Bedform spurs: a result of a trailing helical vortex wake, *Sedimentology*. ([pdf link](#))
7. **Swanson, T.**, D. Mohrig, G. Kocurek, and L. Man, 2017, A surface model for aeolian dune topography, *Mathematical Geosciences*. ([pdf link](#))
6. **Swanson, T.**, D. Mohrig, and G. Kocurek, 2016, Aeolian dune sediment flux variability over an annual cycle of wind, *Sedimentology*. ([pdf link](#))
5. Eastwood, E. N., G. Kocurek, D. Mohrig, and **T. Swanson**, 2012, Methodology for reconstructing wind direction, wind speed and duration of wind events from aeolian cross-strata: *Journal of Geophysical Research – Earth Surface.*, v. 117, p. F03035. ([pdf link](#))
4. Nowinski, J., M. Bayani Cardenas, A. Lightbody, **T. Swanson**, and A. H. Sawyer, 2012, Hydraulic and thermal response of groundwater-surface water exchange to flooding in an experimental aquifer: *Journal of Hydrology*. ([pdf link](#))
3. \*Gerecht, K., M. Cardenas, A. Guswa, A. Sawyer, J. Nowinski, and **T. Swanson**, 2011, Dynamics of hyporheic flow and heat transport across a bed-to-bank continuum in a large regulated river: *Water Resources Research*, v. 47. ([pdf link](#))
2. **Swanson, T.**, and M. Cardenas, 2011, Ex-Stream: A MATLAB program for calculating fluid flux through sediment-water interfaces based on steady and transient temperature profiles: *Computers & Geosciences*, v. 37, p. 1664-1669. ([pdf link](#))
1. **Swanson, T.**, and M. Cardenas, 2010, Diel heat transport within the hyporheic zone of a pool-riffle-pool sequence of a losing stream and evaluation of models for fluid flux estimation using heat: *Limnology and Oceanography*, v. 55, p. 1741-1754. ([pdf link](#))

## OTHER PUBLICATIONS

2. **Swanson, T.** (2015). Bedform interaction and preservation, PhD dissertation, The University of Texas at Austin ([pdf link](#))
1. **Swanson, T.** (2010). Heat transport and tracing within the hyporheic zone of a pool-riffle-pool sequence, MS Thesis, The University of Texas at Austin ([pdf link](#))

## SCHOLARLY PRESENTATIONS WITH ABSTRACTS

\*undergraduate presenter (total: 6), †invited presentation (total: 6), ‡ submitted/yet-to-be-presented

### 2019

45. ‡ Carlson, B., Nittrouer, J., Moodie, A., Kineke, G., Ma, H., Minglong, P., **Swanson, T.**, The impacts of channel diversion characteristics on retreat rates of abandoned deltaic lobes, as informed by the Huanghe (Yellow River) delta of China. *submitted abstract*, AGU Fall Meeting 2019
44. ‡ Palermo, R., Ashton, A., **Swanson, T.**, Exploring the competition between runaway overwash and alongshore smoothing: barrier island stability and characteristic segmentation length scales. *submitted abstract*, AGU Fall Meeting 2019
43. ‡ **Swanson, T.**, Palermo, R., Lorenzo-Trueba, J., Ma, H., Nittrouer, J., Anderson, J., Chaotic barrier island behavior driven by steady sea-level rise and variable bay accommodation. *submitted abstract*, AGU Fall Meeting 2019
42. ‡ Wu, C., **Swanson, T.**, Ma, H., Barefoot, E., Best, J., Allison, M., Backwater control on the dimension and architecture of fluvial-deltaic stratigraphy: From cross bed to bar, *accepted abstract*, 34th IAS Meeting of Sedimentology, Rome
41. ‡ Wilson, K., Mohrig, D., **Swanson, T.**, Moore, P., Kerans, C., Investigating the mid-Holocene wind climate on San Salvador, The Bahamas using an Aeolian Surface Model, *accepted abstract*, 34th IAS Meeting of Sedimentology, Rome
40. **Swanson, T.**, Mohrig, D., Kocurek, G., Cardenas, B., Autogenic Processes and Environmental Forcings Recorded in Aeolian Stratigraphy II: Numerical Experiments, *accepted abstract*, AAPG ACE 2019, San Antonio, TX

39. Cardenas, B., Kocurek, G., Mohrig, D., **Swanson, T.**, Hughes, C., Brothers, S., Autogenic Processes and Environmental Forcings Recorded in Aeolian Stratigraphy I: the Jurassic Page Sandstone, Arizona, USA, accepted abstract, AAPG ACE 2019, San Antonio, TX
38. †**Swanson, T.**, Exploring the dynamic behavior of sedimentary systems. January 24 2019, Department of Geology and Geography, Georgia Southern University, Statesboro, GA.
37. †**Swanson, T.**, Lorenzo-Trueba, J., Anderson, J., Nittrouer, J., Exploring the morphodynamic response of coastal barriers to sea-level rise along the Texas Gulf Coast. January 14, 2019, Naval Research Lab, Stennis Space Center, MS

## 2018

36. **Swanson, T.**, Palermo, R., Anderson, J., Nittrouer, J., Exploring the influence of bay morphology during coastal barrier retreat. AGU Fall Meeting 2018 ([poster PDF and videos link](#))
35. Cardenas, B. T., Mohrig, D., Goudge, T., Hughes C., Levy, J., **Swanson, T.**, and Mason, J., Anatomy of exhumed river channel-belts. AGU Fall Meeting 2018 ([abstract link](#))
34. Palermo, R., Ashton, A., **Swanson, T.**, Lorenzo-Trueba, J., Exploring alongshore-coupled barrier island evolution: How does overwash affect developed and undeveloped barrier evolution and stability? AGU Fall Meeting 2018 ([abstract link](#))
33. Chenliang, W., Nittrouer, J., **Swanson, T.**, Dune morphodynamics and forward models of set-scale architecture within the backwater zone of the Mississippi River, USA. AGU Fall Meeting 2018 ([abstract link](#))
32. †**Swanson, T.**, Exploring the dynamic behavior of sedimentary systems. October 9 2018, Department of Geological and Environmental Sciences, Appalachian State University, Boone, NC.
31. †**Swanson, T.**, Lorenzo-Trueba, J., Anderson, J., Nittrouer, J., Exploring the morphodynamic response of coastal barriers to sea-level rise along the Texas Gulf Coast. The Van Tuyl Lecture series at the Colorado School of Mines, September 20 2018, Golden, CO. ([seminar schedule](#), [presentation pdf](#))
30. Odezulu, C. I., **Swanson, T.**, Anderson, J. B., Effects of Highstand Mud Accumulation on the Evolution of the Central Texas Coast. AAPG 2018 Annual Convention and Exhibition. Salt Lake City, UT ([abstract link](#))
29. †**Swanson, T.**, Lorenzo-Trueba, J., Anderson, J., Nittrouer, J., Exploring the morphodynamic response of coastal barriers to sea-level rise along the Texas Gulf Coast. John Fest 2018: A Celebration of John Anderson. Rice University, Houston, TX. ([program pdf](#), [presentation pdf](#))
28. Cardenas, B. T., Kocurek, G., Mohrig, D., **Swanson, T.**, Hughes, C. M., Brothers, S. C., Goudge. T. A., Ancient environmental forcings recorded in aeolian stratigraphy: an Earth analog to aeolian strata on Mars. 49th Lunar and Planetary Science Conference 2018 (LPI Contrib. No. 2083) ([pdf link](#))
27. Cardenas, B. T., Goudge, T.A., Hughes, C.M., Mohrig, D., Mason, J., **Swanson, T.**, Levy, J.S., Testing the preservation of river channel properties in Earth analogs to martian fluvial sinuous ridges. 49th Lunar and Planetary Science Conference 2018 (LPI Contrib. No. 2083) ([pdf link](#))
26. **Swanson, T.**, Lorenzo-Trueba, J., Nittrouer, J., Anderson, J., 2018, Exploring the morphodynamic response of coastal barriers to sea-level rise along the Texas Gulf Coast. Industry-Rice Earth Science Symposium (IRESS), Rice University, Houston, Texas ([poster pdf link](#))

## 2017

25. **Swanson, T.**, Lorenzo-Trueba, J., Anarde, K., Odezulu, C., Anderson, J., Nittrouer, J., 2017, Exploring the morphodynamic response of coastal barriers to sea-level rise along the Texas Gulf Coast. Oral presentation at AGU Fall meeting 2017. New Orleans, LA ([abstract link](#), [presentation pdf](#))
24. Cardenas, B., Kocurek, G., Mohrig, D., **Swanson, T.**, 2017, Coupling Aeolian Stratigraphic Architecture to Paleo-Boundary Conditions: The Scour-Fill Dominated Jurassic Page Sandstone. Poster presented at AGU Fall meeting 2017. New Orleans, LA ([abstract link](#))
23. **Swanson, T.**, Katherine, A., Chris, O., John, S., Nittrouer, J., Anderson, J., 2017, Connecting morphodynamic depth of closure to shoreline change along the Texas coast. Industry-Rice Earth Science Symposium (IRESS), Rice University, Houston, Texas, February 23-24, 2017. ([poster pdf link](#))

## 2016

22. \*Palermo, R., Mohrig, D., Piliouras, A., and **Swanson, T.**, 2016, Spatial and Temporal Variability in Erosion Generating a Sea Cliff and Wave-Cut Platform that make up the Holocene Transgressive Ravinement Surface at Sargent Beach, Texas, USA: 32th IAS Meeting of Sedimentology, Marrakech, Morocco, May 23 – 25, 2016. ([abstract link](#))

21. \*Palermo, R., Mohrig, D., Piliouras, A., and **Swanson, T.**, 2016, Variability in retreat rates and roughness of a sea-cliff at Sargent Beach, Texas: Abstract EP23A-0954, presented at AGU Fall Meeting. San Francisco, CA ([abstract link](#))

### **2015**

20. \*Palermo, R., Mohrig, D., Piliouras, A., and **Swanson, T.**, 2015, Rates and Mechanisms of Erosion Generating a Wave-Cut Platform at Sargent Beach, Texas, USA, Abstract EP21D-07 presented at AGU 2015 Fall Meeting, San Francisco, CA ([abstract link](#))

### **2014**

19. †**Swanson, T.**, D. Mohrig, G. Kocurek, M. Wolinsky, and C. Hern, Surface-based aeolian stratigraphy, Invited oral presentation at AGU 2014 Fall Meeting. San Francisco, CA ([abstract link](#))

### **2013**

18. Zamora, P. B., M. B. Cardenas, **T. Swanson**, D. Tait, I. R. Santos, and D. Erler, 2013, Thermal dynamics of intertidal sediment affected by diffuse groundwater discharge, ASLO Aquatic Sciences Meeting, New Orleans, Louisiana ([abstract link](#))
17. Cardenas, M. B., K. E. Gerecht\*, M. S. Markowski\*, J. D. Nowinski, A. H. Sawyer, **T. E. Swanson**, and A. J. Guswa, 2013, How the pulse of a river affects its liver, ASLO Aquatic Sciences Meeting, New Orleans, Louisiana. ([abstract link](#))

### **2012**

16. **Swanson, T.**, Mohrig, D., Kocurek, G., Pedersen, A., 2012, Geometric Aeolian dune crest migration model. Poster presented at 2012 AGU Fall Meeting. San Francisco, CA. ([abstract link](#))
15. Cardenas, M. B., A. H. Sawyer, K. E. Gerecht, M. S. Markowski\*, B. A. Francis, L. K. Francis\*, **T. E. Swanson**, J. D. Nowinski, and A. J. Guswa, 2012, Groundwater-surface water interactions in a regulated river, ASLO Summer Meeting, Lake Biwa, Japan. ([abstract link](#))

### **2011**

14. **Swanson T.** and D. Mohrig, 2011, Incidence angle dependent sediment routing: A proposed mechanism for fluvial bedform interactions. Geological Society of America Abstracts with Programs, Vol. 43, No. 5, p. 374 ([abstract link](#))
13. Befus, K. M., M. B. Cardenas, **T. Swanson**, D. V. Erler, I. R. Santos, D. R. Tait, 2011, Groundwater flow and heat transport dynamics across an intertidal zone, AGU Fall Meeting, San Francisco, California. ([abstract link](#))
12. Befus, K. M., M. B. Cardenas, **T. Swanson**, D. V. Erler, I. R. Santos, and D. Tait, Fluid and heatfluxes across the intertidal zone, Water Resource Sustainability Issues on Tropical Islands, Honolulu, Hawaii, November, 2011. ([conference program pdf](#))
11. Befus, K.M., M.B. Cardenas, **T. Swanson**, D. Erler, I. Santos; D. Tait. Fluid and heat fluxes across the intertidal zone. Water Resource Sustainability Issues on Tropical Islands Conference, 2011. ([conference program pdf](#))

### **2010**

10. \*Gerecht, K., M. B. Cardenas, A. J. Guswa, A. H. Sawyer, **T. Swanson**, J. D. Nowinski, Hyporheic flow and heat transport within a bed-to-bank transect of a large regulated river: Colorado River, Austin, TX, AGU Fall Meeting, San Francisco, California, December, 2010. ([abstract link](#))
9. Cardenas, M. B., P. L. Cook, K. E. Gerecht\*, H. S. Jiang, M. S. Markowski\*, J. D. Nowinski, A. H. Sawyer, **T. E. Swanson**, J. L. Wilson, Fluid dynamic interactions near sediment-water interfaces in aquatic and coastal environments, ASLO Aquatic Sciences Meeting, June 2010. ([abstract link](#))

### **2009**

8. **Swanson, T.**, M. B. Cardenas, A. H. Sawyer, and J. D. Nowinski, 2009, Evaluation of models for heat tracing in streambeds (hyporheic zones) along a pool-riffle-pool sequence: Jaramillo Creek, Valles Caldera National Preserve, NM, GSA Abstracts with Programs, Portland, Oregon. ([abstract link](#), [poster pdf](#))
7. Cardenas, M. B., K. E. Gerecht, M. Markowski, J. D. Nowinski, A. H. Sawyer, B. A. Stanley, and **T. E. Swanson**, 2009, The familiar as a frontier: persistent transient stream-groundwater interactions, GSA Abstracts with Programs, Portland, Oregon. ([abstract link](#))

6. Nowinski, J., Cardenas, M., **Swanson, T.**, Lightbody, A., 2009, Response of intra-meander hyporheic exchange to flooding and permeability change in a losing artificial stream. GSA Abstracts with Programs, Portland, Oregon. ([abstract link](#))
5. \*Gerecht, K., Markowski, M., Nowinski, J., Sawyer, A., **Swanson, T.**, Cardenas, M., 2009, Fluid flow and heat transport within the hyporheic and riparian zones of a regulated river: Colorado River, Austin, TX. GSA Abstracts with Programs, Portland, Oregon. ([abstract link](#))
4. Chaudhary, K., Sharp, J M., Holt, J.2, Al-Johar, M., **Swanson, T.**, Greenbaum, J., Nowinski, J., Smith, V., Brothers, T., 2009, Multiple geophysical methods for identifying and mapping caves in the recharge zone of the Edwards aquifer, Texas. Poster presented at GSA South-Central Section - 43rd Annual Meeting. Geological Society of America Abstracts with Programs, Vol. 41, No. 2, p. 8 ([abstract link](#))

## **2008**

3. **Swanson, T.**, Nowinski J., Sawyer A., Marr J., Lightbody, A., Cardenas B, 2008, 3D Surface Water – Groundwater interactions in a large experimental channel. GSA Abstracts with Programs, Houston, Texas. ([abstract link](#))
2. Stanley, B., **Swanson T.**, Cardenas, B. Effects of Dam-Induced Daily River Stage Fluctuations and Sedimentary Architecture of a Large Gravel Bar on Groundwater Flow Paths, 2008, GSA Abstracts with Programs, Houston, Texas. ([abstract link](#))
1. \*Harlow, J., Stanley, B., Cox, S., Vyas, R., Linhoff, B., Sawyer, A., **Swanson, T.**, Groffman, A., Rearick, M., Cardenas, B, 2008, Groundwater - Surface water interactions and geochemistry along a high-sinuosity meander in a mountain meadow. GSA Abstracts with Programs, Houston, Texas. ([abstract link](#))