

Travis Swanson

Dept. of Earth, Environmental, and Planetary Sci.
Rice University
6100 Main Street, Houston, TX 77005

ts42@rice.edu
+1-210-865-7760
www.tswanson.net

EDUCATION

- Ph.D., Geological Sciences August 2015
The University of Texas at Austin, Jackson School of Geosciences GPA: 3.97/4.00
Dissertation: Bedform interaction and preservation
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 GPA: 3.93/4.00
Thesis: Heat Transport and Tracing within the Hyporheic Zone of a Pool-Riffle-Pool Sequence
Advisor: Dr. Bayani Cardenas
- B.S., Hydrogeology / Environmental Geology August 2007
The University of Texas at Austin, Jackson School of Geosciences GPA: 3.81/4.00

PROFESSIONAL EXPERIENCE

- Rice University, Department of Earth, Environmental and Planetary Sciences
Shell Center for Sustainability Postdoctoral Research Fellow Oct 2016-Present
Houston, TX
- Large-scale (~600km), long-term (500 yr) simulation of Texas' coastal barrier system response to sea-level rise
 - Onshore and near shore sediment sampling/coring
 - Create and lead outreach activities
 - Mentor graduate student research
 - Apply for and obtain external funding
 - Develop lectures and co-teach Siliciclastic Depositional Systems
- Shell Exploration and Production International Inc. – Clastics research
Clastics Research Geologist 2015-2016
Houston, TX
- Modern depositional environment and subsurface data analytics
 - Production scale aeolian reservoir static property prediction and modeling
- The University of Texas at Austin, Jackson School of Geosciences
Research Assistant 2010-2015
Austin, TX
- Numerical modeling of aeolian sedimentary systems and stratigraphic preservation driven by allogenic and autogenic processes
 - Aeolian dune alignment theory from time lapse airborne LiDAR
 - Bedform morphology and fluid-bed morphology interactions identified using remotely sensed river bathymetry
 - Designed and executed successful field campaigns
- Shell Exploration and Production International Inc. – Clastics research
Post Grad Intern Summer 2014
Houston, TX
- Sector scale static reservoir property modeling
 - Software development
- The University of Texas at Austin, Jackson School of Geosciences 2008-2010
Teaching Assistant Austin, TX
- Instructor in field and lab settings with groups of 5 to 30 students in lower division, upper division, and graduate courses (*see course instruction experience*)

The University of Texas at Austin, Bureau of Economic Geology 2006-2007
Undergraduate Research Assistant Austin, TX
•Acquired, logged, and processed soil core for chemical and physical analysis

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](#))

Rice University	
8. Course co-instructor: Siliciclastic Depositional Systems	Spring 2018
The University of Texas at Austin	
7. Lab instructor: Sustaining a planet	Fall 2010
6. Teaching assistant: Introduction to hydrogeology	Spring 2010
5. Field instructor: Hydrogeology field camp	Summer 2009
4. Teaching assistant: Introduction to hydrogeology	Spring 2009
3. Lab instructor: Groundwater hydrology	Fall 2008
2. Field instructor: Hydrogeology field Camp	Summer 2008
1. Lab instructor: Earth's climate: past, future, and present	Spring 2008

SERVICE EXPERIENCE

Invited field instructor at the 37th National Association of Black Geologists Field Trip: Morphology, Sedimentology & Hydrology of Panther and Spring Creek at Montgomery Co. Preserve. (Link: [flyer PDF](#)) 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: [media coverage](#)) Summer 2017

Peer Reviewer (Link: [Publons Profile](#)) 2012 – Present

- Geophysical Research Letters (4)
- Water Resources Research (3)
- Journal of Geophysical Research - Earth Surface (2)
- 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 review

Cardenas, B. T., G. Kocurek, D. Mohrig, **T. Swanson**, S. Brothers, and C. Hughes, *in review at Journal of Sedimentary Research*, Preservation of autogenic processes and allogenic forcings within set-scale aeolian architecture II: the scour-fill dominated Jurassic Page Sandstone, Arizona ([preprint](#))

Swanson, T., D. Mohrig, G. Kocurek, B. T. Cardenas, M. Wolinsky, *in review at Journal of Sedimentary Research*, Preservation of autogenic processes and allogenic forcings within set-scale aeolian architecture I: numerical experiments ([preprint](#))

In revision

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

Published

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](#))

INVITED PRESENTATIONS

4. **Swanson, T.**, Exploring the dynamic behavior of sedimentary systems. October 9 2018, Department of Geological and Environmental Sciences, Appalachian State University, Boone, NC.
3. **Swanson, T.**, Lorenzo-Trueba, J., Anderson, J., Nitttrouer, 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](#))
2. **Swanson, T.**, Lorenzo-Trueba, J., Anderson, J., Nitttrouer, 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](#))
1. **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](#))

SCHOLARLY PRESENTATIONS WITH ABSTRACTS

*undergraduate presenter (total: 6)

Accepted Abstracts

2019

34. **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
33. 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

Presented Abstracts

2018

32. **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](#))
31. 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](#))
30. 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](#))
29. 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](#))
28. 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](#))
27. 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](#))
26. 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](#))
25. **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

24. **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](#))
23. 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](#))
22. **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

21. *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](#))
20. *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

19. *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](#))

2013

18. Zamora, P. B., M. B. Cardenas, **T. E. 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. E. 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. E. 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.E. 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. E. 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. E.**, 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](#))

REFERENCES

Name	Email	Telephone (Office)	Telephone (mobile)	Relationship to applicant
John Anderson ¹	johna@rice.edu	+1 713 348 4884	+1 713 705 4032	Postdoc mentor
Jeffery Nittrouer ¹	nittrouer@rice.edu	+1 713 348 4886	+1 206 251 2444	Postdoc co-mentor
David Mohrig ²	mohrig@jsg.utexas.edu	+1 512 471 2282	+1 512 422 5487	PhD advisor
Gary Kocurek ²	garyk@jsg.utexas.edu	+1 979 263 4307	not available	PhD co-advisor

¹ Department of Earth, Environmental and Planetary Sciences, Rice University, MS-126, 6100 Main Street, Houston, TX 77005 USA

² Jackson School of Geosciences, The University of Texas at Austin, 2305 Speedway Stop C1160, Austin, TX 78712-1692 USA