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Research Earth Scientist
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EDUCATION

The University of Texas at Austin	Austin, TX	Geological Sciences	Ph.D., 2019
The University of Texas at Austin	Austin, TX	Geological Sciences	MS, 2014
University of Pittsburgh	Pittsburgh, PA	Geology	BS, 2012

RESEARCH INTERESTS

Coastal, marine, and fluvial geology, regional sediment management, large-scale landscape evolution, applied sedimentology, marine geophysics.

PROFESSIONAL EXPERIENCE

The Water Institute	Research Earth Scientist	2021–Present
University of Colorado-Boulder	Visiting Scholar	2020–Present
University of Texas at Austin	Postdoctoral Fellow	2020–2021
Boise State University	Postdoctoral Fellow	2020–2021
University of Texas at Austin	Graduate Research Fellow	2015–2019
Equinor U.S.	Geology Intern	2018
ConocoPhillips Company	Sedimentologist	2014–2015
	Geoscience Intern	2013
University of Texas at Austin	Graduate Research Fellow	2012–2014
United States Geological Survey	Geologist	2012
Woods Hole Oceanographic Institution	Research Assistant	2011–2012
	Summer Fellow	2010

PROFESSIONAL SOCIETY MEMBERSHIPS

- American Geophysical Union, Earth and Planetary Surface Processes Section
- Geological Society of America
- International Association of Sedimentologists
- American Association of Petroleum Geologists

AWARDS AND HONORS

- Best Presentation, CU Boulder CSDMS, 2019
- University of Texas Presidential Fellowship, 2017
- University of Texas Graduate Recruitment Fellowship, 2015
- Jackson School of Geosciences Banks Memorial Fellowship, 2014
- NAGT-USGS Cooperative Field Training Internship, 2012
- Woods Hole Oceanographic Institution Summer Fellowship, 2010

TEACHING EXPERIENCE

Guest instructor and field teaching assistant for Marine Geology and Geophysics field course (2017), graduate teaching assistant for Sedimentology (2016), and graduate teaching assistant for Introduction to Geology (2012–2013) at the University of Texas at Austin, Department of Geological Sciences in 2017.

Instructor for Engineering Academy “Cores + Pores” and Eagle Ford Depositional Model workshop in 2015 at ConocoPhillips Company.

NOTABLE PROJECTS

Researcher/Natural and Anthropogenic Drivers of Lower Rio Grande River Morphodynamics 2016–2019

University of Texas at Austin

The lower Rio Grande project was developed to assess the sediment transport and hydrologic dynamics of the lower river along the US-Mexico border over the last ~130 years. The river and delta have been subject to anthropogenic stresses due to a combination of dam and levee construction, water use, and sand mining. A comprehensive data suite was assembled including historical border surveys, aerial imagery, airborne lidar, and direct field measurements to understand how river morphology and water availability has changed since the 19th century. Rigorous geomorphic and statistical analysis provided evidence for significant change in fluvial dynamics over the last 100 years that has led to the river no longer providing significant sediment supply to the delta. This work provides a foundation to inform

future efforts to restore natural sediment and ecosystem functions to the Rio Grande delta.

Co-PI/Texas Offshore Sediment Resources Inventory: Development and Application of Geophysical Processing Workflows for Sand Resource Evaluation 2016–2019
Bureau of Ocean Energy Management

The offshore sediment resources project provided new estimations of offshore sand/sediment resources near the Texas coast and created new workflows and approaches to offshore sediment prospecting. The project was designed to test the utility of new processing workflows for marine geophysical data to enhance imaging and delineation of potential sediment resources on the continental shelf, to create a new assessment of potential resources within the Trinity River paleo-valley offshore Galveston, TX, and to digitize and archive legacy geologic and geophysical datasets across the Texas continental shelf. New offshore data collection combined with reprocessing of 2D and 3D geophysical datasets provided unprecedented imaging of the offshore Trinity River paleovalley and helped create new estimates of potential sediment resource availability for coastal resiliency projects. These efforts were conducted in close communication with local and national stakeholders and management agencies including the US Army Corps of Engineers and the Texas General Land Office.

Researcher/Identification and Characterization of Floodplain Channel Networks on the Gulf Coastal Plain 2017–2019
University of Texas at Austin

Lowland coastal plains are vulnerable to significant fluvial, pluvial, and compound flooding. To better characterize the detailed topography of these floodplains and help improve predictions of flood inundation and extent a novel compilation of over 125,000km² of lidar data was assembled and analyzed to delineate small-scale channel networks that exist in between the larger river systems. These small channel systems were found to be a wholly new class of drainage basin that arises in depositional landscapes, and whose properties were never previously explored. The results of this work are being incorporated into flood models to improve prediction of surface hydrologic connectivity across low-relief landscapes.

PUBLISHED WORKS

Peer-Reviewed Publications

- Cardenas, B. T., Lamb, M. P., Jobe, Z. R., Mohrig, D., & Swartz, J. M. (2023). Morphodynamic preservation of fluvial channel belts. *The Sedimentary Record*, 21(1).
- Goudge, T., Swartz, J., Dong, T., & Mohrig, D. (2023). Characterizing the response of the coastal Rio Grande to upstream damming. *Geomorphology*, 426.
- Speed, C., Swartz, J., Gulick, S., & Goff, J. (2023). Seismic expression and stratigraphic preservation of a coastal plain fluvial channel belt and floodplain channels on the Gulf of Mexico inner continental shelf. *Sedimentology*, 70(2), 451–474.

- Burstein, J., Goff, J., Gulick, S., Lowery, C., Standring, P., & Swartz, J. (2023). Tracking barrier island response to early Holocene sea-level rise: High resolution study of estuarine sediments in the Trinity River Paleovalley. *Marine Geology*, 455.
- Swartz, J., Cardenas, B., Mohrig, D., & Passalacqua, P. (2022). Tributary channel networks formed by depositional processes. *Nature Geoscience*, 15(3), 1–6.
- Swartz, J., Standring, P., Goff, J., Gulick, S., & Lowery, C. (2023). Coastal River response to transgression: A new look at the trinity incised valley using multi-resolution seismic imaging. *EarthArXiv*.
- Standring, P., Lowery, C., Burstein, J., Swartz, J., Goff, J., & Gulick, S. (2021). Foraminiferal analysis of Holocene sea level rise within Trinity River incised paleo-valley, offshore Galveston Bay, Texas. *EarthArXiv*.
- Swartz, J. M., Goudge, T. A., & Mohrig, D. C. (2020). Quantifying coastal fluvial morphodynamics over the last 100 Years on the Lower Rio Grande, USA, and Mexico. *Journal of Geophysical Research: Earth Surface*, 125(6), e2019JF005443.
- Cardenas, B., Swartz, J., Mohrig, D., & Prokocki, E. (2020). Setting up the preservation of fluvial channel belts. *Nature Geoscience*.
- Goff, J., Swartz, J., Gulick, S., Dawson, C., & Ruiz De Alegria-Arzaburu, A. (2019). An outflow event on the left side of Hurricane Harvey: Erosion of barrier sand and seaward transport through Aransas Pass, Texas. *Geomorphology*, 334, 44–57.
- Swartz, J. M. (2019). *Channel processes and products in subaerial and submarine environments across the Gulf of Mexico* [Doctor of philosophy]. University of Texas at Austin.
- Clary, W., Scuderi, L., Swartz, J., Worthington, L., & Daigle, H. (2017). A hydrogeochemical analysis and recharge evaluation of Cienega Spring located in the Sandia Mountains, NM. *New Mexico Journal of Science*, 51(1).
- Kohut, J., Kustka, A., Hiscock, M., Lam, P., Measures, C., Milligan, A., White, A., Carvalho, F., Hatta, M., Jones, B., Ohnemus, D., & Swartz, J. (2017). Mesoscale variability of the summer bloom over the northern Ross Sea shelf: A tale of two banks. *Journal of Marine Systems*, 166, 50–60.
- Swartz, J., Goff, J., & Gulick, S. (2016). Depositional processes and stratigraphy of Heald Bank on the east Texas inner continental shelf. *GCAGS Journal*, 66, 891–894.
- Gulick, S., Jaeger, J., Mix, A., Asahi, H., Bahlburg, H., Belanger, C., Berbel, G., Childress, L., Cowen, E., Drab, L., Forwick, M., Fukumura, A., Ge, S., Gupta, S., Kioka, A., Konno, S., LeVay, L., Marz, C., Matsuzaki, K., ... Swartz, J. (2015). Mid-Pleistocene climate transition drives net mass loss from rapidly uplifting St. Elias Mountains, Alaska. *Proceedings of the National Academy of Sciences*, 112(49), 15042–15047.
- Swartz, J., Gulick, S., & Goff, J. (2015). Gulf of Alaska continental slope morphology: Evidence for recent trough mouth fan formation. *Geochemistry, Geophysics, Geosystems*, 16(1), 165–177.

Technical Reports

- Georgiou, I. Y., Bregman, M., Messina, F., Di Leonardo, D., Wang, Y., Zou, S., Khalil, S., Raynie, R., Swartz, J., & Miner, M. (2023). *Sediment infilling rate of Lowermost Mississippi River borrow pits and impacts on downstream dredging* (72). The Water Institute. Prepared for the Coastal Protection and Restoration Authority (CPRA) under Task Order 72.2.
- Esposito, C. R., Courtois, A., Swartz, J., & Miner, M. D. (2021). *Lowermost Mississippi River Management Program* [Produced for and funded by the Coastal Protection and Restoration Authority (Task Order 69)]. The Water Institute.

Conference Proceedings and Presentations

- Hollis, R., Swartz, J., Khalil, S., Hankerson, J., Coleman, W., Beltran-Burgos, M., Cameron, B., Mallindine, J., & Miner, M. (2024). Preserved deltaic sand bodies offshore Louisiana as sediment resources. *2024 Ocean Sciences Meeting*. American Geophysical Union.
- Coleman, W., Hankerson, J., Hollis, R., Khalil, S., Beltran-Brugos, M., Swartz, J., Cameron, B., Mallindine, J., & Miner, M. (2024). Distributary channel characterization utility to sediment resources in deltaic environments: Barataria Basin, Louisiana. *2024 Ocean Sciences Meeting*. American Geophysical Union.
- Hankerson, J., Hollis, R., Khalil, S., Coleman, W., Beltran-Burgos, M., Swartz, J., Cameron, B., Mallindine, J., & Miner, M. (2024). Uncovering a preserved coastline in southern Louisiana: Implications for sand resources and deltaic evolution. *2024 Ocean Sciences Meeting*. American Geophysical Union.

- Bregman, M. C., Swartz, J. M., Khalil, S., Raynie, R., Haywood, E., Miner, M. D., & Georgiou, I. Y. (2023). Local and regional effects of sediment mining within a deteriorating estuary: Barataria Bay, Louisiana. In *The proceedings of the coastal sediments 2023* (Vol. 5, pp. 2763–2776). World Scientific.
- Hollis, R., Swartz, J., Khalil, S., Raynie, R., & Miner, M. D. (2023). Sediment inventory in a mud-dominated deltaic plain: Implementation of Louisiana sediment management plan. In *The proceedings of the coastal sediments 2023* (Vol. 5, pp. 2805–2818). World Scientific.
- Swartz, J., Miner, M., Suthard, B., Brooks, K., Valente, A., Bryce, P., & Andrews, J. (2021). Fluvial construction of the Texas inner continental shelf-the past, present, and future role of relict rivers along the Texas coast. *Fall Meeting Abstracts*. American Geophysical Union.
- Esposito, C., Swartz, J., Miner, M., Courtois, A., & Georgiou, I. (2021). *Fluvio-mechanical sediment transport in the lowermost Mississippi River*. American Geophysical Union fall meeting.
- Jarriel, T., Swartz, J., & Passalacqua, P. (2021). Global rates and patterns of channel migration in river deltas. *Proceedings of the National Academy of Sciences*, 118.
- Jarriel, T., Passalacqua, P., & Swartz, J. (2020). A global analysis and comparison of river delta channel kinematics using satellite imagery. *Fall Meeting Abstracts*. American Geophysical Union.
- Swartz, J., Goff, J., Gulick, S., Standring, P., & Lowery, C. (2019). Coastal river morphodynamic response to sea-level rise recorded in offshore stratigraphy: A new look at the trinity incised valley in the Gulf of Mexico. *Fall Meeting Abstracts*. American Geophysical Union.
- Cardenas, B., Swartz, J., & Mohrig, D. (2019). The length of fluvial sinuous ridges on Mars. *50th Annual Lunar and Planetary Science Conference*.
- Swartz, J., Mohrig, D., Passalacqua, P., Goff, J., & Gulick, S. (2018). From distributary to tributary: Coastal drainage network position and morphometry are set by depositional processes. *Fall Meeting Abstracts*. American Geophysical Union.
- Nix, M., Hassenruck-Gudipati, H., Swartz, J., Mason, J., Sylvester, Z., & Mohrig, D. (2018). Controls on the sedimentation and morphology of an oxbow lake along the Trinity River, Texas, USA. *Fall Meeting Abstracts*. American Geophysical Union.
- Clary, W., Worthington, L., Scuderi, L., Daigle, H., & Swartz, J. (2017). Glacially-derived overpressure in the northeastern Alaskan subduction zone: Combined tomographic and morphometric analysis of shallow sediments on the Yakutat shelf and slope, Gulf of Alaska. *Fall Meeting Abstracts*. American Geophysical Union.
- Swartz, J., Mohrig, D., Gulick, S., & Goude, T. (2017). Tracking channel behavior of the Rio Grande River, Texas, USA: Backstepping avulsions and coastal bend cutoffs. *Fall Meeting Abstracts*. American Geophysical Union.
- Goff, J., Swartz, J., & Gulick, S. (2017). An outflow event on the left side of Hurricane Harvey: Erosion of barrier sand and seaward transport through Aransas Pass, Texas. *Fall Meeting Abstracts*. American Geophysical Union.
- Daniller-Varghese, M., Smith, E., Mohrig, D., Goude, T., Hassenruck-Gudipati, H., Koo, W., Mason, J., Swartz, J., & Kim, J. (2017). Influence of waves and tides on upper slope turbidity currents and their deposits: An outcrop and laboratory study. *Fall Meeting Abstracts*. American Geophysical Union.
- Wilson, K., Swartz, J., & Mohrig, D. (2017). Back-barrier topographic control on the morphology of Hurricane Harvey washover deposits. *Fall Meeting Abstracts*. American Geophysical Union.
- Speed, C., Swartz, J., Gulick, S., & Goff, J. (2017). New insights into valley formation and preservation: Geophysical imaging of the offshore Trinity River Paleovalley. *Fall Meeting Abstracts*. American Geophysical Union.
- Swartz, J., Mohrig, D., Gulick, S., Stockli, D., Daniller-Varghese, M., & Fernandez, R. (2016). Rapid shut-off and burial of slope channel-levee systems: New imaging and analysis of the Rio Grande submarine fan. *Fall Meeting Abstracts*. American Geophysical Union.
- Aylward, A., Swartz, J., Goude, T., & Mohrig, D. (2016). Alongshore distribution of washover deposits: Hurricane Ike and the Texas Coast, 2008. *Fall Meeting Abstracts*. American Geophysical Union.
- Speed, C., Gulick, S., Goff, J., Swartz, J., & Fernandez, R. (2016). Characterizing Late Quaternary Paleochannel system evolution on the east Texas continental shelf. *Fall Meeting Abstracts*. American Geophysical Union.
- Morey, S., Swartz, J., & Gulick, S. (2016). Sediment transport processes in the Gulf of Alaska: A morphological analysis of channel and fan sedimentary features. *Fall Meeting Abstracts*. American Geophysical Union.
- Cleveland, V., Gulick, S., Goff, S., & Swartz, J. (2015). Holocene formation of Heald Sand Bank on the east Texas inner continental shelf. *Fall Meeting Abstracts*. American Geophysical Union.

- Gulick, S., Montelli, A., Swartz, J., Morey, S., Jaeger, J., Mix, A., Reece, R., Somchat, K., Wagner, P., & Worthington, L. (2015). Margin architecture and sediment flux as controls on submarine fan development: Tectonic-climate interactions in the Gulf of Alaska. *Fall Meeting Abstracts*. American Geophysical Union.
- Swartz, J., Gulick, S., & Goff, J. (2015). Sedimentary records of shelf edge glaciation: A young trough-mouth fan on the Gulf of Alaska Yakutat margin. *Fall Meeting Abstracts*. American Geophysical Union.
- Morey, S., Gulick, S., Walton, M., Swartz, J., Worthington, L., Reece, R., Somchat, K., Wagner, P., Jaeger, J., & Mix, A. (2015). The evolution of the surveyor fan and channel system, Gulf of Alaska based on core-log-seismic integration at IODP site U1417. *Fall Meeting Abstracts*. American Geophysical Union.
- Swartz, J., Gulick, S., & Goff, J. (2014). Quantitative morphologic analysis of the Gulf of Alaska Yakutat margin: Evidence for recent trough mouth fan growth. *Fall Meeting Abstracts*. American Geophysical Union.
- Swartz, J., Levoir, M., & Gulick, S. (2013). Preliminary analysis of temperate glacial shelf-crossing troughs and associated trough-mouth fans in southeast Alaska. *Fall Meeting Abstracts*. American Geophysical Union.
- Swartz, J., & Robinson, L. (2011). Controls on uranium series isotope variability within Chilean surface waters. *Fall Meeting Abstracts*. American Geophysical Union.
- Robinson, L., Thompson, W., & Swartz, J. (2011). Uranium-series isotopes from rivers to ocean. *Fall Meeting Abstracts*. American Geophysical Union.