Alicia Sendrowski, MS, Ph.D.
Remote Sensing Scientist
The Water Institute
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EDUCATION

University of Texas at Austin	Austin, TX	Civil Engineering	Ph.D., 2018
University of Texas at Austin	Austin, TX	Environmental and Water Resources Engineering	MS, 2015
University of Florida	Gainesville, FL	Environmental Engineering	BS, 2012

RESEARCH INTERESTS

Hydrological and biogeomorphic processes in rivers and deltas, systems-level analysis of human and natural environments, hydrological connectivity, information theory, remote sensing, machine learning, advanced computing, signal processing, network analysis, watershed resilience, nutrient-vegetation-soil interactions, spatial heterogeneity, coastal hydrology.

PROFESSIONAL EXPERIENCE

The Water Institute	Remote Sensing Scientist	2024–Present
Michigan Tech Research Institute	Research Engineer/Scientist (Water Resources)	2022–2024
Michigan State University	Research Associate	2020–2022
Colorado State University	Postdoctoral Research Associate	2018–2020

PROFESSIONAL SOCIETY MEMBERSHIPS

- American Geophysical Union, 2014–Present

AWARDS AND HONORS

- National Science Foundation STEM Ambassador Program, 2021
- British Society of Geomorphology Research Highlight, 2021
- AGU EPSP Early Career Researcher Spotlight, 2019
- National Science Foundation Graduate Research Fellowship 2014-2018Thrust Fellowship 2013-2017
- Earnest and Agnes Gloyna Endowed Presidential Scholarship in Environmental and Water Resources Engineering 2017-2018
- Bright Futures Florida Academic Scholars Award 2008-2012
- SMART Grant 2011

TEACHING EXPERIENCE

Teaching assistant: Elements of Hydraulic Engineering at The University of Texas at Austin. Taught hydraulics concepts to undergraduate students, set up and assisted students in laboratory experiments on pipe networks, pumps, hydraulic jumps, and open channel flow, graded homework and lab reports, and held office hours. In addition, designed flume experiments for undergraduate students to get hands-on experience with water resources concepts and data collection in hydraulics courses at Michigan State University.

COMMUNITY SERVICE

GEM Grad Lab	Texas A&M University	2017
WE at UT Lunch with an Engineer	University of Texas at Austin	2017
Student Workshop, Austin, TX Elementary School	Austin, TX	2014
NGO-Mass Education and Organization	Anantapur, India	2012
Teacher Outreach	University of Florida	2012

NOTABLE PROJECTS

Technical Support/Barrier Island Habitat Assessment for Coastal Waterbirds. Current
Brown Foundation.
Technical support developing machine learning workflows to analyze bird and habitat data from aerial imagery for automated bird detection and habitat classification.

Technical Support/Gulf of Mexico Colonial Waterbird Data Management. Current
Louisiana Department of Wildlife and Fisheries and Louisiana Trustee Implementation Group.
Technical Support on creating photomosaics from >25,000 photos collected from aerial photographic surveys that have been used to monitor shrub- and select ground-nesting waterbird species across the GOM.

Remote Sensing Scientist/Chandeleur Island Restoration Project for Seagrass (CHIRPS). Current
National Oceanic and Atmospheric Administration.

Leading the remote sensing of seagrass to find historical and modern seagrass extent to inform monitoring efforts.

Postdoctoral Research Associate/Wood-Based Carbon Discharge to the Artic Ocean 2018–2020

Research funded by the National Science Foundation

Led the remote sensing of carbon stored as large wood on the surface of the Mackenzie River Delta in the Northwest Territories, Canada. Developed machine learning pipelines for the classification of large wood in 30–60 cm satellite imagery and conducted a field campaign surveying large wood deposits.

PUBLISHED WORKS

Peer-Reviewed Publications

Abhishek, A., Phanikumar, M., Sendrowski, A., Andreadis, K., Hashemi, M., Jayasinghe, S., & Das, N. (2023). Dryspells and minimum air temperatures influence rice yields and their forecast uncertainties in rainfed systems. *Agricultural and Forest Meteorology*, *341*.

Sendrowski, A., Wohl, E., Hilton, R., Kramer, N., & Ascough, P. (2023). Wood-based carbon storage in the Mackenzie River Delta: The world's largest mapped riverine wood deposit. *Geophysical Research Letters*, *50*(7).

Lininger, K.B., Rowan A.V., Livers, B., Kramer, N., Ruiz-Villanueva, V., **Sendrowski, A.,** and Burrough, S. (2021), Perspectives on being a field-based geomorphologist during pregnancy and early motherhood. *Earth Surface Processes and Landforms*, 46(14), 2767– 2772.

Sendrowski, A., & Wohl, E. (2021). Remote sensing of large wood in high-resolution satellite imagery: Design of an automated classification work-flow for multiple wood deposit types. *Earth Surface Processes and Landforms*, *46*(12), 2333–2348.

Sendrowski, A., Castaneda-Moya, E., Twilley, R., & Passalacqua, P. (2021). Biogeochemical and hydrological variables synergistically influence nitrate variability in coastal deltaic wetlands. *Journal of Geophysical Research: Biogeosciences*, *126*(9).

Livers, B., Lininger, K., Kramer, N., & Sendrowski, A. (2020). Porosity problems: Comparing and reviewing methods for estimating porosity and volume of wood jams in the field. *Earth Surface Processes and Landforms*, *45*(13), 3336–3353.

Sendrowski, A., Sadid, K., Meselhe, E., Wagner, W., Mohrig, D., & Passalacqua, P. (2018). Transfer entropy as a tool for hydrodynamic model validation. *Entropy*, *20*(1), 58.

Sendrowski, A., & Passalacqua, P. (2017). Process connectivity in a naturally prograding river delta. *Water Resources Research*, *53*(3), 1841–1863.

Conference Proceedings and Presentations

**denotes presenting author*

Sendrowski, A.*, Water, wood, time, and space: Quantifying ecosystem dynamics of river deltas using information theory and remote sensing, University of Illinois Urbana-Champaign, Urbana, IL, Nov 2022

Sendrowski, A.*, Water, wood, time, and space: Quantifying ecosystem dynamics of river deltas using information theory and remote sensing, Michigan Tech Research Institute, Ann Arbor, MI, July 2022

Sendrowski, A., Process connectivity in river deltas: Uncovering system dynamics using information theory and remote sensing, University of Minnesota, St. Paul, MN, Nov 2019

Sendrowski, A.*, P. Passalacqua, Quantitative analysis of relationships in river deltas: insights from using information theory, Geological Society of America Annual Meeting, Phoenix, AZ, Sept 2019

Sendrowski, A.*, Process connectivity in river deltas: Uncovering system dynamics using information theory and remote sensing, Michigan State University, East Lansing, MI , July 2019

Piliouras, A.*, Sendrowski, A., Carlson, B., and Kim, W., Island hydrodynamics on the Wax Lake Delta, Louisiana, over tidal and seasonal timescales, American Geophysical Union (AGU) Fall Meeting, Chicago, IL, Oral Presentation. Dec 2022

Sendrowski, A.*, Y. Pokhrel, P. Mantha, and S. Li, Assessing hydrological process connectivity of Great Lakes coastal wetlands, Joint Aquatic Sciences Meeting (JASM) Annual Meeting, Grand Rapids, MI, Oral presentation. May 2022

Lininger, K.B., A.V. Rowan*, B. Livers, N. Kramer, V. Ruiz-Villanueva, A. Sendrowski and S. Burrough. Perspectives on being a field-based geomorphologist during pregnancy and early motherhood, EGU22-726. European Geophysical Union (EGU) Meeting. Oral presentation. May 2022

Sendrowski, A.*, E. Wohl, N. Kramer, R. Hilton, P. Ascough, Analyzing the multi-scale heterogeneity of wood depositional environments in the Mackenzie River Delta, EP55B-1113. American Geophysical Union (AGU) Fall Meeting. Poster. Dec 2021

Sendrowski, A.*, E. Wohl, N. Kramer, R. Hilton, Carbon stored as large wood in the Mackenzie River Delta, Northwest Territories Canada, EP002-0002. American Geophysical Union (AGU) Fall Meeting. Poster. Dec 2020

Sendrowski, A.*, E. Wohl, N. Kramer, R. Hilton, Mapping wood deposits across the Mackenzie River Delta: Towards an understanding of delta-scale transport processes, EP41D-2387. American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, Poster. Dec 2019

Sendrowski, A.*, E. Wohl, Classification of large wood deposits from high resolution satellite imagery of Alaskan and Canadian rivers, T138-141. Geological Society of America Annual Meeting, Phoenix, AZ. Poster. Sept 2019

Sendrowski, A.*, P. Passalacqua, W. Wagner, D. Mohrig, Linking deltaic elevation change and hydrological processes using information theory, EP23B-02. American Geophysical Union (AGU) Fall Meeting, Washington D.C. Oral presentation. Dec 2018

Sendrowski, A.*, P. Passalacqua, E. Castañeda-Moya, R. Twilley, K. Sadid, E. Meselhe, W. Wagner, D. Mohrig, Networks of interacting processes: relationships between drivers and deltaic variables to understand water and sediment transport in Wax Lake Delta, coastal Louisiana, EP53A-1675. American Geophysical Union (AGU) Fall Meeting, New Orleans, LA. Poster. Dec 2017

Sendrowski, A.*, P. Passalacqua, K. Sadid, E. Meselhe, W. Wagner, D. Mohrig, Characterizing Morphological Process Connectivity in a River Delta Using Information Theory. 10th Symposium on River, Coastal and Estuarine Morphodynamics, University of Padova, Italy. Poster. Sept 2017

Sendrowski, A.*, P. Passalacqua, E. Castañeda-Moya, R. Twilley, Linking hydrologic connectivity and nutrient dynamics in a deltaic island of prograding Wax Lake Delta, coastal Louisiana, B32A-03. American Geophysical Union (AGU) Fall Meeting, San Francisco, CA. Oral presentation. Dec 2016

Passalacqua, P.*,M. Hiatt, and A. Sendrowski, Connectivity in river deltas, GC22B-03, American Geophysical Union (AGU) Fall Meeting, San Francisco, CA. Oral presentation. Dec 2016

Passalacqua, P.*, M. Hiatt, and A. Sendrowski, Connectivity in river deltas: Channel-wetland exchange, process couplings, and implications for water, sediment, and nutrient transport, Japan Geoscience Union Meeting 2016, Makuhari Messe, Japan. Oral presentation. May 2016

Sendrowski, A.*, P. Passalacqua, Characterizing Delta-Scale Process Connectivity Using Information Theory. Information Theory Workshop, Garmisch-Partenkirchen, Germany, Poster. April 2016

Sendrowski, A.*, P. Passalacqua, Characterizing Deltaic Connectivity Using Entropic Measures. Environmental and Water Resources Engineering Seminar, University of Texas at Austin, Austin, TX. Oral presentation. Feb 2016

Sendrowski, A.*, P. Passalacqua, E. Castañeda-Moya, R. Twilley, Characterizing Delta-Scale Connectivity Using Entropic Measures, GC41F-1137. American Geophysical Union (AGU) Fall Meeting, San Francisco, CA. Poster. Dec 2015

Passalacqua, P.*, M. Hiatt, A. Sendrowski, and M. Liang, Connectivity in river deltas: A first-order mechanism for delta functioning, 0480-000617. Coastal & Estuarine Research Federation 23rd Biennial Conference, Portland, OR. Oral presentation. Nov 2015

Sendrowski, A.*, M. Hiatt, P. Passalacqua, Understanding controls on island inundation in a river delta using information theory, EP31B-3549. American Geophysical Union (AGU) Fall Meeting, San Francisco, CA. Poster. Dec 2014

Hiatt, M.*, A. Sendrowski, and P. Passalacqua, Quantifying the effects of tidal amplitude on river delta network flow partitioning, EP31B-3548. American Geophysical Union (AGU) Fall Meeting, San Francisco, CA. Poster. Dec 2014

Sendrowski, A.*, P. Passalacqua, Understanding Island Inundation in Wax Lake Delta using Information Theory. Environmental and Water Resources Engineering Seminar, University of Texas at Austin, Austin, TX. Oral presentation. Nov 2014