Lindsay O. Prothro [she/her]

Department of Physical and Environmental Sciences • Texas A&M University – Corpus Christi
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PROFESSIONAL APPOINTMENTS

Assistant Professor of Geology Fall 2019 – present
Programs: Geology B.S., Environmental Science, M.S., Coastal and Marine System Science, M.S. and Ph.D.
Department of Physical and Environmental Sciences
Texas A&M University – Corpus Christi, Corpus Christi, TX, USA.

Laboratory and Research Specialist Spring 2019
Department of Environmental Sciences
University of Virginia, Charlottesville, VA, USA. *Ice and Ocean Group*

EDUCATION

Ph.D. Earth Science 2013 – 2018
Rice University, Houston, TX, USA.
Dissertation: *Glacial retreat patterns and processes on Antarctic continental margins*
Advisor: Dr. John B. Anderson

B.Sc. (Magna cum laude) Geology and Geophysics 2009 – 2013
Louisiana State University, Baton Rouge, LA, USA.
Honors Thesis: *Reinterpreting the stratigraphy of the Florissant Fossil Beds National Monument through correlation by magnetic susceptibility and geochemical comparison*
Advisor: Dr. Brooks B. Ellwood

RESEARCH INTERESTS

Glacial Geomorphology and Sedimentology, Multiproxy Sedimentary Facies Analysis, Marine Geology and Geophysics, Stratigraphy, Quaternary Geology, Paleoclimate, Sea Level Change

RESEARCH APPOINTMENTS

Graduate Research Assistant, Department of Earth Science, Rice University **2013 – 2018**
Undergraduate Researcher, Department of Geology and Geophysics, Louisiana State University **2009 – 2013**

PUBLICATIONS (Link: Google Scholar Profile)

***** *co-first authorship; † TAMUCC student researcher; ‡ student researcher (another lab)*

Published manuscripts

‡Abdelrehim, R., Ahmed, M., Everett, M.E., Murgulet, D., **Prothro, L.**, ‡Abdrabou, M., ‡Omar, A. and ‡Elshalkany, M., 2025. Geological and anthropogenic controls on freshwater lens variability in barrier

islands: insights from integrated geophysical and hydrogeological surveys. *Journal of Hydrology* 661, p.133627, doi: 10.1016/j.jhydrol.2025.133627.

‡Lepp, A.P., Miller, L.E., Anderson, J.B., O'Regan, M., Winsborrow, M.C.M., Esteves, M., Smith, J.A., Hillenbrand, C.D., Wellner, J.S., **Prothro, L.O.**, Podolskiy, E.A., 2024. Insights into glacial sediment transport processes and hydrology from grain micromorphology, *The Cryosphere* 18, p. 2297-2319, doi: 10.5194/tc-18-2297-2024.

‡Turner, R., Ahmed, M.E., Bissell, R., **Prothro, L.O.**, Shehata, A., Coffin, R.B., 2024. Structural and Stratigraphic Controls on Reservoir Architecture: A Case Study from the Lower Oligocene Vicksburg Formation, Brooks County, Texas, *Marine and Petroleum Geology* 160, p. 1066627, doi: 10.1016/j.marpetgeo.2023.106627.

Simkins, L.M., Greenwood, S.L., †Garcia, S.M., Eareckson, E., Anderson, J.B., **Prothro, L.O.**, 2021. Topographic controls on channelized meltwater in the subglacial environment. *Geophysical Research Letters*, 48(20), p.e2021GL094678, doi: 10.1029/2019PA003716.

Majewski, W.**, Prothro, L.O.,** Simkins, L.M., †Demianiuk, E.J., Anderson, J.B., 2020. Foraminiferal patterns in deglacial sediment in the western Ross Sea, Antarctica, *Paleoceanography and Paleoclimatology* 35, p.e2019PA003716, doi: 10.1029/2019PA003716.

Prothro, L.O., Majewski, W., Yokoyama, Y., Simkins, L.M., Anderson, J.B., Yamane, M., Miyairi, Y., Ohkouchi, N., 2020. Timing and pathways of East Antarctic Ice Sheet retreat, *Quaternary Science Reviews* 230, p.106166, doi: 10.1016/j.quascirev.2020.106166.

Halberstadt, A.R.W., Simkins, L.M., Anderson, J.B., **Prothro, L.O.**, Bart, P., 2018. Characteristics of the deforming bed: Till properties on the deglaciated Antarctic continental shelf, *Journal of Glaciology* 64, 1014-1027, doi: 10.1017/jog.2018.92.

Greenwood, S.L., Simkins, L.M., Halberstadt, A.R.W., **Prothro, L.O.**, Anderson, J.B., 2018. Holocene reconfiguration and readvance of the East Antarctic Ice Sheet, *Nature Communications* 9, doi: 10.1038/s41467-018-05625-3.

Prothro, L.O., Simkins, L.M., Majewski, W. and Anderson, J.B., 2018. Glacial retreat patterns and processes determined from integrated sedimentology and geomorphology records. *Marine Geology*, 395, 104-119, doi: 10.1016/j.margeo.2017.09.012.

Simkins, L.M., Anderson, J.B., Greenwood, S.L., Gonnermann, H.M., **Prothro, L.O.**, Halberstadt, A.R.W., Stearns, L.A., Pollard, D. and DeConto, R.M., 2017. Anatomy of a meltwater drainage system beneath the ancestral East Antarctic ice sheet. *Nature Geoscience*, 10(9), 691-697, doi: 10.1038/NGEO3012.

Yokoyama, Y., Anderson, J.B., Yamane, M., Simkins, L.M., Miyairi, Y., Yamazaki, T., Koizumi, M., Suga, H., Kusahara, K., **Prothro, L.**, Hasumi, H., Southon, F.R., Ohkouchi, N. 2016. Widespread collapse of the Ross Ice Shelf during the late Holocene. *Proceedings of the National Academies of Sciences* 113: 2354-2359.

Manuscripts submitted

‡Abdelrehim, R., Murgulet, D., Everett, M., Ahmed, M.; **Prothro, L.**; ‡Abdrabou, M; ‡Innes, A. Mapping Freshwater and Contaminant Pathways in Coastal Barrier Islands Using Electromagnetic Induction and Machine Learning, *submitted to Geophysics.*

Manuscripts in preparation

*__ANTS PIs__, †‡ANTS students, key repository/database staff
Untitled best practices in Antarctic marine sediment core research manuscript., *in prep for Nature Scientific Data.*

‡Tenti, M., **Prothro**, L. O., ‡Danielson, M.A., Bart, P.J., Torricella, F., †Szemak, M., Salvatore, M.C., Baroni, C., Melis, R., Colizza, E., Giglio, F., Halberstadt, A.R., Del Carlo, P., New evidence for Antarctic Ice Sheet extent during glacial maxima in the Pennell Basin (tentative title), *in prep for The Cryosphere.*

Prothro, L.O. and the †‡NBP2301, 2302, and 2403 Scientists
Untitled manuscript revealing that shallow, typically-avoided shallow marine banktop sediments on the Antarctic continental shelf can yield unexpected insight into subglacial sediment transport processes, the duration of ice-shelf pinning and retreat, and postglacial recovery and preservation of marine fauna, despite heavy reworking of the sediment, *in prep for Geology.*

†Szemak, M., **Prothro, L.O.,** and the †‡NBP2301, 2302, and 2403 Scientists
Untitled manuscript outlining sediment facies in the Ross Sea with a deep focus on quantitative diatom assemblage records and how they document gradual unpinning of ice shelves from shallow marine banks. Building on existing facies schemes, this work includes new ideas and discussions of micropaleontological and geotechnical indicators of extensive vs. restricted paleo-ice shelves, observed preservation of delicate diatom tests in unlikely environments and possible explanations of it based on large-scale seafloor geomorphology, as well as a new method of utilizing quantitative diatom assemblages to more confidently correlate diatom transitions to other proxy data, thus facilitating improved 14C chronologies, *in prep for Marine Geology.*

… more to follow as datasets from 2023 and 2024 expeditions continue to be developed and integrated by all parties involved.

Other publications

Prothro, L.O., Ice-induced plowing of the seafloor. *In*: Cochran, K., Bokuniewicz, H., Yager, P.L, eds. Encyclopedia of Ocean Sciences, 3rd ed., 2019, p. 148–154.

RESEARCH PROPOSALS

Funded

National Science Foundation

Program: Antarctic Earth Sciences/Antarctic Ocean and Atmospheric Sciences (OPP)
Title: *RAPID: Seizing the Opportunity for Acquisition of Heat Flow and Sedimentological Data to Study Post-Glacial Gas Hydrate Dissociation in the Ross Sea, Antarctica*
Award #: OPP 2413598
Period: 08/2024 – 07/2025 (no-cost extension implemented until 07/2026)
Funded amount: **$159,734** to TAMUCC PI: Ingo Pecher and TAMUCC Co-PI: Lindsay Prothro

Program: Antarctic Earth Sciences (OPP)
Title: *Collaborative Research: Circum-Antarctic Processes from Archived Marine Sediment Cores (**ANTS**)*
Award #: OPP 2224680
Period: 02/2023 – 01/2027
Funded amount: **$532,649** to PI Lindsay Prothro ($1.84 million total with PI Lauren Simkins, University of Virginia, and PI Ryan Venturelli, Colorado School of Mines)

Matagorda Bay Mitigation Trust
Title: *Sediment mercury concentrations in the Closed Area of Lavaca Bay and the risk to wildlife from mercury remobilization during dredging*
Period: 03/2023 – 02/2026
Funded amount: **$176,757** to Co-PI Lindsay Prothro ($497,818 total with PI Jessica Dutton, Texas State University)

TAMUCC Internal Funding
Title: *Preliminary evaluation of paleo-intensity of warm water mass incursion onto Antarctic continental shelves*
Program: College of Science & Engineering Research Enhancement Grant
Period: 10/2019 – 6/2020
Funded amount: **$2,409** to PI Lindsay Prothro

In Review

National Science Foundation
Program: Antarctic Glaciology (OPP)
Title: *Collaborative Research: LARGE Ice: Leveraging Antarctic models and data to Reconstruct Glacial Extent*
Proposed funding period: 01/2026 – 12/2028
Proposed funding amount: **$52,029** to TAMUCC PI Lindsay Prothro ($764,185 total with PI Anna Ruth Halberstadt, University of Texas, and PI Ryan Venturelli, Colorado School of Mines)

Funded *Contributory* Collaboration Grants Awarded (No Direct Funding)

National Science Center (Narodowe Centrum Nauki – Poland)
Title: *Reconstructing biota and environmental conditions in Antarctic glacial refugia in the western Ross Sea during the Last Glacial Maximum*
Period: 12/2024 – 12/2027
Funded amount: $0 to Co-Investigator Lindsay Prothro, 731,756 PLN (~$198k USD) total to PI Wojciech Majewski

National Science Foundation
Program: Division of Ocean Sciences – Education
Title: *REU Site: Summer Undergraduate Research focus (SURF): Anthropogenic Impacts on Coastal and Marine Systems*
Award #: OCE 2349151
Period: 02/2024 – 01/2027
Funded amount: $0 to the eight Collaborators/REU Mentors including Lindsay Prothro, $449,112 total to PI J. David Felix and Co-PI Dorina Murgulet

Program: Division of Earth Sciences – Major Research Instrumentation
Title: *MRI: Acquisition of a Leading-edge Portable Geoprobe System with Subsurface Sampling, Logging and Imaging capabilities for Geoscience Research and Education*
Award #: 2117219
Period: 09/2021 – 08/2023
Funded amount: $0 to collaborators including Lindsay Prothro, $330,818 to PI Dorina Murgulet and four co-PIs

TAMUCC Internal Funding
Program: Office of Research Development Research Equipment Grant

Title: *Customization of an Elemental Analyzer for nano-level C and N isotope measurements*
Period: 02/2023 – 08/2023
Funded amount: $0 to the nine Co-PIs including Lindsay Prothro, $50,000 to PI Lin Zhang

SCIENTIFIC PRESENTATIONS AND ABSTRACTS

†TAMUCC student researcher; ‡Student researcher (another lab); §ANTS mentee (grad or post-doctoral)
AGU = American Geophysical Union, GSA = Geological Society of America, WAIS = West Antarctic Ice Sheet

[46] §Varela, N., Miller, L.M., ‡§Gonzalez, A.V., **Prothro, L.**, Venturelli, R., Stanley, V., Subglacial Meltwater Plume Deposits Across Antarctic Margin Settings: A Grain-Scale Comparison of Pennell Coast, George V Land, and Weddell Sea, AGU Annual Meeting, 12/2025 (pending).

[45] †Szemak, M., **Prothro, L.**, Bart, P.J., Majewski, W., Leventer, A., ‡Danielson, M., ‡Lindsey, B., Differential Sedimentary Responses to Grounding Zone and Ice Shelf Retreat Around Ross Bank, AGU Annual Meeting, 12/2025 (pending).

[44] Pecher, I.A., Bangs, N.L., ‡Azeez, Y., Neumann, F., Negrete-Aranda, R., Yu, H., Coffin, R.B., Jeffrey, W.H., **Prothro, L.**, Halberstadt, A.R., Tominaga, M., Comparison of Geothermal Gradients from Seafloor Measurements and BSR Depth in the Ross Sea, Antarctica – First Results from Nathaniel B. Palmer Voyages NBP 2402 and 2501., AGU Annual Meeting, 12/2025 (pending).

[43] ‡Organ, H., Yu, H., **Prothro, L.**, Coffin, R.B., Organic matter and composition in the central Ross Sea, Antarctica during the Last Glacial Maximum, AGU Annual Meeting, 12/2025 (pending).

[42] Halberstadt., A.R.W., Venturelli, R., **Prothro, L.**, Coupling mountain peaks and continental shelves: reconstructing Antarctic deglaciation from integrated marine and terrestrial datasets, AGU Annual Meeting, 12/2025 (pending).

[41] Halberstadt, A.R.W., Venturelli, R., **Prothro, L.**, Reconstructing Antarctic Ice Sheet deglaciation from integrated marine and terrestrial datasets, GSA Annual Meeting, 10/2025. (pending)

[40] †Szemak, M., **Prothro, L.**, Bart, P.J., Majewski, W., Leventer, A., Danielson, M., Lindsey, B., Reconstructing Spatial and Temporal Variability in Grounding Zone and Ice Shelf Retreat Around Ross Bank, WAIS Annual Workshop, 09/2025 (poster).

[39] §Varela, N., Miller, L., ‡§Vega-Gonzalez, A., Prothro, L., Venturelli, R., and Stanley, V., Multiproxy Detection of Subglacial Meltwater Plumes offshore of East Antarctica, XIV International Symposium on Antarctic Earth Sciences (ISAES), Punta Arenas, Chile, 08/2025 (talk).

[38] Bart, P., **Prothro. L.**, Leventer, A., Venturelli, R., Majewski, W., ‡Danielson, M., ‡Lindsey, B., †Szemak, M., ‡Meyne, R., Tenti, M., ‡§Ruggiero, J., He, S., A Holocene Collapse of a Ross Ice Shelf Ice Rise. European Geophysical Union General Assembly 2025, 04/2025 (talk).

[37] ‡§Gonzalez, A.V., Miller, L., §Varela, N., Venturelli, R, Stanley, V., §Lepp, A., **Prothro**, L., Tracing Glacial History Through Ice-Rafted Debris Analysis in the Weddell Sea, AGU Annual Meeting, 12/2024 (poster).

[36] §Varela, N., Miller, L., Venturelli, R., **Prothro, L.O.**, Stanley, V., Subglacial Meltwater Dynamics: Implications for Antarctic Ice-Sheet Behavior, AGU Annual Meeting, 12/2024 (poster).

[35] †Szemak, M., **Prothro, L.**, Tenti, M., Bart, P., ‡Danielson, M., Leventer, A. Using Diatom Analysis to Pinpoint Antarctic Ice Sheet Extent and Dynamics in the Pennell Basin During Pleistocene-Holocene. WAIS Annual Workshop, 11/2024 (**Winner of Best Student Poster Award**).

[34] ‡§Ruggiero, J., Venturelli, R., **Prothro, L.**, Miller, L., Quantifying erroneous age of bulk AIOM dates in Southern Ocean surface sediment samples, WAIS Annual Workshop, 11/2024 (poster).

[33] **Prothro, L.** Insights on bottom current variability as determined from sedimentary analyses of shallow bathymetric highs. WAIS Annual Workshop, 09/2023. (poster)

[32] †Szemak, M., **Prothro, L.** Western Amundsen Sea Diatom Analysis Reveals Oceanographic and Climatic Changes, Alongside Inconsistencies in Sediment Coring. WAIS Annual Workshop, 09/2023. (poster)

[31] †Szemak, M., **Prothro, L**. Examining Micropaleontology to Gain Insights into Long - Term Processes in the Western Amundsen Sea, Antarctica. 2023 Spring Student Research Symposium.

[30] **Prothro, L.**, Anderson, J.B., Majewski, W., Yokoyama, Y. Subglacial meltwater facilitates CDW-driven retreat in Marguerite Bay, Antarctica. WAIS Annual Workshop, 09/2022. (poster)

[29] †Szemak, M., **Prothro, L.**, Leventer, A. Examining Micropaleontology to Gain Insights into Long - Term Processes in the Western Amundsen Sea, Antarctica. WAIS Annual Workshop, 09/2022. (poster)

[28] Simkins, L.M., Greenwood, S.L., ‡Garcia, S.M., **Prothro, L.O.**, Anderson, J.B. A gaining and losing meltwater corridor in the subglacial environment. AGU Annual Meeting, 12/2020 (talk).

[27] **Prothro, L.O.**, Anderson, J.B., Majewski, W., Yokoyama, Y. The association of subglacial meltwater with ice-sheet retreat in Marguerite Bay, Antarctica. GSA Annual Meeting, 10/2020. (talk)

[26] **Prothro, L.O.**, Anderson, J.B., Majewski, W., Yokoyama, Y, Simkins, L.M. The association of subglacial meltwater with grounding-line retreat. WAIS Annual Workshop, 10/2019. (talk)

[25] **Prothro, L,O.**, Anderson, J.B., Majewski, W., Yokoyama, Y. The role of subglacial meltwater in ice-sheet retreat through Marguerite Bay, Antarctica. INQUA, Dublin, 7/2019. (talk)

[24] **Prothro, L.O.**, Majewski, W., Yokoyama, Y., Simkins, L.M., Anderson, J.B., Yamane, M., Ohkouchi, N. Duration of the maximum extent of the East Antarctic Ice Sheet grounding line in the Ross Sea, Antarctica, and subsequent complex retreat. AGU Annual Meeting, 12/2018. (talk) [abstract]

[23] Anderson, J.B., **Prothro, L.O.**, Majewski, W., Yokoyama, Y., Simkins, L.M., Halberstadt, A.R., Greenwood, S., Yamane, M., Ohkouchi, N. LGM and post-LGM paleodrainage reconstruction and timing of retreat in the western Ross Sea. WAIS Annual Workshop, 9/2018. (talk)

[22] Demianiuk, E.J., Majewski, W., Baca, M., Popovic, D., **Prothro, L.O.**, Simkins, L.M., Anderson, J.B., Angeles, I.B. Complimentary eDNA and micropaleontological foraminiferal record from glacier-proximal settings in western Ross Sea. Open Science Conference at Polar2018, 6/2018. (poster)

[21] **Prothro, L.**, Yokoyama, Y., Simkins, L.M., Anderson, J.B., Majewski, W., Yamane, M., Ohkouchi, N., Marine evidence of a deconvolving Antarctic Ice Sheet during post-LGM retreat of the Ross Sea sector. AGU Annual Meeting, 12/2017. (poster link) [abstract]

[20] Yokoyama, Y. Anderson, J.B., Yamane, M. Simkins, L., Miyairi, Y., Suga, H., **Prothro, L.**, Okuno, J., and Ohkouchi, N. Holocene sea level change and Antarctic ice shelf retreats. PALSEA2 Workshop, 11/2017. (talk)

[19] **Prothro, L.**, Simkins, L.M., Majewski, W., Anderson, J.B. Sedimentary processes at paleo-grounding lines: Glacial and oceanographic interactions during ice-sheet retreat. GSA Annual Meeting, 10/2017. (talk) [abstract]

[18] Anderson, J.B., Simkins, L., Greenwood, S., Demet, B., Halberstadt, A.R.H., **Prothro, L.**, Role of grounding zone wedges in grounding line stabilization. GSA Annual Meeting, 10/2017. (talk) [abstract]

[17] **Prothro, L.**, Yokoyama, Y., Simkins, L.M., Anderson, J.B., Majewski, W., Yamane, M., Ohkouchi, N. Timing and sea level contributions of the deconvolving Antarctic Ice Sheet during post-LGM retreat of the Ross Sea sector. GSA Annual Meeting, 10/2017. (poster) [abstract]

[16] **Prothro, L.**, Anderson, J.B., Simkins, L.M., Majewski, W. Glaciomarine sediment facies: Using geomorphic contexts and multi-proxy analysis to build ice-sheet retreat models. Industry-Rice Earth Science Syposium, 2/2017. (poster)

[15] Yokoyama, Y., Anderson, J.B., Yamane, M., Simkins, L., Miyairi, Y., Yamazaki, T., Koizumi, M., Kusahara, K., Suga, H., **Prothro, L.O.**, Hasumi, H., Southon, J.R., Ohkouchi, N. Widespread collapse of the Ross Ice Shelf during the late Holocene reconstructed from compound specific C-14 and meteoric Be-10. AGU Annual Meeting, 12/2016. (talk) [abstract]

[14] **Prothro, L.**, Anderson, J.B., Simkins, L.M., Majewski, W. Glaciomarine sediment facies: Using geomorphic contexts and multi-proxy analysis to build ice-sheet retreat models. AGU Annual Meeting, 12/2016. (poster) [abstract]

[13] Greenwood, S.L., Simkins, L.M., Halberstadt, A.R.W., **Prothro, L.O.**, Anderson, J.B. Holocene reconfiguration and readvance of the East Antarctic Ice Sheet. AGU Annual Meeting, 12/2016. (talk) [abstract]

[12] Halberstadt, A.R., Simkins, L.M., Anderson, J.B., **Prothro, L.O.**, Demet, B.P., Greenwood, S.L., Yokoyama, Y. Post-LGM retreat history in Ross Sea reflects changing controls on marine ice sheet behavior. AGU Annual Meeting, 12/2016. (poster) [abstract]

[11] Anderson, J.B., Simkins, L.M., **Prothro, L.O.** Sedimentological fingerprint of modern and ancient meltwater outbursts across Antarctic continental shelves and slopes. AGU Annual Meeting, 12/2016. (talk) [abstract]

[10] **Prothro, L.O.**, Demet, B.P., Simkins, L.M., Halberstadt, A.R., Anderson, J.B., Majewski, W. Contribution of localized processes to large-scale ice-margin instability. William Smith Meeting, London, England, 6/2016 (talk) [speaker program and abstract]

[9] **Prothro, L.**, Simkins, L., Halberstadt, A.R., Anderson, J.B., Yokoyama, Y., Majewski, W., Demet, B.P. Controls on ice-margin instability and onset of deglaciation following the Last Glacial Maximum. Rice University Department of Earth Science, Departmental Research Seminar, 2/2016. (talk)

[8] **Prothro, L.**, Simkins, L., Halberstadt, A.R., Anderson, J.B., Yokoyama, Y., Majewski, W., Demet, B.P., Greenwood, S. Controls on ice-margin instability and onset of deglaciation following the Last Glacial Maximum. Industry-Rice Earth Science Symposium 2/2016 (poster)

[7] Demet, B.P., Anderson, J.B., Nittrouer, J.A., Simkins, L., Halberstadt, A.R., **Prothro, L.O.** Sedimentary processes of unstable ice sheet grounding zones: Comparing polar and temperate grounding zone wedges using marine geophysical data and outcrop studies. AGU Annual Meeting, 12/2015. (poster) [abstract]

[6] Halberstadt, A.R., Anderson, J.B., Simkins, L., **Prothro, L.O.**, Bart, P.J. Ross sea till properties: Implications for ice sheet bed interaction. AGU Annual Meeting, 12/2015. (poster) [abstract]

[5] Simkins, L., Greenwood, S., Anderson, J.B., **Prothro, L.O.**, Halberstadt, A.R., Stearns, L.A., Demet, B.P. Geologic evidence of a leaky Antarctic Ice Sheet: Tracking meltwater influence on ice-sheet retreat in the Ross Sea, Antarctica since the Last Glacial Maximum. AGU Annual Meeting, 12/2015. (talk) [abstract]

[4] **Prothro, L.**, Simkins, L., Anderson, L., Halberstadt, A.R., Yokoyama, Y., Majewski, W., and Minzoni, R. Refining our understanding of sediment retreat facies and geomorphology for an accurate deglacial history of the Ross Sea. GSA Annual Meeting, 10/2015. (poster) [abstract]

[3] **Prothro, L.**, Simkins, L., Anderson, L., Halberstadt, A.R., Yokoyama, Y., Majewski, W., and Minzoni, R. Refining our understanding of sediment retreat facies and geomorphology for an accurate deglacial history of the Ross Sea. WAIS Annual Workshop, 9/2015. (poster)

[2] **Prothro, L.** Subglacial meltwater and its role in ice sheet retreat. Rice University Department of Earth Science, Departmental Research Seminar, 4/2015. (talk)

[1] **Prothro, L.O.,** Ellwood, B.B., Meyer, H., Ratcliffe, K.T., Tomkin, J.H., and Abbott, L.D., 2013. Reinterpreting the stratigraphy of Florissant Fossil Beds National Monument through correlation by magnetic susceptibility and geochemical comparison. GSA Annual Meeting, 10/2013. (poster) [abstract]

TEACHING

Instructor of record

Historical Geology, TAMUCC — Annually in Spring (2020 – 2025)
Careers in the Geosciences Seminar, TAMUCC — Spring 2021, 2022
Sedimentation and Stratigraphy, TAMUCC — Annually in Fall (2020 – 2025)
Essentials of Geology, TAMUCC — Summer II 2022, Fall 2023 (2nd half), Summer II 2025
Freshman Seminar in Local Environmental Science Research, Rice University — Fall 2017

Laboratory Instructor

Earth Systems Evolution and Cycles, upper division course, Rice University — Fall 2014

Workshop Instruction

GLAcial Sedimentation School (GLASS), instructor — Summer 2024
Trained early career scientists on how to work with polar marine sediment cores to understand past and future ice sheet behavior. Instruction foci: glacial sediment facies, geomorphic context and site selection. Location: IODP Gulf Coast Repository, Texas A&M University, College Station, TX.

Guest lecturer

Environmental and Geological Applications of GIS, graduate course, TAMUCC — Fall 2024
"Antarctic marine geoscience perspectives"
Seminar: Research in the Geosciences, general undergraduate course, TAMUCC — Spring 2024
"How much? How fast? Looking to resolve the Antarctic Ice Sheet's uncertain future using answers from the past"
Oceanography, undergraduate course, TAMUCC — Fall 2022
"Earth Structure and Plate Tectonics" and "The Seafloor and its Sediments"
Seminar: Research in the Geosciences, general undergraduate course, TAMUCC — Spring 2020
"Glacial change in Antarctica: What can we learn from the geologic record?"
Polar Environments, general undergraduate course, University of Virginia — Spring 2019
"Sea ice and icebergs"
The Cryosphere, upper-division and graduate course, Rice University — Spring 2018
"Ice shelves and sea ice"
Freshman Seminar in Local Environmental Science Research, Rice University — Spring 2017
"Antarctic research at sea and in the laboratory"
GIS for Geoscientists, upper-division and graduate course, Rice University — Spring 2016
"Applications of raster datasets for geomorphology and sedimentology"
The Cryosphere, upper-division and graduate course, Rice University — Spring 2016
"Glacial erosion, transport, and sediments"

Earth Systems Evolution and Cycles, upper division course, Rice University Fall 2015
"Glacial sedimentology"

SIGNIFICANT FIELD EXPERIENCES

Scientist: Sedimentologist, Cruise NBP2403 to the Ross Sea, Antarctica. Multibeam bathymetric mapping, subbottom profiling, and sediment core collection (February 25-April 6, 2024, RVIB *Nathaniel B. Palmer*)

Co-PI: Sediment coring supervision in Lavaca Bay on the Texas coast (Summer 2023, 2024), Chirp profiling Summer 2024.

Scientist: Sedimentologist, Cruise NBP2301 and NBP2302 to the Ross Sea, Antarctica. Seismic acquisition, multibeam bathymetric mapping, subbottom profiling, and sediment core collection (expedition originally set to begin in December 2020, but canceled just before departure and postponed for two years to December 26, 2022-February 28, 2023, RVIB *Nathaniel B. Palmer*)

Scientist: Cruise NBP1502 to the Ross Sea, Antarctica, Multibeam bathymetric mapping, subbottom profiling, and sediment core collection (January 23-March 20, 2015, RVIB *Nathaniel B. Palmer*)

PROFESSIONAL AFFILIATIONS

American Geophysical Union, Geological Society of America

SELECTED PROFESSIONAL ACTIVITIES AND SERVICE

RAISED 2.0 Working Group

Member of the small international planning committee (~10 early-mid career researchers) which has met every 2 – 3 months in 2025 to organize an update to the widely-utilized, highly-cited RAISED (Reconstruction of Antarctic Ice Sheet Deglaciation) Consortium community effort to reconstruct Antarctic Ice Sheet recession through the past 25,000 years. Published in 2014, the original RAISED review was the most comprehensive of its kind. Since then, the number of reported marine and terrestrial ages and the number of published papers updating chronologies of the relevant deglacial period have quadrupled, highlighting the need for a RAISED 2.0 effort to compile these new constraints and produce more accurate, higher resolution reconstructions than could be done ten years ago. These reconstructions of past polar changes provide critical observational data for refining ice sheet and sea level models, ultimately facilitating improvements to their predictive capabilities.

Journal/Proposal reviewing

Proposal Referee: *National Science Foundation* (2 in 2019, 1 in 2020, 1 in 2021, 1 in 2023)

Panel Reviewer: National Science Foundation (2020, 2024)

Journal Reviewer: Marine Geology (2021), Quaternary Science Reviews (2022), Quaternary Science Advances (2022), Frontiers in Earth Sciences (2022), Geophysical Research Letters (2020), Geochimica et Cosmochimica Acta (2020), The Cryosphere (2023), Nature Geoscience (2024), Nature Communications (2025).

Editorial Service

Editorial Board, Marine Geology (May 2023 – present)

West Antarctic Ice Sheet (WAIS) Workshop Session Facilitation

2024 Piecing the Puzzle Together, *with Roger Creel (WHOI)*
2023 Status update: the future Antarctic Research Vessel, *with NSF Program Officer David Porter*
2022 Antarctic Open Science, *with Santiago Munevar (UVA)*
2020 Past Records of Changes and Processes, *with CD Hillenbrand (BAS)*

Conference-Associated Field Trips

Co-led 1-day "Grounding Line Processes of the Southern Cordilleran Ice Sheet: Whidbey Island, Puget Lowlands" field trip. GSA Annual Meeting, 2017.

In-talks to co-lead a brief excursion to an outcrop on Whidbey Island to discuss geomorphology and grounding line sedimentary processes at the WAIS Workshop in September 2025.

ADVISING

Graduate Student Advisees

2023 – *present*	Magkena Szemak (CMSS PhD)	Dissertation: Unpinning the past: Glacial and oceanic interactions across the Antarctic continental margin	
2023 – *present*	Archer McGee (ESCI MS)	Thesis: Spatiotemporal distribution of natural and Hg-contaminated sediment in Lavaca Bay	
2021 – 2023	Magkena Szemak (CMSS MS)	Thesis: Examining micropaleontology to gain insights into long-term oceanographic, glacial, and climatic processes in the Western Amundsen Sea, Antarctica	Now: conducting PhD research at TAMUCC
2020 – 2025	Alicia Jimenez (ESCI MS)	Thesis: Mustang Island's geology: Tracing the recent evolution of a complex barrier island	Now: Instructor of Geology at Texas A&M University – Kingsville

Visiting Undergraduate Student Research Advisees—NSF SURF Summer REU at TAMUCC

2025	Adelaide Byers	Project: Integration of sedimentary and geophysical datasets to evaluate spatiotemporal trends in Lavaca Bay mercury contamination.	Now: a wildlife rehabilitation internship in Fall '25, and planning to graduate from University of Maryland – College Park in May '26
2024	Daniel Sikes	Project: Examining grain-size distributions and sedimentation rates throughout Lavaca Bay to supplement the analysis of mercury contamination	Now: beginning a PhD in Fall 2025 at Rice University under Dr. Kirsten Siebach
2024	Annika Vikstrom	Project: Diatoms and Paleoceanography: Understanding Antarctic Glacial Movement through Microfossils	Now: an REU and a NOAA internship in Summer '25, then Fall study abroad in Ecuador, then Middlebury College graduation in January '26

TAMUCC Undergraduate Student Research Advisees

2025-*present*	Jarrett Kernen (Undergrad RA)	Project: TBD

2025-*present*	Lauren Garrett (Undergrad RA)	Project: TBD	
2024–2025	Vincent Jares (Undergrad RA)	Project: Sedimentological and geochemical signatures of glacial retreat through Glomar-Challenger Basin	Now: Beginning a PhD in Fall '25 at University of Texas under Drs. Sean Gulick and Cyril Grima
2022	Elizabeth Norman (ESCI Internship and Independent Study)	Project: GIS techniques for mapping and characterizing the patterns seen in glacial landforms on the Antarctic continental shelf seafloor to provide a framework for interpreting sediment cores.	Now: Environmental consulting in Houston, TX

Graduate student committees

2024 – present	Daphne White	MARB PhD - Bahr
2024 – present	Lily Tubbs	CMSS MS - Pollack
2023 – present	Chrissy Barrera	CMSS PhD - Zhang
2023 – present	Hannah Organ	CMSS PhD - Coffin
2021 – 2025	Ramadan Abdelrahim	CMSS PhD – Ahmed/Murgulet
2023 – DNF	Derry Xu	CMSS PhD - Coffin
2020 – DNF	Dionel Colmenero	CMSS MS - Ahmed
2019 – 2020	Ryan Turner	CMSS MS - Ahmed
2019 – 2019	Joseph Stearns	ESCI MS - Murgulet

University Service

Sept 2025 – present	COS Graduate Student Recruitment Committee
June 2025	Islander Launch volunteer to chat with families of newly enrolled students
Feb 2025	Island Day tour/chat with families
Fall 2024 - present	PENS Issue Response Committee
Fall 2022 - present	CMSS Faculty Membership Committee (Chair)
April 2022	Evaluator for Spring Student Research Symposium
July 2021	Reviewed proposals for Mock NSF Review Panel to provide feedback to TAMUCC Summer Grant Fellows
December 2020	Served as panelist for "Experienced NSF panelists and reviewers" session of NSF grant-writing bootcamp hosted by TAMUCC Research and Innovation,
April 2016, 2017	Poster evaluator, Rice University Undergraduate Research Symposium

Other Outreach

Guided visitors and answered questions about deep sea records at opening day of JOIDES Resolution exhibit on Earth Paleo Records at Corpus Christi museum 2022

Co-creator and exhibitor World Oceans Day, Houston Museum of Natural Science 2017
—'The Texas coast and its response to sea level change'. (link for details)

PROFESSIONAL DEVELOPMENT

2020 Summer Grant Fellows Program, TAMUCC Research and Innovation
2020 Best Practices in Online Instruction, TAMUCC Office of Distance Education and Learning Technologies

INVITED TALKS

University of Kentucky	EES Department Seminar	2022
University of Houston	EAS Departmental Seminar	2021
Texas A&M University– Corpus Christi	Faculty Search	2019