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ACADEMIC **Assistant Professor**

January 2019 to present

APPOINTMENTS Department of Geophysics
 Hydrologic Science and Engineering, Affiliated Faculty
 Payne Institute for Public Policy, Faculty Fellow
 Colorado School of Mines

Thompson Postdoctoral Fellow

May 2017 to December 2018

Department of Geophysics
 School of Earth, Energy, and Environmental Sciences
 Stanford University
 Mentor: Dr. Dustin M. Schroeder

Postdoctoral Scholar

October 2015 to April 2017

Institute of Geophysics and Planetary Physics
 Scripps Institution of Oceanography
 University of California, San Diego
 Supervisor: Dr. Helen A. Fricker

EDUCATION **PhD in Earth Sciences**

October 2015

Institute of Geophysics and Planetary Physics
 Scripps Institution of Oceanography, La Jolla, CA
 Dissertation: *Investigating Antarctic ice sheet subglacial processes beneath the Whillans Ice Plain, West Antarctica, using satellite altimetry and GPS*
 Adviser: Dr. Helen A. Fricker

Master of Science in Earth Sciences

July 2010

Dartmouth College, Hanover, NH
 Thesis: *On the use of high-precision GPS surveys for validation of ICESat altimetry measurements and investigation of seasonal ice-surface fluctuations*
 Adviser: Dr. Robert L. Hawley

Bachelor of Arts in Earth Sciences

June 2008

Dartmouth College, Hanover, NH
Magna cum Laude, Phi Beta Kappa
 Senior Thesis for High Honors: *Hydrothermal Waters of Ischia, Italy: A revisitation of groundwater mixing and the ramifications for environmental arsenic contamination*
 Adviser: Dr. Benjamin Bostick

MANUSCRIPTS
 IN REVIEW

* indicates student or postdoctoral advisee

† indicates co-first authors

- [71] *Abrahams, E., T. Snow*, **M. R. Siegfried** and F. Pérez, in review. flipnslide: A Python Package for for Preserving Spatial Context when Preprocessing Large Scientific Images, *Journal of Open Source Software*.
- [70] *Hills, B. H., **M. R. Siegfried** and D. M. Schroeder, in review. Entrained water in basal ice suppresses radar bed-echo power at active subglacial lakes, *Geophysical Research Letters*.
- [69] Roth, D. L., G. Jin, M. Bezada, C. C. Masteller, **M. R. Siegfried**, A. Titov and B. Tate, in review. A River on Fiber: Spatially Continuous Fluvial Monitoring with Distributed Acoustic Sensing, *Journal of Geophysical Research: Earth Surface*.

- [68] Sartore, N. B., T. J. Wagner, **M. R. Siegfried**, N. Pujara and L. K. Zoet, in review. Calving of Ross Ice Shelf from wave erosion and hydrostatic stresses, *The Cryosphere*, doi:10.5194/egusphere-2024-571.
- [67] *Verboncoeur, H., **M. R. Siegfried**, J. P. Winberry, N. Holschuh, D. Byrne*, W. Sauthoff*, T. C. Sutterley and B. Medley, in review. Multi-decadal evolution of Crary Ice Rise region, West Antarctica, amid modern ice-stream deceleration, *Journal of Glaciology*.
- REFEREED
JOURNAL
PUBLICATIONS
- [66] *Michaelides, R. J., **M. R. Siegfried**, J. Lovekin, K. Berry, B. Dugan and D. L. Roth, 2024. Wildfire Progression Time Series Mapping with Interferometric Synthetic Aperture Radar (InSAR), *IEEE Geoscience and Remote Sensing Letters*, doi:10.1109/LGRS.2024.3365994, accepted.
- 2023
- [65] *Savidge, E., T. Snow*, **M. R. Siegfried**, Y. Zheng, A. B. Villas Bôas, G. A. Borlototto, L. Boehme and K. E. Alley, 2023. Wintertime Polynya Structure and Variability From Thermal Remote Sensing and Seal-Borne Observations at Pine Island Glacier, West Antarctica, *IEEE Transactions on Geoscience and Remote Sensing*, **61**, 1–13, doi:10.1109/tgrs.2023.3271453.
- [64] *Savidge, E., T. Snow* and **M. R. Siegfried**, 2023. Multi-decadal Record of Sensible-Heat Polynya Variability from Satellite Optical and Thermal Imagery at Pine Island Glacier, West Antarctica, *Geophysical Research Letters*, **50**(22), doi:10.1029/2023gl106178.
- [63] **Siegfried**[†], **M. R.**, R. A. Venturelli[†], M. O. Patterson, W. Arnuk, T. D. Campbell, C. D. Gustafson, A. B. Michaud, B. K. Galton-Fenzi, M. B. Hausner, S. N. Holzschuh*, B. Huber, K. D. Mankoff, D. M. Schroeder, P. Summers, S. Tyler, S. P. Carter, H. A. Fricker, D. M. Harwood, A. Leventer, B. E. Rosenheim, M. L. Skidmore, J. C. Priscu and the SALSA Science Team, 2023. The life and death of a subglacial lake in West Antarctica, *Geology*, **51**(5), 434–438, doi:10.1130/G50995.1.
- [62] *Snow, T., W. Zhang, E. Schreiber, **M. R. Siegfried**, W. Abdalati and T. Scambos, 2023. Alongshore Winds Force Warm Atlantic Water Toward Helheim Glacier in Southeast Greenland, *Journal of Geophysical Research: Oceans*, **128**, doi:10.1029/2023JC019953.
- [61] Davis, C. L., R. A. Venturelli, A. B. Michaud, J. R. Hawkings, A. M. Achberger, T. J. Vick-Majors, B. E. Rosenheim, J. E. Dore, A. Steigmeyer, M. L. Skidmore, J. D. Barker, L. G. Benning, **M. R. Siegfried**, J. C. Priscu, B. C. Christner and the SALSA Science Team, 2023. Biogeochemical and historical drivers of microbial community composition and structure in sediments from Mercer Subglacial Lake, West Antarctica, *ISME Communications*, **3**(1), doi:10.1038/s43705-023-00216-w.
- [60] Robel, A., S. Sim, C. Meyer, **M. R. Siegfried** and C. Gustafson, 2023. Contemporary ice sheet thinning drives subglacial groundwater exfiltration with potential feedbacks on glacier flow, *Science Advances*, **9**(33), doi:10.1126/sciadv.adh3693.
- [59] Rosenheim[†], B. E., A. B. Michaud[†], J. Broda, A. Gagnon, R. A. Venturelli, T. D. Campbell, A. Leventer, M. Patterson, **M. R. Siegfried**, B. C. Christner, D. Duling, D. Harwood, J. E. Dore, M. Tranter, M. L. Skidmore, J. C. Priscu and the SALSA Science Team, 2023. A method for successful collection of multicores and gravity cores from Antarctic subglacial lakes, *Limnology and Oceanography: Methods*, **21**(5), 279–294, doi:10.1002/lom3.10545.
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- [57] Stubblefield, A. G., C. R. Meyer, **M. R. Siegfried**, W. Sauthoff* and M. Spiegelman, 2023. Reconstructing subglacial lake activity with an altimetry-based inverse method, *Journal of Glaciology*, 1–15, doi:10.1017/jog.2023.90.
- [56] Venturelli, R. A., B. Boehman, C. Davis, J. R. Hawkings, S. E. Johnston, C. D. Gustafson, A. B. Michaud, C. Mosbeux, **M. R. Siegfried**, T. J. Vick-Majors, V. Galy, R. G. M.

- Spencer, S. Warny, B. C. Christner, H. A. Fricker, D. M. Harwood, A. Leventer, J. C. Priscu, B. E. Rosenheim and the SALSA Science Team, 2023. Constraints on the Timing and Extent of Deglacial Grounding Line Retreat in West Antarctica, *AGU Advances*, **4**, e2022AV000846, doi:10.1029/2022AV000846.
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- [54] Gustafson, C. D., K. Key, **M. R. Siegfried**, J. P. Winberry, H. A. Fricker, R. A. Venturelli and A. B. Michaud, 2022. A dynamic saline groundwater system mapped beneath an Antarctic ice stream, *Science*, **376**(6593), 640–644, doi:10.1126/science.abm3301.
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- 2021 [52] **Siegfried, M. R.** and H. A. Fricker, 2021. Illuminating active subglacial lake processes with ICESat-2 laser altimetry, *Geophysical Research Letters*, **48**(14), doi:10.1029/2020GL091089.
- [51] *Michaelides[†], R. J., M. Bryant[†], **M. R. Siegfried** and A. A. Borsa, 2021. Quantifying Permafrost Deformation with ICESat-2, *Earth and Space Science*, **8**(8), e2020EA001538, doi:10.1029/2020EA001538.
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2021. Surface expression and apparent timing of subglacial lake oscillations controlled by viscous ice flow, *Geophysical Research Letters*, **48**(17), e2021GL094658, doi:10.1029/2021GL094658.
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- 2018 [32] **Siegfried, M. R.** and H. A. Fricker, 2018. Thirteen years of subglacial lake activity in Antarctica from multi-mission altimetry, *Annals of Glaciology*, **59**(76), 42–55, doi:10.1017/aog.2017.36.
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- 2015
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- 2014
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- 2013
- [6] Carter, S. P., H. A. Fricker and **M. R. Siegfried**, 2013. Evidence of rapid subglacial water piracy under Whillans Ice Stream, West Antarctica, *Journal of Glaciology*, **59**(218), 1147–

- 1162, doi:10.3189/2013JoG13J085.
- [5] Holt, T. O., N. F. Glasser, D. J. Quincey and **M. R. Siegfried**, 2013. Speedup and fracturing of George VI Ice Shelf, Antarctic Peninsula, *The Cryosphere*, **7**(3), 797–816, doi:10.5194/tc-7-797-2013.
- [4] Horgan, H. J., R. B. Alley, K. Christianson, R. W. Jacobel, S. Anandakrishnan, A. Muto, L. H. Beem and **M. R. Siegfried**, 2013. Estuaries beneath ice sheets, *Geology*, **41**(11), 1159–1162, doi:10.1130/G34654.1.
- [3] Priscu, J. C., A. M. Achberger, J. E. Cahoon, B. C. Christner, R. L. Edwards, W. L. Jones, A. B. Michaud, **M. R. Siegfried**, M. L. Skidmore, R. H. Spigel, G. W. Switzer, S. Tulaczyk and T. J. Vick-Majors, 2013. A microbiologically clean strategy for access to the Whillans Ice Stream subglacial environment, *Antarctic Science*, **25**(5), 637–647, doi:10.1017/s0954102013000035.
- 2012 [2] Taylor, V. F., B. P. Jackson, **M. R. Siegfried**, J. Navratilova, K. A. Francesconi, J. Kirshtein and M. Voytek, 2012. Arsenic speciation in food chains from mid-Atlantic hydrothermal vents, *Environmental Chemistry*, **9**(2), 130–138, doi:10.1071/EN11134.
- 2011 [1] **Siegfried, M. R.**, R. L. Hawley and J. F. Burkhart, 2011. High-Resolution Ground-Based GPS Measurements Show Intercampaign Bias in ICESat Elevation Data Near Summit, Greenland, *IEEE Transactions on Geosciences and Remote Sensing*, **49**(10), 3393–3400, doi:10.1109/TGRS.2011.2127483.
- TECHNICAL REPORTS Smith, B., D. Hancock, K. Harbeck, L. Roberts, T. Neumann, K. Brunt, H. A. Fricker, A. Gardner, **M. R. Siegfried**, S. Adusumilli, B. Csathó, N. Holschuh, J. Nilsson and F. Paolo, 2021. Algorithm Theoretical Basis Document (ATBD) for Land Ice Along-Track Height Product (ATL06), Release 004, *NASA Goddard Space Flight Center Technical Reference*.
- OTHER PUBLICATIONS **Siegfried, M. R.**, and C. D. Gustafson, 2022. Scientists in Antarctica discover a vast, salty groundwater system under the ice sheet – with implications for sea level rise. *The Conversation*, <https://theconversation.com/scientists-in-antarctica-discover-a-vast-salty-groundwater-system-under-the-ice-sheet-with-implications-for-sea-level-rise-182506>.
- Padman, L., and **M. R. Siegfried**, 2018. Ocean Tides Affect Ice Loss from Large Polar Ice Sheets, *EOS: Earth & Space Science News*, **99**, doi:10.1029/2018EO092835.
- Fricker, H. A., F. Paolo, **M. R. Siegfried**, and S. Adusumilli, 2018. Short-term changes in Antarctica’s ice shelves are key to predicting their long-term fate, *The Conversation*, <https://theconversation.com/short-term-changes-in-antarcticas-ice-shelves-are-key-to-predicting-their-long-term-fate-95207>.
- DATA SETS **Siegfried, M. R.**, R. A. Venturelli, M. O. Patterson, W. Arnuk, T. D. Campbell, C. D. Gustafson, A. B. Michaud, B. K. Galton-Fenzi, M. B. Hausner, S. N. Holzschuh, B. Huber, K. D. Mankoff, D. M. Schroeder, P. T. Summers, S. Tyler, S. P. Carter, H. A. Fricker, D. M. Harwood, A. Leventer, B. E. Rosenheim, M. L. Skidmore, J. C. Priscu and T. S. S. Team, 2023. Data for Siegfried*, Venturelli*, et al., 2023, *Geology*, Zenodo, doi:10.5281/ZENODO.7597019.
- Smith, B. E., H. A. Fricker, A. Gardner, **M. R. Siegfried**, S. Adusumilli, B. M. Csathó, N. Holschuh, J. Nilsson, F. S. Paolo and the ICESat-2 Science Team, 2021. ATLAS/ICESat-2 L3A Land Ice Height, Version 4, NASA National Snow and Ice Data Center Distributed Active Archive Center, Boulder, Colorado USA, doi:10.5067/ATLAS/ATL06.004.
- PUBLISHED SOFTWARE **Siegfried, M. R.**, W. Arnuk, R. A. Venturelli and M. O. Patterson, 2023. SiegVent2023-Geology code repository (Version 1.1), Zenodo, doi:10.5281/ZENODO.7605994.

Siegfried, M. R., 2021. mrsiegfried/Siegfried2021-GRL: Initial release with acceptance (Version 1.0), Zenodo, doi:10.5281/ZENODO.4914107.

Arendt, A., B. Smith, D. Shean, A. Steiker, Alek Petty, F. Perez, S. Henderson, F. Paolo, J. Nilsson, M. Becker, Susheel Adusumilli, D. Shapero, B. Wallin, J. Meyer, A. Schweiger, S. Dickinson, N. Hoschuh, **M. R. Siegfried** and T. Neumann, 2019. ICESAT-2HackWeek/ICESat2_hackweek_tutorials (Version 0.1), Zenodo, doi:10.5281/ZENODO.3360994.

EXPANDED
ABSTRACTS

* indicates student or postdoctoral advisee

- [12] *Abrahams, E., T. Snow*, F. Perez and **M. R. Siegfried**, 2024. A Scalable Data Augmentation Strategy Enhancing Tile-Position Invariance in Small Object Segmentation for Earth Observation, *International Conference on Learning Representations: Machine Learning 4 Remote Sensing (ICLR: ML4RS 2024)*.
- [11] *Byrne, D., J. Klemm*, **M. R. Siegfried**, D. Castelletti, R. Michaelides* and D. M. Schroeder, 2024. Radar Altimetry Simulation to Identify Sub-Footprint Ice-Sheet Surface Change, *IGARSS 2024: 2024 IEEE International Geoscience and Remote Sensing Symposium*.
- [10] Medley, B., S. Bhushan, T. Black, T. Dixon, D. Felikson, A. Gardner, R. Michaelides, P. Milillo, J. Millstein*, A. Petty, D. Shean, **M. R. Siegfried**, B. Smith, T. Sutterley and T. Teisberg, 2024. Cryospheric Science Activities Supporting Development of NASA's Surface Topography and Vegetation Observing System, *IGARSS 2024: 2024 IEEE International Geoscience and Remote Sensing Symposium*.
- [9] Michaelides, R. J., **M. R. Siegfried**, S. Batzli, J. A. Villegas Bravo, D. Losos and W. C. Straka III, 2024. Robust Wildfire Time Series Imaging with Spaceborne Interferometric Synthetic Aperture Radars, *IGARSS 2024: 2024 IEEE International Geoscience and Remote Sensing Symposium*.
- [8] *Sauthoff, W., **M. R. Siegfried** and B. E. Smith, 2024. Evolving Outlines of Antarctic Active Subglacial Lakes using an Image Processing Algorithm on Gridded Altimetry Data, *IGARSS 2024: 2024 IEEE International Geoscience and Remote Sensing Symposium*.
- 2023 [7] Bradford, J. H., **M. R. Siegfried**, V. Follingstad*, K. Hughson, A. Routt, B. Schmidt, A. Kubas, E. Quartini, A. Mullen and A. Swidinsky, 2023. Mapping the internal structure Arctic pingos using ground-penetrating radar: Results from the Pingo Canadian Landmark, *Seventh International Conference on Engineering Geophysics*.
- [6] Bryant, M., E. Anderson, A. Borsa, C. Masteller, R. Michaelides*, **M. R. Siegfried** and A. Young, 2023. Integrating ICESat-2 elevation observation and satellite optical imagery to measure coastal topography and retreat rates on the Alaskan Beaufort Sea coast, *IGARSS 2023: 2023 IEEE International Geoscience and Remote Sensing Symposium*.
- [5] Michaelides, R. and **M. R. Siegfried**, 2023. Studying permafrost-wildfire interactions in the age of NISAR, *IGARSS 2023: 2023 IEEE International Geoscience and Remote Sensing Symposium*.
- 2021 [4] **Siegfried, M. R.**, D. M. Schroeder, W. Sauthoff* and B. E. Smith, 2021. Investigating a large subglacial lake drainage in East Antarctica with ice-penetrating radar, *SEG Annual Meeting* (invited contribution).
- [3] *Klemm, J. and **M. R. Siegfried**, 2021. Open Source Visualization for Radar Altimetry Waveforms, /textitIEEE International Symposium on Antenna Technology and Applied Electromagnetics.
- [2] Summers, P. T., D. M. Schroeder and **M. R. Siegfried**, 2021. Constraining ice sheet basal sliding and horizontal velocity profiles using a stationary phase sensitive radar sounder, *IGARSS 2021: 2021 IEEE International Geoscience and Remote Sensing Symposium*.

- 2020 [1] Bienert, N., D. M. Schroeder, S. T. Peters and **M. R. Siegfried**, 2020. Processing-based synchronization approach for bistatic glacial tomography, *IGARSS 2020: 2020 IEEE International Geoscience and Remote Sensing Symposium*.
Winner of the IEEE GRSS Symposium Prize Paper Award
- FUNDED \$5,448,637 PI-share to Mines as faculty (\$1,638,358 indirect costs)
 GRANTS **National Aeronautics and Space Administration**
- Solicitation: Studies with ICESat-2
 Title: *Tracing Antarctic freshwater: Coupling ICESat-2 observations of subglacial lake fluxes with ice-shelf cavity models to quantify impacts on ice-ocean processes*
 Period: 11/2023 – 10/2026
 PI: M. Siegfried
 Co-I: M. Dinniman (Old Dominion University)
 Funded Amount: \$579,391
 - Solicitation: Topical Workshops, Symposia, and Conferences
 Title: *Accelerating discovery for NASA Cryosphere communities with open-cloud infrastructure*
 Period: 2/2023 – 1/2024
 PI: M. Siegfried
 Co-I: T. Snow (Mines)
 Funded Amount: \$249,999
 - Solicitation: NASA Unsolicited Proposals
 Title: *Accelerating ICESat-2 science with collaborative cloud-computing*
 Period: 10/2022 – 9/2024
 PI: M. Siegfried
 Co-I: T. Snow (Mines)
 Funded Amount: \$362,875
 - Solicitation: Decadal Survey Incubation
 Title: *Quantifying bias and uncertainty sources between laser and radar retrievals of surface topography over cryospheric targets*
 Period: 6/2022 – 6/2025
 PI: M. Siegfried
 Co-I: R. Michaelides (Washington U. St. Louis)
 Funded Amount: \$590,726
 - Solicitation: Cryospheric Science
 Title: *Seeds of Change: Investigating the Impact of Antarctic Basal Channel and Persistent Polynya Co-Evolution on Ice Shelf Stability*
 Period: 2/2022 – 1/2025
 PI: M. Siegfried
 Science PI: T. Snow (Mines)
 Co-Is: A.B. Villas Bôas (Mines), T. Scambos (CU Boulder), K. Alley (U. Manitoba)
 Collaborators: S. Adusumilli (UC San Diego), L. Boehme (U. St Andrews), F Pérez (UC Berkeley)
 Funded Amount: \$582,084
 - Solicitation: Studies with ICESat-2
 Title: *Leveraging ICESat-2 altimetry for Antarctic subglacial lake identification, evolution, and basal properties*
 Period: 5/2021 – 4/2024
 PI: M. Siegfried
 Co-I: S. Grigsby (Mines)

Funded Amount: \$334,928

- Solicitation: Interdisciplinary Research in Earth Science
 Title: *Observationally constrained simulations of the evolution of polar snow using a multi-sensor approach*
 Period: 9/2020 – 8/2023
 PI: B. Medley (NASA Goddard)
 Lead Mines PI: M. Siegfried
 Co-Is: S. Grigsby (Mines), J. Lenaerts (U. Colorado Boulder), T. Overley (NASA Goddard), J. Ryan (U. Oregon), T. Sutterley (U. Washington)
 Funded Amount: \$939,402 (\$157,611 to Mines)
- Solicitation: Global Navigation Satellite System Research
 Title: *Constraining West Antarctic snow accumulation and firn densification processes with GNSS reflectometry*
 Period: 9/2020 – 8/2023
 PI: M. Siegfried
 Co-I: B. Medley (NASA Goddard)
 Funded Amount: \$565,944 (\$315,899 to Mines)
- Solicitation: Topical Workshops, Symposia, and Conferences
 Title: *WAIS Workshops 2020 and 2021: A transdisciplinary forum to accelerate NASA-funded research of marine-based ice sheet systems*
 Period: 9/2020 – 8/2023
 PI: M. Siegfried
 Funded Amount: \$77,245
- Solicitation: Planetary Science and Technology from Analog Research (PSTAR)
 Title: *Pingo SubTerranean Aquifer Reconnaissance and Reconstruction (Pingo STARR)*
 Period: 7/2020 – 6/2024
 PI: B. Schmidt (Cornell University)
 Science PI: K. Hughson (University of Alaska Anchorage)
 Lead Mines PI: M. Siegfried
 Co-Is: H. J. Bradford (Mines), Sizemore (Planetary Science Institute), A. Swidinsky (U. Toronto)
 Funded Amount: \$2,071,221 (\$665,614 to Mines)
- Solicitation: NASA Unsolicited Proposals
 Title: *Long-term validation of ICESat-2 range measurements with ground, air, and satellite surveys of salar de Uyuni, Bolivia*
 Period: 6/2020 – 5/2022
 PI: M. Siegfried
 Co-Is: Shane Grigsby (Mines), Gabriel Walton (Mines), Mike Willis (U. Colorado, Boulder)
 Funded Amount: \$199,917
- Solicitation: IceBridge Science Team
 Title: *Quantifying the error distribution of Operation IceBridge swath altimetry to generate robust, long-duration time series of height-changes over dynamic features in Antarctica*
 Period: 4/2017 – 3/2020
 Science PI/Science Team Member: M. Siegfried (Institutional PI: H. Fricker)
 Funded Amount: \$334,080 (\$116,724 to Mines for Y3)

National Science Foundation

- Program: Office of Polar Programs Postdoctoral Fellowship
 Period: 9/2023 – 8/2025
 Title: *OPP-PRF: Disentangling ice-sheet internal and basal processes through novel ice-*

penetrating radar integration built on scalable, cloud-based infrastructure

PI: B. Hills (postdoc; M. Siegfried, mentor)

Funded Amount: \$317,795

- Program: CAREER Program
 Period: 8/2022 – 8/2027
 Title: *CAREER: Teaching old data new tricks: Leveraging legacy field data to investigate ice-stream shut down and inspire a new generation of cryospheric scientists*
 PI: M. Siegfried
 Funded Amount: \$696,481
- Program: Office of Polar Programs - Antarctic Sciences
 Period: 8/2021 – 7/2024
 Title: *Collaborative Research: Investigating four decades of Ross Ice Shelf subsurface change with historical and modern radar sounding data*
 PI: Winnie Chu (Georgia Tech)
 Co-PIs: M. Siegfried (Mines), Dustin Schroeder (Stanford U.)
 Funded Amount: \$871,490 (\$317,470 to Mines)
- Program: Office of Polar Programs - Antarctic Integrated System Science
 Period: 7/2019 – 6/2022
 Title: *WAIS Workshops 2019-2021: An annual transdisciplinary forum for studies of the West Antarctic Ice Sheet by the next generation of polar scientists*
 PI: M. Siegfried
 Funded Amount: \$123,524
- Program: Office of Polar Programs - Antarctic Integrated System Science
 (supplement to *Collaborative Research: Subglacial Antarctica Lake Scientific Access*)
 Period: 5/2018 – 5/2019
 Title: *Subglacial Lake Mercer temperature time series for quantifying lake dynamics*
 Science PI: M. Siegfried (Institutional PI: H. Fricker)
 Funded Amount: \$39,917
- Program: Office of Polar Programs - Antarctic Glaciology
 Period: 12/2017 – 11/2020
 Title: *Mapping Antarctic subglacial water in three dimensions with novel electromagnetic techniques*
 Science PI: M. Siegfried (Institutional PI: H. Fricker)
 Co-PI: K. Key (Columbia U.)
 Funded Amount: \$448,933

Stanford University Department of Geophysics

- Thompson Postdoctoral Fellowship, 2017 – 2019 \$135,000

National Aeronautics and Space Administration

- Earth and Space Science Fellowship, 2011 – 2014 \$90,000

MENTORING

Postdoctoral Scholars

Shane Grigsby, 2019–2021

(*now: Research & Development Scientist, National Geospatial Intelligence Agency*)

Roger Michaelides, 2020–2022

(*now: Asst. Professor, Washington University in St. Louis*)

Tasha Snow, 2021–present

Benjamin Hills, 2023–present

Joanna Millstein, 2023–present

Graduate Students

Jared Klemm (PhD), Geophysics, 2020–2021
(post Mines: Software Engineer II, Atmospheric and Environmental Research)
 Kayla Hubbard (MS-NT), Hydrologic Science & Engineering, 2020–2021
(post Mines: Science Assistant, Arctic Sciences Section, National Science Foundation)
 Wilson Sauthoff (PhD), Hydrologic Science & Engineering, 2020–present
 Elena Savidge (PhD), Geophysics, 2020–present
 Hannah Verboncoeur (PhD), Geophysics, 2021–present
 Bailey Mullett (MS), Hydrologic Science & Engineering, 2022–present
 Gabriel Thomas (MS), Hydrologic Science & Engineering, 2022–present
co-advised with Kamini Singha
 Rachel Willis (PhD), Geophysics, 2023–present
 Zachary Katz (PhD), Geophysics, 2023–present

Undergraduate Research

Matt Oleszko, Geophysics, 2019–2021
(post-Mines step: Radar Processing Engineer, The Aerospace Corporation)
 Anna Valentine, Geophysics, 2020–2021
(post-Mines step: PhD student at Dartmouth College)
 Becca Prentice, Geophysics, 2020–2022
(post-Mines step: M.S. student at Stanford University)
 Stephanie Holzschuh, Applied Math and Statistics, 2020–2021
(post-Mines step: Data Engineer at Chevron)
 Michael Field, Geophysics, 2021–2022
(post-Mines step: PhD student at University of Florida)
 Cash Koning, Geophysics, 2020–2023
(post-Mines step: Polar Engineer, Earthscope Consortium)
 Venezia Follingstad, Geophysics, 2021–2023
(post-Mines step: PhD student at University of Oregon)
 Ashleigh Miller, Geophysics, 2022–2023
(post-Mines step: PhD student at Georgia Tech)
 Duncan Byrne, Geophysics, 2023–present
 Anastasia Horne, Applied Math & Statistics, 2023–present
 Mia Jungman, Geophysics, 2023–present

Senior Design

Hannah Haugen, 2021 *(post-Mines: M.S. student at U. Arizona)*
 Bailey Mullett, 2022 *(post-Mines: M.S. student at Colorado School of Mines)*
 Venezia Follingstad, 2022 *(post-Mines: PhD student at U. Oregon)*
 Cash Koning, 2022 *(post-Mines: Polar Engineer, Earthscope Consortium)*
 Dawn Lipfert, 2024

Visiting Students

Emma Pearce (PhD), University of Leeds, 2019
 Joanna Millstein (PhD), MIT, 2021–present
 Ellie Abrahams (PhD), University of California Berkeley, 2022
 Eojin Lee (UG), Columbia University, 2022–present
 Sawyer Kaarto (UG), Red Rocks Community College, 2022

Dissertation Committee Membership

Nicholas Dorogy (2023–present) Mines, Department of Geophysics
 Ahmad Tourei (2023–present) Mines, Hydrologic Science & Engineering
 Melody Zhang (2021–present) Mines, Department of Geology and Geological Engineering
 Devon Dunmire (2020–2022) U. Colorado Boulder, Atmospheric & Ocean Sciences
 Chloe Gustafson (2020) Columbia U., Lamont-Doherty Earth Observatory

TEACHING
EXPERIENCE

Colorado School of Mines, Golden, CO
Instructor of Record

<i>GPGN486: Geophysics Field Camp</i>	<i>Summer 2024</i>
<i>GPGN470/570: Applications of Remote Sensing</i>	<i>Spring 2024</i>
<i>CSCI303: Data Science</i>	<i>Spring 2024</i>
GPGN486: Geophysics Field Camp	Summer 2023
GPGN470/570: Applications of Remote Sensing	Spring 2023
GPGN598b: Polar Cryosphere in the Earth System	Fall 2022
GPGN486: Geophysics Field Camp	Summer 2022
GPGN470/570: Applications of Remote Sensing	Spring 2022
GPGN599: Ice Dynamics at Whillans Ice Stream	Spring 2022
GPGN470/570: Applications of Remote Sensing	Spring 2021
GPGN101: Geophysics & Society	Spring 2021
GPGN599: Antarctic groundwater modeling	Spring 2021
GPGN470/570: Applications of Remote Sensing	Spring 2020
GPGN101: Geophysics & Society	Spring 2020
GPGN498A/C: Geophysical Remote Sensing	Spring 2019

Co-Instructor

<i>GEGN584: Field Methods in Hydrology</i>	<i>Fall 2023</i>
GEGN584: Field Methods in Hydrology	Fall 2022
GPGN498: Electrical & Electromagnetic Methods & Applications	Spring 2022
GPGN486: Geophysics Field Camp	Summer 2021
GPGN486: Geophysics Field Camp	Summer 2019
Cryospheric Science with ICESat-2 Hackweek 2019, U. Washington	July 2019

Scripps Institution of Oceanography, La Jolla, CA

Co-Instructor

SIO115: Ice and the Climate System	Winter 2017
GMT Workshop for geodynamics REU students	June 2016

Guest Lecturer

The basal rheology knob	
<i>SIO209: Ice Sheet Seminar</i>	3 Feb. 2017
Antarctic Estuary Dynamics	
<i>SIO219: Estuarine and Coastal Processes</i>	6 Jun. 2016
Ice Dynamics	
<i>SIO115: Ice and the Climate System</i>	25 Feb. 2015
Joint Workshop at the Vatican	
<i>SIO209: Lectures in Sustainable Science</i>	6 Jun. 2014

Teaching Assistant

Remote Sensing	Spring 2013
Instructors: Dr. David Sandwell, Dr. Helen Fricker	

Dartmouth College, Hanover, NH

Teaching Assistant

Dartmouth College Field Program	Fall 2009
<i>Glaciology, Quaternary Geology, Structure and Geologic Mapping</i>	
Instructors: Dr. Bob Hawley, Dr. Erich Osterberg, Dr. Meredith Kelly	
Ecological Agriculture	Summer 2009
Instructors: Dr. Jill Mikucki, Dr. Sarah Smith	
Glaciology	Spring 2009
Instructor: Dr. Robert Hawley	
Polar Geobiology	Fall 2009
Instructor: Dr. Jill Mikucki	
Introduction to Computer Science	Spring 2006
Instructor: Dr. Thomas Cormen	

	<i>Laboratory Teaching Assistant</i>	
	Mineralogy	Summer 2007
	Instructor: Dr. Ed Meyer	
	<i>Guest Lecturer</i>	
	Data analysis and scientific writing	
	<i>ENVS25: Ecological Agriculture</i>	25 Aug. 2009
	Paleoclimate and ice ages	
	<i>EARS70: Glaciology</i>	19 May 2009
	Life through a Snowball	
	<i>EARS86: Polar Geobiology</i>	9 Dec. 2008
	<i>Grader</i>	
	Differential Equations	Winter 2008
INVITED	[title to be determined]	
TALKS	<i>Caltech Division of Geological and Planetary Sciences Seminar</i>	4 Mar. 2024
	Centering community at scientific meetings: 30 years of the West Antarctic Ice Sheet Workshop	
	<i>AGU Fall Meeting 2023</i>	11 Dec. 2023
	Cryosphere@Mines	
	<i>Finnish Ambassador Visit to Colorado School of Mines</i>	13 Jun. 2023
	Subglacial Secrets: What drilling holes through the Antarctic ice sheet can teach us about the past, present, and future of ice	
	<i>Osher Lifelong Learning Institute, University of Denver</i>	4 May 2023
	Source to sink: Tracing freshwater beneath the Antarctic ice sheet	
	<i>Colorado School of Mines Department of Geophysics Heiland Lecture</i>	7 Mar. 2023
	Technology at the coast: Probing for ice-water-ocean-Earth processes	
	<i>National Academies's Future Directions for Southern Ocean and Antarctic Nearshore and Coastal Research Community Workshop</i>	9 Feb. 2023
	Glaciology at Mines	
	<i>Colorado School of Mines Student Society of Geophysicists</i>	16 Sep. 2022
	Glaciology at Mines	
	<i>Tulane University Research Experiences for Undergraduates</i>	15 Jul. 2022
	Twelve years of exploring subglacial Antarctica	
	<i>Dartmouth College Journeys</i>	18 Jun. 2022
	Process2Paleo: Connecting modern observations to the geologic record to explore the life and death of a subglacial lake	
	<i>Scripps Polar Hour</i>	28 Oct. 2021
	Slippery when wet: Exploring the hydrosphere beneath the Antarctic ice sheet	
	<i>Colorado State Antarctic Lecture Series</i>	19 Oct. 2021
	Glaciology data volumes and data rates in Antarctica	
	<i>2021 Antarctic Subsea Cable Workshop</i>	28 Jun. 2021
	What lies beneath: Exploring the hydrosphere beneath the Antarctic ice sheet	
	<i>Delaware County Institute of Science</i>	8 Feb. 2021
	(Seminar on SALSA subglacial lake results)	
	<i>British Antarctic Survey</i>	Jun. 2020
	[seminar canceled due to COVID19]	
	(Seminar on ICESat-2 results)	
	<i>Newcastle University</i>	Jun. 2020
	[fellowship delayed to COVID19; seminar canceled]	
	(Seminar declined due to COVID)	
	<i>Stanford Geophysics Seminar</i>	4 Jun. 2020
	Antarctica at Depth: New observations of subglacial water beneath ice streams	
	<i>CU Boulder INSTAAR Noon Seminar</i>	16 Mar. 2020

[canceled due to COVID19]

U.S. work in the Ross Sea Sector	
<i>International Ross Sea Region Collaboration Workshop, Korea</i>	21 Jul. 2019
Antarctica at Depth: Drilling for Subglacial Access	
<i>U.S. Ice Drilling Program's School of Ice</i>	24 June 2019
SALSA – A Field Debrief	
<i>Stanford University Cryospheric Scientists</i>	12 Feb. 2019
Slippery When Wet: Dynamic subglacial hydrology and the Antarctic ice sheet	
<i>Department of Geosciences Research Seminar, Boise State University</i>	26 Apr. 2018
Building a “Long Data” perspective to examine decadal-scale variability in Antarctica	
<i>Geophysics Seminar, Colorado School of Mines</i>	4 Apr. 2018
Deep, Dark, and Wet: Dynamic subglacial hydrology in Antarctica	
<i>Earth & Planetary Science Seminar, Washington University in St. Louis</i>	1 Feb. 2018
Piecing together a "Long Data" perspective to examine Antarctic ice-sheet variability	
<i>Earth and Climate Seminar, University of Maine</i>	25 Oct. 2017
Piecing together a “Long Data” perspective in Antarctica to understand ice-sheet variability	
<i>SIO Research Seminar, Scripps Institution of Oceanography</i>	31 Aug. 2017
Subglacial hydrology, basal processes, and velocity transients in Antarctica	
<i>Ice Sheet System Model Workshop</i>	23 Jun. 2016
Antarctic subglacial hydrology: A review	
<i>IDPO Subglacial Access Working Group Workshop</i>	21 May 2016
Episodic hydrology, episodic ice streams: Unraveling the impact of active subglacial lakes in Antarctica	
<i>Earth Section Seminar, University of California, Santa Cruz</i>	10 May 2016
Unraveling the impact of dynamic subglacial lake drainage in Antarctic	
<i>Geophysics Seminar, Scripps Institution of Oceanography</i>	22 Apr. 2016
Planes, penguins, and cookies: Scientific outreach from Antarctica	
<i>GPS and the Cryosphere, 2016 UNAVCO Science Workshop</i>	29 Mar. 2016
Dynamic subglacial hydrology in Antarctica: timescales, evolution, and impacts	
<i>Geophysics Seminar, Stanford University</i>	1 Mar. 2016
Extending the episodic hydrology record across Antarctica	
<i>West Antarctic Ice Sheet Workshop</i>	19 Sep. 2015
Peering under the ice to the Antarctic Slip 'n' Slide	
<i>UCSD Extension: Environmental Leadership & Sustainability</i>	06 Jul. 2015
Investigating coupled subglacial hydrologic and ice dynamic evolution using ground- and satellite-based observations	
<i>Center for Climate Sciences Research Seminar, NASA-JPL</i>	19 Jun. 2015
Using CryoSat-2 to retrieve dynamic surface changes (& observations of stick-slip motion)	
<i>IGPP Geodesy Seminar, Scripps Institution of Oceanography</i>	22 Apr. 2015
A decade of progress observing and modeling Antarctic subglacial water systems	
<i>Subglacial Antarctic lake exploration: first results and future plans, The Royal Society</i>	
<i>[H. Fricker invited; M.R.S. presented]</i>	30 Mar. 2015
Understanding the Antarctic Slip 'n' Slide	
<i>Scripps Donor Brunch, Scripps Institution of Oceanography</i>	1 Mar. 2015
Highlights and reflections on The Workshop and beyond	
<i>CMBC Brown Bag, Scripps Institution of Oceanography</i>	3 Jun. 2014
Instability of the Amundsen Sea Embayment	
<i>Climate Journal Club, Scripps Institution of Oceanography</i>	22 May 2014
WISSARD: Progress, Pictures, and Prospects	
<i>Scripps Polar Seminar, Scripps Institution of Oceanography</i>	4 Jun. 2013
GLAS accuracy and elevation change at Summit, Greenland	
<i>Geolunch Brown Bag Series, Dartmouth College</i>	11 May 2010

PROFESSIONAL COMMITTEE SERVICE

SERVICE

- Ice Drilling Program Science Advisory Board, Member, 2023–present
- NASA ICESat-2 Mission, Science Team, Member, 2021–present
- IRIS/UNAVCO, Polar Science Technology, Co-Chair, 2021–present
- IRIS/UNAVCO, Polar Science Technology Committee, Member, 2018–2020
- NASA IceBridge Mission, Science Team, Member, 2017–2020
- American Meteorological Society Committee on Polar Meteorology and Oceanography, Member, Jan. 2017–2020
- OpenAltimetry User Working Group, Member, Jun. 2017–present
- NASA ICESat-2 Science Definition Team, Participant, 2011–2020

Editorial Service

- Scientific Editor, *Journal of Glaciology*, 2019–present
- Section Editor for Cryosphere, *Encyclopedia of Ocean Sciences*, 3rd Ed.

Referee Service

- Journals: *Nature*, *Nature Geoscience*, *Nature Communications*, *Geophysical Research Letters*, *Journal of Glaciology*, *Annals of Glaciology*, *The Cryosphere*, *IEEE Transactions on Geoscience and Remote Sensing*, *IEEE Geoscience and Remote Sensing Letters*, *Remote Sensing of Environment*, *International Journal of Remote Sensing*, *Journal of Applied Remote Sensing*
- Proposals: *NASA Earth Science* (panel member, ad hoc), *NASA Earth Science Data Systems* (panel member), *NASA Planetary Science* (panel member), *NASA Science Mission Directorate* (panel member), *NSF Antarctic Sciences* (ad hoc), *Royal Society of New Zealand* (ad hoc), *UK Natural Environment Research Council* (ad hoc), *Netherlands Space Office* (ad hoc)

Conference Service

- Organizing Committee: *West Antarctic Ice Sheet Workshop*, 2019–present.
- Local Organizing Committee: *International Symposium on Five Decades of Radioglaciology* (International Glaciological Society, Stanford, CA, 24–28 Jun. 2019); *International Symposium on Interactions of Ice Sheet and Glaciers with the Ocean* (IGS/FRISP, La Jolla, CA, 10–15 Jul. 2016); *Ice Sheet System Model Workshop* (JPL/ NASA, La Jolla, CA, May 2016), *Scripps Student Symposium* (SIO, La Jolla, CA, 24 Sep. 2015); *ICESat-2 Science Definition Team Meeting* (NASA, La Jolla, CA, 24–25 Feb. 2015); *Sea Level Change Team PI Meeting* (NASA, La Jolla, CA, 14–16 Oct. 2014), *West Antarctic Ice Sheet Workshop* (NSF/NASA, Julian, CA, 24–27 Sep. 2014); *International Symposium on Interactions of Ice Sheet and Glaciers with the Ocean* (IGS/FRISP, La Jolla, CA 5–10 Jun. 2011)
- Session Chair: *Archives and Observations From Sub-Ice Environments* (AGU Fall Meeting 2021, 2022, 2023); *Sub-Ice-Sheet and Sub-Ice-Shelf Environments: Bridging the Gap Between Modern Observations and Geologic Records* (AGU Fall Meeting 2019, 2020); *Cryosphere/Sea-Level* (2018 UNAVCO Science Workshop); *Advances in understanding processes at the beds of glaciers and ice sheets* (AGU Fall Meeting 2015, 2016, 2017); *IgniteIGS—Early career perspectives on the future of ice-ocean research* (IGS La Jolla 2016); *Greenland Run-off* (IGS La Jolla 2016)
- Judging: *Flash Freeze Cryosphere Innovation Award for Students* (AGU Fall Meeting 2017); *Outstanding Student Presentation Award* (AGU Fall Meeting 2017)

White Papers

- *CryoCloud: Accelerating Discovery for NASA Cryosphere Communities with Open-Cloud Infrastructure*, submitted to NASA NNH23ZDA005L: Request for Information: Scientific Data and Computing Architecture to Support Open Science, 2023. [available [here](#)]
- *2021 Antarctic Subsea Cable Workshop Report: High-Speed Connectivity Needs to Advance US Antarctic Science*, submitted to National Science Foundation Office of Polar Programs, 2021.

- *Dive, Dive, Dive: Accessing the Subsurface of Ocean Worlds*, submitted to the NASA Planetary Science Decadal Survey, 2020.
- *Early Career Community Vision For Future Magnetotelluric Facility*, submitted to the National Science Foundation in preparation for a competition for a future unified geophysical facility, 2020.
- *An Early Career Investigator Community Vision for the Future NSF Geophysical Facility: Instrumentation Services Needs*, submitted to the National Science Foundation in preparation for a competition for a future unified geophysical facility, 2020.
- *Assessment of East Antarctic Ice Sheet sensitivity to warming and its potential for contributions to sea level rise*, submitted to U.S. Ice Drilling Program Subglacial Access Working Group, 2019.
- *Access Drilling Priorities in the Ross Ice Shelf Region*, submitted to U.S. Ice Drilling Program Subglacial Access Working Group, 2019.
- *How much, how fast? A decadal science plan quantifying the rate of change of the West Antarctic Ice Sheet now and in the future*, submitted to NSF Office of Polar Programs, 2016.

Outreach

- Research highlighted in press released from multiple institutions, including the [National Science Foundation](#), [Colorado School of Mines](#).
- Research highlighted in press releases from multiple institutions, including the [National Science Foundation](#), [University of Colorado, Boulder](#), and [Scripps Institution of Oceanography](#).
- Quoted in “[Scientists Just Melted a Hole Through 3,500 Feet of Ice to Reach a Mysterious Antarctic Lake](#)” ([Earther](#), 31 Dec. 2018)
- Featured in “[The Machines That Spy on Antarctica’s Hidden Lakes](#)” ([Earther](#), 19 Dec. 2018)
- Measuring the Earth with Space Lasers: ICESat-2, NASA’s newest mission, [Clarence Ruth Elementary School, Lompoc, CA](#) (13 Sept. 2018)
- Developed exhibit “Understanding Ice: Antarctica in 360” for Stanford Library’s Earth Day 2018 symposium (24 Apr. 2018)
- Worked with U.S. Senator Lisa Murkowski’s DC staff to highlight Operation IceBridge’s work in her home state of Alaska ([Facebook](#), 17 Mar. 2017)
- Featured in “Science fest at South Pole: Scripps Institution of Oceanography participating in eight studies, leading seven, in Antarctica this winter” ([San Diego Union Tribune](#), Page B1, 16 Oct. 2016)
- Featured in “What Are You Doing This (Austral) Summer?” ([UC San Diego News](#), 6 Oct. 2016)
- Invited panelist for “A Deep Dive in Ocean and Climate Science”, hosted by U.S. Department of State at the COP21 Summit, Paris, France; [available on YouTube](#) (9 Dec. 2015)
- Live Q&A on [nature.com](#): “Life on the ice” (13 Nov. 2015)
- Fieldwork weblog: “Antarctic Journal” ([Nature News](#), Oct.–Dec. 2015)
- Participated in briefing for Congressman Scott Peters (CA-52) on current climate change research (18 Feb. 2015)
- Featured in “Scripps Grad Students Attend Sustainability Conference at the Vatican” ([explorations now](#), 3 Jul. 2014)
- Radio interview: “Maybe Next Year? Antarctic Research Suspended Under Government Shutdown” ([KPBS News](#), 10 Oct. 2013)
- TV interview: “Government Shutdown’s Impact on San Diegans” ([NBC7 San Diego Evening News](#), 1 Oct. 2013)
- Ocean Beach Elementary, 3rd and 4th Grade, 7 Jun. 2013
- Featured in “At the Ends of the Earth” ([Triton Magazine](#), May 2013)
- Featured in “Drilling into the Unknown” ([explorations now](#), 11 Jan. 2013)
- Ocean Beach Elementary, 3rd and 4th Grade, 26 Mar. 2012

Mines Geophysics Undergraduate Advisory Committee, 2022–present
 Mines Geophysics Field Camp Director, 2021–present
 Mines Geophysics ReImagine Committee, 2021–present
 Mines Geophysics Safety Committee, 2021–present
 Geophysics GP100@100 Fundraising , 2021–present
 Geophysics Diversity, Inclusion, & Access Committee, committee chair, 2019–present
 Mines Diversity Council, 2019–present
 Mines Field Session Compensation Task Force, 2022
 Geophysics Graduate Advisory Committee, member, 2019–2022
 Faculty Search Committee: Computational Science & Data Analytics Cluster, 2020–21
 Applied Data Science & Machine Learning, subcommittee chair
 Computation Hydrology, subcommittee member
 #idigmines, department representative, 2019–2020
 Faculty Search Committee: Geophysical Data Science, 2019–2020

Stanford University

Postdoctoral Scholar Committee for School of Earth Strategic Plan, member, 2017

Scripps Institution of Oceanography

Leadership Committee for Peer Mentor Program, founding student member, 2014–2016
 Scripps Polar Seminar, lead organizer, 2013–2016
 Scripps Earth Section Seminar, co-organizer 2012–2013

Dartmouth College

Faculty Search Committee: Geomorphology, student representative, 2008
 Faculty Search Committee: Remote Sensing student representative, 2007

SIGNIFICANT	Pingo Canadian Landmark, Surface Geophysics	2023
FIELD	<i>Mines Lead</i>	
EXPERIENCE	Alaskan North Slope, Surface Geophysics	2021
	<i>Mines Lead</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2019–2020
	<i>Expedition Lead, Field Medic</i>	
	Greenland, Airborne Geophysics (Operation IceBridge)	2019
	<i>Mission Science Team member visit</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2018–2019
	<i>Expedition Lead, Field Medic</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2017–2018
	<i>Expedition Lead, Field Medic</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2016–2017
	<i>Expedition Lead, Field Medic</i>	
	Ross Ice Shelf, Antarctica, Airborne Geophysics	2015
	<i>Flight Scientist, Data Engineer</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2014–2015
	<i>Expedition Lead, Field Medic</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2013–2014
	<i>GPS Team Leader, Field Medic</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2012–2013
	<i>Surface Geophysics Team Leader, Field Medic</i>	
	Whillans Ice Plain, West Antarctica, Surface Geophysics	2011–2012
	Northern New Mexico, Southern Colorado, Geology and Geomorphology	2010
	<i>Field Trip Organizer and Leader</i>	
	Cherryfield, Maine, Fluvial Geomorphology & Riparian Habitat Surveying	2009
	Banff National Park, Alberta, Canada, Glaciology	2008

Montana, Idaho, Eastern Washington, Geology	2008
Ischia Island, Italy, in situ Geochemical Analysis	2008
Puerto Rico, Soil and Water Sampling	2007
Western United States, Dartmouth Earth Sciences Field Camp	2006
Hawaii, Volcanology and Remote Sensing	2006

HONORS AND AWARDS**Colorado School of Mines**

Diversity Progress Report President's Choice Award, 2023
Mines Research Council's Excellence in Research Award (Junior Faculty), 2022–2023
Mines Earth & Society Programs Outstanding Assistant Professor Award, 2022–2023
University Public Policy Fellow, inaugural cohort, 2022–2023
Outstanding Mines Faculty Award, 2021–2022
Department of Geophysics T.K. Young Geophysics Leadership Award, 2021

National Science Foundation

NSF CAREER Award recipient, 2022
Mentor for NSF Graduate Research Fellowship Program recipient (H. Verboncoeur), 2022

National Aeronautics and Space Administration

Robert H. Goddard Award as part of the Operation IceBridge Science Team, 2020
Group Achievement Award as part of the ICESat-2 Mission Science Team, 2020

National Sciences and Engineering Research Council of Canada

Mentor for NSERC Graduate Scholarship–Doctoral Recipient (E. Savidge), 2021

American Geophysical Union

Editors' Citation for Excellence in Refereeing, Geophysical Research Letters, 2019

West Antarctic Ice Sheet Workshop

Mentor for Best Student Presentation recipient (H. Verboncoeur), 2021
Best Student Presentation recipient, 2013

Scripps Institution of Oceanography

Student Video Challenge award winner, 2014
Director's Cabinet Quarterly Meeting invited presenter, May 2014

Pontifical Academy of Sciences/Pontifical Academy of Social Sciences

Sustainable Humanity, Sustainable Nature: Our Responsibility
Joint Workshop invited observer, May 2014

United States Congress

Antarctic Service Medal recipient, 2012

Dartmouth College

NASA Space Grant Graduate Student Award, 2010
Assistant Curator for Dana Collection of Minerals, 2007–2008

PROFESSIONAL American Geophysical Union, 2008–present

MEMBERSHIPS International Glaciological Society, 2010–present

Society for Advancement of Chicanos/Hispanics and Native Americans in Science
2019–present

Institute of Electrical and Electronics Engineers, 2020–present

American Meteorological Society, 2017–2019

Sigma Xi, 2023–present

CONFERENCE

* indicates student or postdoctoral advisee

ABSTRACTS

† indicates M.R.S. presenting author

‡ indicates contributed equally as co-first author

- [224] *Alfaraj, H., S. B. Zaqr*, C. Thomas*, B. S. Murphy, A. Miller*, B. Mullett, B. Passerella, B. Dugan, **M. R. Siegfried** and Colorado School of Mines 2023 Geophysics Field Camp, 2023. Magnetotelluric Imaging of the Northern Extension of the Rio Grande Rift in Colorado, *AGU Fall Meeting*.

- [223] Bryant, M., A. Borsa, C. C. Masteller, R. J. Michaelides*, **M. R. Siegfried** and A. Young, 2023. Mapping coastal morphology and retreat rates along the Beaufort Sea Coast using high-resolution satellite elevation measurements, *AGU Fall Meeting*.
- [222] *Follingstad, V., R. J. Michaelides*, **M. R. Siegfried**, K. Hughson, J. Bradford, A. Kubas, E. Quartini, A. Mullen, A. Routt, B. Schmidt, H. G. Sizemore and A. Swidinsky, 2023. Quantifying the Surface Deformation of Pingos on the Alaskan North Slope using Interferometric Synthetic Aperture Radar (InSAR), *AGU Fall Meeting*.
- [221] *Howard, J., J. McCall*, B. S. Murphy, J. D. Pepin, A. Miller*, B. Mullett*, B. Passerella, B. Dugan, **M. R. Siegfried** and Colorado School of Mines 2023 Geophysics Field Camp, 2023. Shallow Magnetotelluric Soundings for Developing a Hydrogeological Conceptual Model of the Steamboat Basin and North Park, Colorado, *AGU Fall Meeting*.
- [220] Hughson, K., B. Schmidt, **M. R. Siegfried**, J. Bradford, A. Kubas, A. Routt, V. Follingstad*, R. J. Michaelides*, A. Swidinsky, A. Mullen, E. Quartini and H. G. Sizemore, 2023. Exploring the Diversity of Pingo Morphology and Structure: A Comparative Analysis of Pingos in the Alaskan and Canadian Arctics, *AGU Fall Meeting*.
- [219] Kubas, A., A. Routt, K. Hughson, **M. R. Siegfried**, J. Bradford, V. Follingstad*, A. D. Mullen, A. Swidinsky, E. Quartini, H. G. Sizemore, R. J. Michaelides* and B. Schmidt, 2023. Exploring Alien Ice Hills: Terrestrial Pingos as Analogs for Planetary Hydrology, *AGU Fall Meeting*.
- [218] *Michaelides, R. J., **M. R. Siegfried**, J. Lovekin, K. Berry, D. L. Roth and B. Dugan, 2023. Wildfire Progression Time Series Mapping with Interferometric Synthetic Aperture Radar (InSAR), *AGU Fall Meeting*.
- [217] *Miller, A., H. Verboncoeur*, E. Reddy and **M. R. Siegfried**, 2023. Glaciers in the South: A Comprehensive Framework for Evaluating Public School District Capacities for Cryosphere Education, *AGU Fall Meeting*.
- [216] Noh, K., A. Swidinsky, K. Hughson, B. Schmidt, **M. R. Siegfried**, J. Bradford, A. Kubas, E. Quartini, A. Routt, V. Follingstad*, R. J. Michaelides*, A. Mullen and H. G. Sizemore, 2023. Can time-domain electromagnetics be used to characterize cryo-hydrogeological systems on Mars and Ceres? Insights from the Canadian Arctic, *AGU Fall Meeting*.
- [215] Ryan, J., B. Medley, C. M. Stevens, T. C. Sutterley and **M. R. Siegfried**, 2023. Role of snowfall on Greenland Ice Sheet melt-albedo feedbacks, *AGU Fall Meeting*.
- [214] Wagner, T. J. W., N. Sartore, N. Pujara, **M. R. Siegfried** and L. Zoet, 2023. The role of footloose-type calving at the front of the Ross Ice Shelf, *AGU Fall Meeting*.
- [213] *Sauthoff, W., **M. R. Siegfried**, B. E. Smith and R. Venturelli, 2023. Altimetry-based, surface-deformation delineation algorithm reveals tens of new active subglacial lake candidates across Antarctica, *AGU Fall Meeting*.
- [212] *Savidge, E., T. Snow* and **M. R. Siegfried**, 2023. Multi-decadal Record of Sensible-Heat Polynya Variability from Satellite Optical and Thermal Imagery at Pine Island Glacier, West Antarctica, *AGU Fall Meeting*.
- [211] Schroeder, D. M. and **M. R. Siegfried**, 2023. Enabling Subglacial Geodesy Through High-Precision Radar Sounding and GNSS Time Series Observations, *AGU Fall Meeting*.
- [210] **Siegfried, M. R.**, L. Miller, K. A. Christianson, I. Das, J. A. MacGregor, E. MacKie, B. Medley and P. D. Neff, 2023. Centering community at scientific meetings: 30 years of the West Antarctic Ice Sheet Workshop, *AGU Fall Meeting*, [invited].
- [209] Smith, B. E., B. Medley, T. C. Sutterley, N. Holschuh, **M. R. Siegfried** and T. Neumann, 2023. Mass balance of Antarctica and Greenland from two decades of laser-altimetry measurements, *AGU Fall Meeting*.
- [208] *Snow, T., **M. R. Siegfried**, M. Zhao, A.-S. Zinck, W. Sauthoff*, L. Bachelot, S. L. Howard, L. Padman, A. Harris, S. Grigsby, E. Abrahams*, W. Zheng and W. Abdalati,

2023. Observing persistent polynyas at the Antarctic coastline with year-round ICESat-2 surface elevations and Landsat temperature fields, *AGU Fall Meeting*.
- [207] *Snow, T., J. D. Millstein*, W. Sauthoff*, J. Scheick, J. Colliander, W. J. Leong, J. Munroe, F. Perez, D. Felikson, T. C. Sutterley, M. Fisher, F. Sapienza, E. Abrahams, W. Zheng and **M. R. Siegfried**, 2023. Accelerating scientific discovery for NASA Cryosphere communities with the CryoCloud JupyterHub, *AGU Fall Meeting*.
- [206] *Snow, T., J. Millstein*, W. Sauthoff*, J. Scheick, W. J. Leong, J. Colliander, J. Munroe, F. Perez, D. Felikson, T. C. Sutterley, M. Fisher, F. Sapienza, E. Abrahams, W. Zheng and **M. R. Siegfried**, 2023. CryoCloud JupyterHub for NASA Cryosphere communities: Open science in the cloud as a process, not a product, *AGU Fall Meeting*.
- [205] Tarzona, A., W. Chu, H. Verboncoeur*, **M. R. Siegfried**, D. M. Schroeder, A. Altaweel, B. Amaro and K. Tran, 2023. Improved Vertical Calibration of the Historical SPRI-NSF-TUD Airborne Radar Echo Sounding Ice Thickness Measurements at Ross Ice Shelf, Antarctica, *AGU Fall Meeting*.
- [204] Venturelli, R., W. Sauthoff*, **M. R. Siegfried**, T. J. Vick-Majors, C. Davis and B. E. Rosenheim, 2023. Antarctic subglacial lakes as repositories of Holocene ice-ocean interaction, *AGU Fall Meeting*.
- [203] *Verboncoeur, H., **M. R. Siegfried**, J. P. Winberry, N. Holschuh, D. Byrne*, W. Sauthoff*, T. C. Sutterley and B. Medley, 2023. Multidecadal signals of dynamic thickness change in the Cray Ice Rise region driven by century-scale reorganization of the southern Ross Sea sector ice streams, *AGU Fall Meeting*.
- [202] Sartore, N., T. Wagner, N. Pujara, **M. R. Siegfried** and L. Zoet, 2023. The role of footloose-type calving at the front of the Ross Ice Shelf, *West Antarctic Ice Sheet Workshop*.
- [201] *Savidge, E., T. Snow* and **M. R. Siegfried**, 2023. Multi-decadal Record of Sensible-Heat Polynya Variability from Satellite Optical and Thermal Imagery at Pine Island Glacier, West Antarctica, *West Antarctic Ice Sheet Workshop*.
- [200] *Snow, T., **M. R. Siegfried**, M. Zhao, A.-S. Zinck, W. Sauthoff*, L. Bachelot, S. Howard, L. Padman, A. Harris, S. Grigsby, E. Abrahams*, W. Zheng and W. Abdalati, 2023. Observing persistent polynyas at the Antarctic coastline with year-round ICESat-2 surface elevations and Landsat temperature fields, *West Antarctic Ice Sheet Workshop*.
- [199] Tarzona, A., W. Chu, H. Verboncoeur*, **M. R. Siegfried**, D. Schroeder, A. Altaweel, B. Amaro and K. Tran, 2023. Extraction of Ice Thickness Measurements from Digitized Historical SPRI-NSF-TUD Airborne Radar Echo Sounding at Ross Ice Shelf, Antarctica through Computer Vision Algorithms, *West Antarctic Ice Sheet Workshop*.
- [198] Schroeder, D. M. and **M. R. Siegfried**, 2023. Enabling Subglacial Geodesy Through High-Precision Radar Sounding and GNSS Time Series Observations, *Scientific Committee on Antarctic Research INSTabilities & Thresholds in ANTArctic (INSTANT) Conference 2023*.
- [197] **Siegfried, M. R.**, M. Dinniman and W. Sauthoff*, 2023. Tracing Antarctic freshwater from the grounding zone to the ice front in the Ross Embayment, *Scientific Committee on Antarctic Research INSTabilities & Thresholds in ANTArctic (INSTANT) Conference 2023*.
- [196] **Siegfried, M. R.**, M. Dinniman and W. Sauthoff*, 2023. Tracing Antarctic freshwater from the grounding zone to the ice front in the Ross Embayment, *Southern Ocean Observing System Symposium 2023: Southern Ocean in a Changing World*.
- [195] Rosenheim, B., R. Venturelli, C. Davis, A. Michaud, B. Boehman, B. Christner, V. Galy, D. Harwood, A. Leventer, W. Li, Z. Liu, T. Vick-Majors, **M. R. Siegfried**, J. Priscu and the SALSA Science Team, 2023. Millennial scale marine incursion into an isolated environment fuels a contemporary subglacial microbial community beneath the West

Antarctic Ice Sheet, *Geochemical Society Goldschmidt Conference*.

- [194] *Sauthoff, W., **M. R. Siegfried** and B. E. Smith, 2023. Surface-deformation delineation algorithm reveals subglacial lake candidates and underestimates of subglacial volume fluxes, *International Glaciology Society Symposium on the Edges of Glaciology*.
 - [193] **Siegfried[†], M. R.**, R. A. Venturelli[†], M. O. Patterson, W. Arnuk, T. D. Campbell, C. D. Gustafson, A. B. Michaud, B. K. Galton-Fenzi, M. B. Hausner, S. N. Holzschuh*, B. Huber, K. D. Mankoff, D. M. Schroeder, P. Summers, S. Tyler, S. P. Carter, H. A. Fricker, D. M. Harwood, A. Leventer, B. E. Rosenheim, M. L. Skidmore, J. C. Priscu and the SALSA Science Team, 2023. The life and death of a subglacial lake in West Antarctica, *International Glaciology Society Symposium on the Edges of Glaciology*.
 - [192] *Verboncoeur, H., **M. R. Siegfried**, J. P. Winberry, N. Holschuh and W. Sauthoff*, 2023. Multidecadal signals of dynamic thickness change in the Crary Ice Rise region driven by century scale reorganization of the Siple Coast ice Streams, *2nd Annual Colorado Glaciology Workshop*.
 - [191] *Snow, T., J. Millstein*, W. Sauthoff*, J. Colliander, C. Holdgraf, F. Pérez and **M. R. Siegfried**, 2023. Accelerating Discovery for NASA Cryosphere Communities with Jupyter-Hub, *JupyterCon*.
 - [190] *Snow, T., J. Millstein*, W. Sauthoff*, J. Colliander, C. Holdgraf, F. Pérez and **M. R. Siegfried**, 2023. Accelerating Discovery for NASA Cryosphere Communities with Open-Cloud Infrastructure, *American Meteorological Society Annual Meeting*.
- 2022
- [189] *Abrahams, E., T. Snow*, E. Lee*, W. Zheng, M. Field*, E. Savidge*, F. Sapienza, S. Grigsby*, J. Taylor, **M. R. Siegfried**, and F. Pérez, 2022. Automated Detection of West Antarctic Persistent Polynyas with Multiband Remote Sensing Imagery, *AGU Fall Meeting*.
 - [188] Bryant, M., E. J. Anderson, A. A. Borsa, C. C. Masteller, R. J. Michaelides*, **M. R. Siegfried** and A. Young, 2022. Integrating ICESat-2 altimetry, optical imagery, and digital elevation models to measure erosion rates and coastal morphology along the Alaskan Beaufort Sea Coast, *AGU Fall Meeting*.
 - [187] *Field, M., T. Snow*, E. Abrahams*, E. Lee*, C. Baumhoer and **M. R. Siegfried**, 2022. Mapping Ice Shelf Calving Fronts at Thwaites Glacier using Deep Learning and Satellite Imagery in a Cloud-Based Workflow, *AGU Fall Meeting*.
 - [186] Medley, B., T. C. Sutterley, M. E. Dattler, J. Lenaerts, T. B. Overly, J. Ryan, **M. R. Siegfried**, C. M. Stevens, M. Thompson-Munson and N. Wever, 2022. Constraining surface mass balance, firn air content, ICESat-2 volume change, and GRACE/-FO mass change to improve ice-sheet mass balance estimates, *AGU Fall Meeting*.
 - [185] Roth, D. L., G. Jin, M. Bezada, A. Titov, C. C. Masteller, B. Tate and **M. R. Siegfried**, 2022. The Sound of Water: Spatially Continuous River Monitoring Through Distributed (Hydro)Acoustic Sensing, *AGU Fall Meeting*.
 - [184] *Sauthoff, W., **M. R. Siegfried** and B. E. Smith, 2022. CryoSat-2/ICESat-2 integrated time series and comparison of shoreline evolution in Antarctic active subglacial lakes, *AGU Fall Meeting*.
 - [183] *Savidge, E., T. Snow*, **M. R. Siegfried**, Y. Zheng, B. Villas Bôas, G. Bortolotto, L. Boehme and K. E. Alley, 2022. Wintertime Polynya Structure and Variability at Pine Island Glacier, West Antarctica, from Thermal Remote Sensing and Seal-borne Observations, *AGU Fall Meeting*.
 - [182] Stubblefield, A. G., W. Sauthoff*, **M. R. Siegfried**, M. W. Spiegelman and C. Meyer, 2022. Reconstructing subglacial lake activity with physics-based altimetry inversions, *AGU Fall Meeting*.

- [181] *Snow, T., A. Wählin, B. Queste, G. Bortolotto, L. Boehme, E. Savidge*, E. Abrahams, **M. R. Siegfried** and W. Abdalati, 2022. Pairing eyes in the sky with instruments in the deep: mapping the Antarctic Coastal Current in the Amundsen Sea, *AGU Fall Meeting*.
- [180] Tarzona, A., W. Chu, H. Verboncoeur*, **M. R. Siegfried**, D. M. Schroeder, L. Combs, A. Prabu, A. Altaweel and K. Tran, 2022. Geographical Repositioning Efforts and Vertical Calibration of Z-scopes from SPRI-NSF-TUD surveys at Ross Ice Shelf, Antarctica, *AGU Fall Meeting*.
- [179] Venturelli, R., B. Boehman, C. Davis, J. Hawkings, S. E. Johnston, C. Gustafson, A. B. Michaud, C. Mosbeux, **M. R. Siegfried**, T. Vick-Majors, V. Galy, R. G. Spencer, S. Warny, B. Christner, J. E. Dore, H. A. Fricker, D. M. Harwood, A. Leventer, J. C. Priscu, M. L. Skidmore, B. E. Rosenheim and the SALSA Science Team, 2022. Constraints on the Timing and Extent of Deglacial Grounding Line Retreat in West Antarctica from Subglacial Sediments, *AGU Fall Meeting*.
- [178] *Verboncoeur, H., **M. R. Siegfried**, P. Winberry, N. Holschuh, A. Tarzona, W. Chu and D. Schroeder, 2022. Leveraging Multidecadal Remote Sensing Data to Evaluate Interactions Between Century-Scale Ice-Dynamics and the Local Evolution of Crary Ice Rise, *AGU Fall Meeting*.
- [177] Zheng, W., F. Pérez, C. Holdgraf, E. Sundell, **M. R. Siegfried**, T. Snow*, S. Grigsby, F. Sapienza, J. Taylor and the Executable Books Community, 2022. Jupyter Book-based Supplemental Material: a FAIR Practice to Connect Research Articles with Scientific Data, *AGU Fall Meeting*.
- [176] Zheng, W., F. Sapienza, **M. R. Siegfried**, S. Grigsby, T. Snow*, F. Pérez and J. Taylor, 2022. Mapping dynamic mass loss by fully decomposing glacier elevation change, *AGU Fall Meeting*.
- [175] Millstein, J., T. Snow*, W. Sauthoff*, J. Colliander, C. Holdgraf, F. Pérez, T. Sutterley and **M. R. Siegfried**, 2022. Accelerating Discovery for NASA Cryosphere Communities with Open-Cloud Infrastructure, *ICESat-2 Open Science Conference*.
- [174] *Sauthoff, W., **M. R. Siegfried** and B. E. Smith, 2022. ICESat-2-extended time series of subglacial volume fluxes using time-variable shorelines of Antarctic active subglacial lakes, *ICESat-2 Open Science Conference*.
- [173] **Siegfried**[†], **M. R.**, R. A. Venturelli[†], M. O. Patterson, W. Arnuk, T. D. Campbell, C. D. Gustafson, A. B. Michaud, B. K. Galton-Fenzi, M. B. Hausner, S. N. Holzschuh*, B. Huber, K. D. Mankoff, D. M. Schroeder, P. Summers, S. Tyler, S. P. Carter, H. A. Fricker, D. M. Harwood, A. Leventer, B. E. Rosenheim, M. L. Skidmore, J. C. Priscu and the SALSA Science Team, 2022. The life and death of a subglacial lake in West Antarctica, *ICESat-2 Open Science Conference*.
- [172] *Snow, T., W. Sauthoff*, M. Zhao, L. Bachelot, A.-S. Zinck and **M. R. Siegfried**, 2022. A tale at the coastline: paired year-round ICESat-2 and Landsat thermal infrared observations of persistent polynyas, *ICESat-2 Open Science Conference*.
- [171] Hughson, K. H., B. E. Schmidt, E. Quartini, R. Michaelides*, **M. R. Siegfried**, A. Mullen, J. H. Bradford, J. Scully, A. Swidinsky and H. G. Sizemore, 2022. Terrestrial Pingos as morphometric and geophysical analogs for small hills on Ceres, *GSA Connects Annual Meeting*.
- [170] *Sauthoff, W., **M. R. Siegfried** and B. E. Smith, 2022. Variable shorelines of Antarctic active subglacial lakes reveal large underestimates of subglacial volume fluxes, *GSA Connects Annual Meeting*.
- [169] Robel, A., C. Meyer, J. Sim, **M. R. Siegfried** and C. Gustafson, 2022. Potentially Significant Water Exfiltration from Subglacial Till Driven by Contemporary Ice Sheet Thinning, *West Antarctic Ice Sheet Workshop*.
- [168] *Snow, T., A. Wählin, B. Queste, G. Bortolotto, L. Boehme, E. Savidge*, E. Abrahams,

- M. R. Siegfried** and W. Abdalati, 2022. Pairing eyes in the sky with instruments in the deep: mapping the Antarctic Coastal Current in the eastern Amundsen Sea, *West Antarctic Ice Sheet Workshop*.
- [167] Tarzona, A., W. Chu, H. Verboncoeur*, **M. R. Siegfried**, D. Schroeder, L. Combs, A. Altaweel, A. Prabu and K. Tran, 2022. Archival airborne radio-echo sounding data geographical repositioning and calibration progress at Ross Ice Shelf, Antarctica, *West Antarctic Ice Sheet Workshop*.
- [166] *Verboncoeur, H., **M. R. Siegfried**, P. Winberry, N. Holschuh, A. Tarzona, W. Chu and D. Schroeder, 2022. Multidecadal surface elevation anomalies of the Crary Ice Rise region from combined ICESat, CryoSat-2, and ICESat-2 altimetry, *West Antarctic Ice Sheet Workshop*.
- [165] Zheng, W., F. Pérez, E. Abrahams, S. Grigsby*, F. Sapienza, **M. R. Siegfried**, T. Snow* and J. Taylor, 2022. Recent thinning and speed-up may make the upper Pine Island Glacier more prone to diffusive thinning, *West Antarctic Ice Sheet Workshop*.
- [164] *Savidge, E., T. Snow*, **M. R. Siegfried**, Y. Zheng, A. B. V. Bôas, G. A. Bortolotto, L. Boehme and K. E. Alley, 2022. Linking thermal remote sensing and seal-borne measurements to investigate wintertime polynya structure and variability at Pine Island Glacier, West Antarctica, *International Symposium on Ice, Snow and Water in a Warming World*.
- [163] *Snow, T., A. Wählin, B. Queste, G. Bortolotto, L. Boehme, E. Savidge*, E. Abrahams, **M. R. Siegfried** and W. Abdalati, 2022. Persistent polynya variability infers basal channel outflow at the Eastern Thwaites Ice Shelf, *International Symposium on Ice, Snow and Water in a Warming World*.
- [162] *Snow, T., M. Field*, E. Abrahams, F. Sapienza, W. Zheng, E. Savidge*, F. P. J. Taylor, W. Abdalati, T. Scambos and **M. R. Siegfried**, 2022. Single channel and split-window SSTs from Landsat in Antarctica, *GHRSS23 International Science Team Meeting*.
- [161] Bradford, J. H., **M. R. Siegfried**, R. Michaelides*, B. Schmidt, K. Hughson, H. Sizemore and A. Swidinsky, 2022. Detailed mapping of the internal structure of Arctic pingos using ground-penetrating radar, *19th International Conference on Ground Penetrating Radar*.
- [160] *Hubbard, K. A., **M. R. Siegfried**, W. Sauthoff* and B. Dugan, 2022. Integrating visual imagery and modeling to assess groundwater connectivity in Antarctica's Taylor Valley, *AGU Frontiers in Hydrology Meeting*.
- [159] *Sauthoff, W., **M. R. Siegfried** and B. E. Smith, 2022. Antarctic subglacial lake shoreline migration and variability in response to fill-drain cycles, *AGU Frontiers in Hydrology Meeting*.
- [158] **Siegfried**[†], **M. R.**, R. A. Venturelli[†], M. O. Patterson, W. Arnuk, T. Campbell, C. D. Gustafson, A. Michaud, B. Galton-Fenzi, M. B. Hausner, S. N. Holzschuh*, B. Huber, K. Mankoff, D. M. Schroeder, P. Summers, S. Tyler, S. P. Carter, H. A. Fricker, D. Harwood, A. Leventer, B. E. Rosenheim, M. Skidmore, J. C. Priscu and the SALSA Science Team, 2022. The Life and Death of a Subglacial Lake in West Antarctica: A Process-to-Paleo Perspective, *AGU Frontiers in Hydrology Meeting*.
- [157] Roth, D., M. Zhang, V. Sahakian, J. Marshall, G. Jin, A. Titov, **M. R. Siegfried**, C. Masteller and H. Jacobson, 2022. Bridging the data gap: seismo-acoustic advances from ridgelines to rivers, *European Geosciences Union General Assembly*.
- [156] Vick-Majors, T. J., C. L. Davis, B. C. Christner, W. Li, J. E. Dore, M. Tranter, J. Barker, **M. R. Siegfried**, M. L. Skidmore, , J. C. Priscu and the SALSA Science Team, 2022. Physiochemical drivers of microbial ecosystems in Antarctic subglacial aquatic environments, *Joint Aquatic Science Meeting*.
- [155] Bradford, J. H., **M. R. Siegfried**, R. Michaelides*, B. Schmidt, K. Hughson, H. Sizemore and A. Swidinsky, 2022. Detailed mapping of the internal structure of Arctic pingos using ground-penetrating radar, *Polar Radar Science and Technology Conference*.

- [154] Pérez, F., E. Sundell, Y. Panda, E. Abrahams, A. Azari, S. Grigsby, C. Holdgraf, F. Sapienza, **M. R. Siegfried**, T. Snow*, J. Taylor and W. Zheng, 2022. Keeping your head in the clouds: reproducible, collaborative science with open cloud infrastructure, *EarthCube Annual Meeting*.
- [153] Zheng, W., C. Holdgraf, F. Pérez, E. Sundell, **M. R. Siegfried**, T. Snow*, S. Grigsby, F. Sapienza, J. Taylor and the Executable Books Community, 2022. Let supplemental material be FAIR: using narrative and reusable Jupyter Book to complement your journal paper, *EarthCube Annual Meeting*.
- 2021 [152] **Siegfried[‡], M. R.**, R. A. Venturelli[‡], M. O. Patterson, W. Arnuk, T. Campbell, C. D. Gustafson, A. B. Michaud, B. K. Galton-Fenzi, M. B. Hausner, S. N. Holzschuh*, B. Huber, K. Mankoff, D. M. Schroeder, P. Summers, S. Tyler, S. P. Carter, H. A. Fricker, D. Harwood, A. Leventer, B. E. Rosenheim, M. Skidmore, J. C. Priscu and the SALSA Science Team, 2021. The life and death of a subglacial lake in West Antarctica, *AGU Fall Meeting*.
- [151] *Michaelides, R. J., **M. R. Siegfried**, J. Lovekin, K. Berry, B. Dugan and D. L. Roth, 2021. Discrimination of Active and Inactive Burn Areas in the 2020 Cameron Peak Fire from Interferometric Synthetic Aperture Radar (InSAR) Time Series, *AGU Fall Meeting*.
- [150] *Savidge, E., T. M. Snow*, **M. R. Siegfried**, L. Boehme, G. Bortolotto and K. E. Alley, 2021. Investigating Persistent Polynya Structure and Variability at Pine Island Glacier, West Antarctica, Using Seal-borne Measurements and Thermal Remote Sensing, *AGU Fall Meeting*.
- [149] *Snow, T., F. Sapienza, S. Grigsby*, J. Taylor, E. Savidge*, W. Zheng, K. E. Alley, F. Perez and **M. R. Siegfried**, 2021. Basal channel outflow inferred from persistent polynya variability at the Eastern Thwaites Ice Shelf, *AGU Fall Meeting*.
- [148] Bienert, N. L., D. M. Schroeder, R. Sanda, E. Dawson, E. MacKie, S. T. Peters and **M. R. Siegfried**, 2021. Passively Synchronized Bistatic Radar System for Subsurface Tomography of Glaciers, *AGU Fall Meeting*.
- [147] Bryant, M., A. A. Borsa, R. J. Michaelides* and **M. R. Siegfried**, 2021. Exploring coupled surface hydrology and freeze-thaw dynamics around Toolik Lake, Alaska, using ICESat-2 and InSAR data, *AGU Fall Meeting*.
- [146] Gardner, A. S., S. Adusumilli, P. A. Arndt, K. Brunt, B. M. Csatho, D. Felikson, F. Paolo, H. A. Fricker, C. A. Greene, S. Kacimi, N. T. Kurtz, R. Kwok, B. Medley, T. Neumann, J. Nilsson, A. Petty, D. E. Shean, **M. R. Siegfried** and B. Smith, 2021. Surface Topography Observations Needed to Advance Cryosphere Science in the Coming Decades, *AGU Fall Meeting*.
- [145] Grigsby, S., F. Sapienza, W. Zheng, J. Taylor, T. Snow*, E. Savidge*, F. Perez and **M. R. Siegfried**, 2021. Mission in a minute: Complex Spatial Query and Data Access in the Cloud for the ICESat-2 Mission, *AGU Fall Meeting*.
- [144] Hawley, R. L., S. Grigsby*, G. Lewis and **M. R. Siegfried**, 2021. CrackMap: Automated Extraction of Crevasses from High-Resolution Optical Imagery using Edge Detection, *AGU Fall Meeting*.
- [143] Roth, D. L., G. Jin, A. Titov, **M. R. Siegfried**, C. C. Masteller and H. Jacobson, 2021. A river on fiber: capturing fluvial processes with distributed acoustic sensing, *AGU Fall Meeting*.
- [142] Sapienza, F., S. Grigsby*, W. Zheng, J. Taylor, F. Perez and **M. R. Siegfried**, 2021. Spectral Unmixing of Antarctic Snow Grain Size Distribution: A Data-Driven Perspective, *AGU Fall Meeting*.
- [141] Smith, B. E., T. C. Sutterley, S. Dickinson, B. P. Jelley, S. Adusumilli, H. A. Fricker, A. S. Gardner, N. Holschuh, T. Neumann, L. Padman and **M. R. Siegfried**, 2021. An introduction to ICESat-2's gridded land-ice products, *AGU Fall Meeting*.

- [140] Sutterley, T. C., B. Smith, K. Brunt, L. Padman, S. L. Howard, **M. R. Siegfried**, A. S. Gardner, H. A. Fricker, S. Adusumilli and N. Holschuh, 2021. Estimating Antarctic Grounding Zone Ice Flexure with ICESat-2 Data, *AGU Fall Meeting*.
- [139] *Follingstad, V., R. Michaelides* and **M. R. Siegfried**, 2021. Quantifying the surface deformation of pingos on the Alaskan North Slope using interferometric synthetic aperture radar (InSAR), *2021 Regional Conference on Permafrost & 19th International Conference on Cold Regions Engineering*.
- [138] *Michaelides, R. M., M. Bryant, A. A. Borsa and **M. R. Siegfried**, 2021. Quantifying Surface-Height Change over a Periglacial Environment with ICESat-2 Laser Altimetry, *2021 Regional Conference on Permafrost & 19th International Conference on Cold Regions Engineering*.
- [137] Hughson, K. H., B. E. Schmidt, E. Quartini, R. Michaelides*, **M. R. Siegfried**, A. Mullen, J. H. Bradford, A. Swidinsky and H. G. Sizemore, 2021. Pingos as planetary analogs: The geophysical perspective, *GSA Connects Annual Meeting*.
- [136] *Sauthoff, W., **M. R. Siegfried** and B. E. Smith, 2021. Observing connected subglacial lake drainage at Slessor Glacier, East Antarctica, using ICESat-2 laser altimetry, *WAIS Workshop*.
- [135] *Savidge, E., T. Snow*, **M. R. Siegfried**, L. Boehme, G. A. Bortolotto and K. E. Alley, 2021. Investigating persistent polynya structure and variability at Pine Island Glacier, West Antarctica, using seal-borne measurements and thermal remote sensing, *WAIS Workshop*.
- [134] *Snow, T., F. Sapienza, S. Grigsby*, J. Taylor, E. Savidge*, W. Zheng, K. Alley, F. Pérez and **M. R. Siegfried**, 2021. Eastern Thwaites basal channel outflow inferred from persistent polynya variability, *WAIS Workshop*.
- [133] Rosenheim, B. E., R. A. Venturelli, T. Campbell, C. Davis, **M. R. Siegfried**, C. Mosbeux, M. Patterson, A. Michaud, T. Vick-Majors, A. Leventer, M. Skidmore, B. Christner, D. Harwood, J. C. Priscu and the SALSA Science Team, 2021. Holocene marine incursion supports a subglacial microbial community in the active hydrologic system beneath the West Antarctic Ice Sheet, *26th International Symposium on Polar Sciences*.
- [132] Skidmore, M., J. Barker, B. Christner, C. Davis, J. E. Dore, C. Gardner, B. Gill-Olivas, A. Michaud, J. Hawkings, W. Li, W. B. Lyons, **M. R. Siegfried**, A. Steigmeyer, M. Tranter, T. J. Vick-Majors, J. C. Priscu and the SALSA Science Team, 2021. Solute sources and weather processes in subglacial lake systems beneath the West Antarctic Ice Sheet, *26th International Symposium on Polar Sciences*.
- [131] Summers, P. T., D. M. Schroeder and **M. R. Siegfried**, 2021. Constraining ice sheet basal sliding and horizontal velocity profiles using a stationary phase sensitive radar sounder, *IGARSS 2021: 2021 IEEE International Geoscience and Remote Sensing Symposium*.
- [130] Zheng, W., S. Grigsby*, F. Sapienza, J. Taylor, T. Snow*, F. Perez and **M. R. Siegfried**, 2021. Mapping ice flow velocity using an interactive, cloud-based feature tracking workflow, *Arctic Research Collaboration Workshop*.
- [129] Livingstone, S., H. Björnsson, J. Bowling, W. Chu, C. Dow, H. A. Fricker, Y. Li, M. McMillan, J. Mikucki, F. Ng, N. Ross, A. Rutishauser, R. Sanderson, M. Siegert, **M. R. Siegfried**, A. Sole and K. Winter, 2021. Global synthesis of subglacial lakes and their changing role in a warming climate, *EGU General Assembly*.
- 2020 [128] *Grigsby, S., F. Sapienza, T. Snow*, A. Cima, L. J. Heagy, **M. R. Siegfried**, F. Perez and J. Taylor, 2020. Spatio-Temporal Interpolation of Cloud Data, *AGU Fall Meeting*.
- [127] *Michaelides, R. J., R. H. Chen, K. M. Schaefer, A. Parsekian, G. V. Frost, Jr., T. D. Sullivan, H. A. Zebker, M. Moghaddam, S. Natali and **M. R. Siegfried**, 2020. Wildfire, permafrost, and vegetation interactions in a discontinuous permafrost region revealed by dual-frequency airborne radar observations, *AGU Fall Meeting*.

- [126] Bienert, N. L., D. M. Schroeder, S. T. Peters, E. MacKie, **M. R. Siegfried** and E. Dawson, 2020. Design of Direct Path Synchronized Bistatic Radar Technique for Long Offset Glacial Temperature Tomography, *AGU Fall Meeting*.
- [125] Bryant, M., A. A. Borsa, H. A. Fricker, R. J. Michaelides, W. Neely and **M. R. Siegfried**, 2020. Integrating ICESat-2 and Sentinel-1 measurements to quantify thaw subsidence in Alaska, *AGU Fall Meeting*.
- [124] Campbell, T., M. L. Skidmore, **M. R. Siegfried**, J. Winans, B. Zook, J. C. Priscu and the SALSA Science Team, 2020. Basal Ice Stratigraphy from Mercer Ice Stream, West Antarctica: Implications for sub ice stream accretionary processes, *AGU Fall Meeting*.
- [123] Cima, A., F. Sapienza, T. Snow, S. Grigsby*, L. J. Heagy, F. Perez and **M. R. Siegfried**, 2020. Fusion of ICESat-2 and complementary remote sensing data for interactive visualization in Jupyter, *AGU Fall Meeting*.
- [122] Gustafson, C., K. Key, **M. R. Siegfried** and H. A. Fricker, 2020. Extensive saline groundwater beneath Whillans Ice Stream, West Antarctica, *AGU Fall Meeting*.
- [121] Hughson, K., B. Schmidt, K. Udell, H. G. Sizemore, J. E. C. Scully, D. Buckowski, J. Bradford, **M. R. Siegfried**, A. Swidinsky, C. A. Raymond and C. T. Russell, 2020. A Comparative Morphological and Geospatial Analysis of Terrestrial Pingos and Anomalous Hills on Ceres, *AGU Fall Meeting*.
- [120] Rosenheim, B. E., R. Venturelli, C. Subt, I. M. Browne, T. M. King, T. Campbell, P. J. Bart, J. E. Dore, D. M. Harwood, J. Kingslake, J.-I. Lee, A. Leventer, A. B. Michaud, M. Patterson, A. Shevenell, **M. R. Siegfried**, M. L. Skidmore, K.-C. Yoo, H. I. Yoon and the SALSA Science Team, 2020. What can advances in Antarctic deglacial sediment ^{14}C dating tell us about grounding line evolution?, *AGU Fall Meeting*.
- [119] Sapienza, F., T. Snow, A. Cima, S. Grigsby*, L. J. Heagy, F. Perez, **M. R. Siegfried** and J. Taylor, 2020. Multimodal Dataset Integration for Cloud Masking of ICESat-2, *AGU Fall Meeting*.
- [118] Sutterley, T. C., B. E. Smith, K. Brunt and **M. R. Siegfried**, 2020. Evaluating Southern Ocean Tides Using ICESat-2 over Ice Shelves, *AGU Fall Meeting*.
- [117] Venturelli, R., C. Davis, T. Vick-Majors, W. Li, **M. R. Siegfried**, J. D. Barker, A. Leventer, D. M. Harwood, B. Christner, H. A. Fricker, J. C. Priscu, B. E. Rosenheim and the SALSA Science Team, 2020. On the origin and cycling of Holocene-aged carbon beneath the West Antarctic Ice Sheet, *AGU Fall Meeting*.
- [116] Campbell, T. D., M. L. Skidmore, **M. R. Siegfried**, J. Winans, R. Zook, J. C. Priscu and the SALSA Science Team, 2020. Basal ice stratigraphy from Mercer Ice Stream, West Antarctica: Implications for sub ice stream accretionary processes, *WAIS Workshop*.
- [115] Culberg, R., **M. R. Siegfried**, B. Medley and D. M. Schroeder, 2020. Quantifying uncertainty in a 16-year time series of Larsen C Ice Shelf thickness from airborne radar sounding, *WAIS Workshop*.
- [114] Gustafson, C. D., K. Key, **M. R. Siegfried** and H. A. Fricker, 2020. Imaging salty groundwater in sedimentary basins beneath Whillans Ice Plain, West Antarctica, *WAIS Workshop*.
- [113] Hughson, K. H., B. E. Schmidt, K. Udell, H. G. Sizemore, J. E. Scully, D. L. Buczkowski, J. H. Bradford, **M. R. Siegfried**, A. Swidinsky, C. A. Raymond and C. T. Russell, 2020. A quantitative morphometric analysis of terrestrial pingos and anomalous hills on Ceres, *GSA Connects Annual Meeting*.
- [112] **Siegfried, M. R.**, R. A. Venturelli, M. O. Patterson, T. Campbell, J. Dore, H. A. Fricker, C. Gustafson, A. Leventer, A. Michaud, J. Priscu, B. E. Rosenheim, M. Skidmore, B. Huber, K. Mankoff, S. Cook, B. Galton-Fenzi and the SALSA Science Team, 2020. The life cycle of an Antarctic active subglacial lake: A process to paleo perspective, *SCAR Open Science Conference*.

- 2019 [111] **Siegfried, M. R.**, H. A. Fricker, C. Gustafson, K. Key, A. Leventer, J. E. Dore, B. A. Huber, K. Mankoff, J. C. Priscu, B. E. Rosenheim and the SALSA Science Team, 2019. Anatomy of a draining subglacial lake in West Antarctica, *AGU Fall Meeting*.
- [110] Adusumilli, S., H. A. Fricker, B. Medley, L. Padman and **M. R. Siegfried**, 2019. Time-dependent freshwater fluxes from deep and shallow meltwater sources under Antarctica's large ice shelves, *AGU Fall Meeting*.
- [109] Becker, M. K., H. A. Fricker, L. Padman, **M. R. Siegfried**, B. Medley, I. Das, S. I. Cordero, R. E. Bell and the ROSETTA-Ice Team, 2019. Mapping Marine Ice Beneath Ross Ice Shelf, Antarctica, with ROSETTA-Ice Radar Sounding and ICESat-2 Laser Altimetry, *AGU Fall Meeting*.
- [108] Bienert, N. L., D. M. Schroeder, S. T. Peters, E. Dawson, E. Mackie and **M. R. Siegfried**, 2019. Inferring Temperature Distribution in Shear Margins from Large-Offset Bistatic Radar Sounding, *AGU Fall Meeting*.
- [107] Gustafson, C., K. Key, **M. R. Siegfried** and H. A. Fricker, 2019. Electromagnetic imaging of subglacial hydrogeology of Whillans Ice Plain, West Antarctica, *AGU Fall Meeting*.
- [106] Jordan, T. M., D. M. Schroeder, A. Brisbourne, C. Martin, C. W. Elsworth, **M. R. Siegfried**, R. Schlegel and A. Smith, 2019. Measurement of Ice Fabric within Ice Streams using Polarimetric Phase-Sensitive Radar Sounding, *AGU Fall Meeting*.
- [105] Priscu, J. C., J. D. Barker, T. Campbell, B. C. Christner, C. Davis, J. E. Dore, H. A. Fricker, C. B. Gardner, D. M. Harwood, A. Leventer, W. Li, W. B. Lyons, A. B. Michaud, M. Patterson, B. E. Rosenheim, **M. R. Siegfried**, M. L. Skidmore, M. Tranter, R. Venturelli, T. Vick-Majors, B. Zook and the SALSA Science Team, 2019. SALSA: An Integrated Program Focusing on Carbon Transformations in Mercer Subglacial Lake located ~1100 m beneath the West Antarctic Ice Sheet, *AGU Fall Meeting*.
- [104] Skidmore, M. L., C. B. Gardner, A. Steigmeyer, **M. R. Siegfried**, J. D. Barker, J. E. Dore, B. G. Olivas, J. Hawkings, W. B. Lyons, M. Tranter, J. C. Priscu and the SALSA Science Team, 2019. A tale of two lakes — contrasting weathering regimes in proximal subglacial Antarctic systems, *AGU Fall Meeting*.
- [103] Smith, B. E., B. Medley, F. S. Paolo, J. Nilsson, N. Holschuh, S. Adusumilli, **M. R. Siegfried** and the ICESat-2 Land-Ice Team, 2019. Sixteen Years of Ice-Sheet Change from ICESat to ICESat-2, *AGU Fall Meeting*.
- [102] Venturelli, R., B. E. Rosenheim, A. Leventer, D. M. Harwood, M. O. Patterson, T. Campbell, **M. R. Siegfried**, H. A. Fricker and the SALSA and WISSARD Science Teams, 2019. A Dynamic Holocene Grounding Line: In situ sedimentary evidence from Whillans and Mercer ice streams, West Antarctica, *AGU Fall Meeting*.
- [101] Barcheck, G., E. Brodsky, P. Fulton, M. King, **M. R. Siegfried** and S. Tulaczyk, 2019. Insights into earthquake initiation from ice stream stick-slip dynamics, *International Antarctic Earth Science Workshop*.
- [100] Derby, L., N. Ross, F. Ferraccioli, R. Carr, T. Jordan, **M. R. Siegfried**, G. Paxman, K. Matsuoka, R. Forsberg and T. Casal, 2019. Active subglacial lakes of the Foundation Ice Stream, Antarctica, *International Glaciological Society British Branch Meeting*.
- [99] *Becker, M. K., H. A. Fricker, L. Padman, **M. R. Siegfried**, C. Mosbeaux and T. J. W. Wagner, 2019. An overlooked ice-shelf calving process for accelerating Antarctic Ice Sheet loss, *Forum for Research into Ice Shelf Processes*.
- [98] *Adusumilli, S., H. A. Fricker, B. Medley, L. Padman and **M. R. Siegfried**, 2019. Partitioning time-varying meltwater fluxes from Antarctica's large ice shelves into the intermediate and upper ocean, *Forum for Research into Ice Shelf Processes*.
- [97] **Siegfried, M. R.**, H. A. Fricker, C. Gustafson, K. Key, A. Leventer, J. E. Dore, B. Huber, K. Mankoff, J. Priscu, B. Rosenheim and the SALSA Science Team, 2019. Physical

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