

**Matthew R. Siegfried** [he/him]

CONTACT INFORMATION	Department of Geophysics Colorado School of Mines 1500 Illinois St Golden, CO 80401 USA	<i>Tel:</i> 303.384.2004 <i>Mobile:</i> 847.525.8487 siegfried@mines.edu <a href="https://glaciology.mines.edu/">https://glaciology.mines.edu/</a>
ACADEMIC	<b>Associate Professor</b>	April 2024 to present
APPOINTMENTS	<b>Assistant Professor</b> Department of Geophysics Hydrologic Science and Engineering, Affiliated Faculty Payne Institute for Public Policy, Faculty Fellow Colorado School of Mines	January 2019 to April 2024
	<b>Thompson Postdoctoral Fellow</b> Department of Geophysics School of Earth, Energy, and Environmental Sciences Stanford University Mentor: Dr. Dustin M. Schroeder	May 2017 to December 2018
	<b>Postdoctoral Scholar</b> Institute of Geophysics and Planetary Physics Scripps Institution of Oceanography University of California, San Diego Supervisor: Dr. Helen A. Fricker	October 2015 to April 2017
EDUCATION	<b>PhD in Earth Sciences</b> Institute of Geophysics and Planetary Physics Scripps Institution of Oceanography, La Jolla, CA Dissertation: <i>Investigating Antarctic ice sheet subglacial processes beneath the Whillans Ice Plain, West Antarctica, using satellite altimetry and GPS</i> Adviser: Dr. Helen A. Fricker	October 2015
	<b>Master of Science in Earth Sciences</b> Dartmouth College, Hanover, NH Thesis: <i>On the use of high-precision GPS surveys for validation of ICESat altimetry measurements and investigation of seasonal ice-surface fluctuations</i> Adviser: Dr. Robert L. Hawley	July 2010
	<b>Bachelor of Arts in Earth Sciences</b> Dartmouth College, Hanover, NH <i>Magna cum Laude, Phi Beta Kappa</i> Senior Thesis for High Honors: <i>Hydrothermal Waters of Ischia, Italy: A revisitation of groundwater mixing and the ramifications for environmental arsenic contamination</i> Adviser: Dr. Benjamin Bostick	June 2008
MANUSCRIPTS IN REVIEW	<p>* indicates student or postdoctoral advisee † indicates co-first authors</p> <p>[70] *Hills, B. H., <b>M. R. Siegfried</b> and D. M. Schroeder, in review. Entrained water in basal ice suppresses radar bed-echo power at active subglacial lakes, <i>Geophysical Research Letters</i>.</p> <p>[69] Roth, D. L., G. Jin, M. Bezada, C. C. Masteller, <b>M. R. Siegfried</b>, A. Titov and B. Tate, in review. A River on Fiber: Spatially Continuous Fluvial Monitoring with Distributed Acoustic Sensing, <i>Journal of Geophysical Research: Earth Surface</i>.</p>	

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- [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*.
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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. Bortolotto, 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**<sup>†</sup>, **M. R.**, R. A. Venturelli<sup>†</sup>, 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.
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- [59] Rosenheim<sup>†</sup>, B. E., A. B. Michaud<sup>†</sup>, 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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- 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<sup>†</sup>, R. J., M. Bryant<sup>†</sup>, **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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- 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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- 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.
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- 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.
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- 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](https://doi.org/10.5281/ZENODO.7605994).
- Siegfried, M. R.**, 2021. mrsiegfried/Siegfried2021-GRL: Initial release with acceptance (Version 1.0), Zenodo, doi:[10.5281/ZENODO.4914107](https://doi.org/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](https://doi.org/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-sheet shutdown 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 Cosortium*)  
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

**Scrrips 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>EAR570: Glaciology</i>	19 May 2009
	Life through a Snowball	
	<i>EAR586: 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

<b>[seminar canceled due to COVID19]</b>	
(Seminar on ICESat-2 results)	
<i>Newcastle University</i>	Jun. 2020
<b>[fellowship delayed to COVID19; seminar canceled]</b>	
(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
<b>[canceled due to COVID19]</b>	
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 &amp; 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 Antarctica	
<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 &amp; 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 SERVICE

### Committee 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” (ex-





Whillans Ice Plain, West Antarctica, Surface Geophysics <i>Expedition Lead, Field Medic</i>	2014–2015
Whillans Ice Plain, West Antarctica, Surface Geophysics <i>GPS Team Leader, Field Medic</i>	2013–2014
Whillans Ice Plain, West Antarctica, Surface Geophysics <i>Surface Geophysics Team Leader, Field Medic</i>	2012–2013
Whillans Ice Plain, West Antarctica, Surface Geophysics	2011–2012
Northern New Mexico, Southern Colorado, Geology and Geomorphology <i>Field Trip Organizer and Leader</i>	2010
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  
MEMBERSHIPS

American Geophysical Union, 2008–present  
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  
 ABSTRACTS

\* indicates student or postdoctoral advisee

† 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. Borsia, 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 Crary 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<sup>†</sup>, M. R.**, R. A. Venturelli<sup>†</sup>, 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 JupyterHub, *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. Wåhlin, 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 Cray 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**<sup>†</sup>, **M. R.**, R. A. Venturelli<sup>†</sup>, 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*.
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  - [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



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  - [167] Tarzona, A., W. Chu, H. Verboncoeur\*, **M. R. Siegfried**, D. Schroeder, L. Combs, A. Altaaweel, 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*.
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  - [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*.
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  - [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*.
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  - [157] Roth, D., M. Zhang, V. Sahakian, J. Marshall, G. Jin, A. Titov, **M. R. Siegfried**, C.

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- [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*.
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- [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. Borsas, 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.

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- 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*.
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- [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*

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- [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*.
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  - [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.

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- [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 properties of a draining subglacial lake, *International Symposium on Antarctic Earth Science*.
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- [95] Bienert, N., D. Schroeder, S. Peters and **M. R. Siegfried**, 2019. Improving constraints on englacial temperature and water distribution using an autonomous phase-sensitive radio echo sounder (ApRES) and a bistatic software defined receiver, *IGS Symposium on Radioglaciology*.
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