

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

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ACADEMIC	<b>Associate Professor</b>	April 2024 to present
APPOINTMENTS	<b>Assistant Professor</b>	January 2019 to April 2024
	Department of Geophysics	
	Hydrologic Science and Engineering, Affiliated Faculty	
	Space Resources Program, Affiliated Faculty	
	Payne Institute for Public Policy, Faculty Fellow	
	Colorado School of Mines	
	<b>Thompson Postdoctoral Fellow</b>	May 2017 to December 2018
	Department of Geophysics	
	School of Earth, Energy, and Environmental Sciences	
	Stanford University	
	Mentor: Dr. Dustin M. Schroeder	
	<b>Postdoctoral Scholar</b>	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	<b>PhD in Earth Sciences</b>	October 2015
	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	
	<b>Master of Science in Earth Sciences</b>	July 2010
	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	
	<b>Bachelor of Arts in Earth Sciences</b>	June 2008
	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	
MANUSCRIPTS		* indicates student or postdoctoral advisee
IN REVIEW		^ indicates student on whose dissertation committee I served
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- [94] \*Follingstad, V. M., R. J. Michaelides\*, **M. R. Siegfried**, T. M. Meng, J. Bradford, K. H. Hughson, A. R. Kubas, A. Mullen, E. Quartini, A. Routt, H. G. Sizemore, A. Swidinsky and B. E. Schmidt, in review. Quantifying the Surface Deformation of Pingos on the Alaskan North Slope using Interferometric Synthetic Aperture Radar (InSAR), *Permafrost and Periglacial Processes*.

- [93] \*Garvey, S., **M. R. Siegfried**, J. Shragge, L. Zoet, D. Hansen and N. Stevens, in review. Multi-component Rayleigh wave dispersion analysis, *Journal of Glaciology*.
- [92] ^Peter, I. C., E. J. Anderson, **M. R. Siegfried**, A. B. Villas Bôas and N. T. Kurtz, in review. Advancing Large Lake Ice Observations: Water Surface Representation from ICESat-2 Altimetry, Operational Hydrodynamic Models, and Shoreline Gauges, *Water Resources Research*.
- [91] \*Snow, T., A. Harris, S. Grigsby, E. Abrahams, E. Savidge\*, T. Scambos, F. Pérez, C. Shuman, W. Abdalati and **M. R. Siegfried**, in review. Application of a new Landsat sea surface temperature algorithm to the Amundsen Sea, West Antarctica, *IEEE Transactions on Geoscience and Remote Sensing*.
- [90] \*Verboncoeur, H., B. H. Hills\*, **M. R. Siegfried**, E. Abrahams\* and N. Holschuh, in review. Subglacial conditions estimated from unsupervised clustering analysis of radar bed-echo shape, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.
- [89] Doran, P. T., **M. R. Siegfried**, H. Dugan, K. Hubbard and J. Lawrence, in review. Glacier surface lowering and subglacial outflow coincide with Blood Falls discharge event in the McMurdo Dry Valleys, *Antarctic Science*.
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- [87] Meng, T. M., R. J. Michaelides, S. Vivero, A. Nguyen and **M. R. Siegfried**, in review. Fusion of InSAR and stereophotogrammetry improves 3D alpine permafrost surface displacement measurements, *Earth and Space Science*.
- [86] Ross, N., R. J. Sanderson, B. Kulesa, M. Siegert, G. J. G. Paxman, K. A. Nichols, **M. R. Siegfried**, S. S. R. Jamieson, M. J. Bentley, T. A. Jordan, C. L. Batchelor, D. Small, O. Eisen, K. Winter, R. G. Bingham, S. L. Callard, R. Carr, C. F. Dow, H. A. Fricker, E. Hill, B. H. Hills\*, C. Hofstede, H. Jeofry, F. Napoleoni and W. Sauthoff\*, in review. Review Article: The Foundation-Patuxent-Academy ice stream system, Antarctica, *The Cryosphere*, doi:10.5194/egusphere-2025-3625.
- [85] Smith, B., T. C. Sutterley, H. A. Fricker, L. Padman, **M. R. Siegfried**, T. Black, D. Felikson, B. I. D. Freer, A. Gibbons, S. L. Howard, B. Jelley, M. King, B. Medley, M. Morlighem, C. Sadlik and W. Sauthoff\*, in review. ICESat-2 land ice products resolve Greenland and Antarctic ice-sheet height changes on seasonal to multiyear time scales, *Journal of Glaciology*, doi:10.22541/essoar.175882970.07697715/v1.
- REFEREED JOURNAL PUBLICATIONS [84] \*Hills, B., **M. R. Siegfried**, N. Holschuh, H. Verboncoeur\* and D. Schroeder, 2026. Resolving radiostereography with squinted synthetic aperture radar focusing, *Journal of Glaciology*, **72**(e10), 1–11, doi:10.1017/jog.2025.10122.
- [83] \*Katz, Z. S., **M. R. Siegfried** and L. Padman, 2026. Slip-Event Timing and Ice Velocity Vary at Long-Period Ocean Tidal Frequencies at Whillans Ice Plain, West Antarctica,

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- [81] \*Willis, R., J. Grimm, F. Stanek, P. Edme, A. Fichtner, B. P. Lipovsky, P. Paitz, F. Walter, **M. R. Siegfried** and E. R. Martin, 2026. Creating a Comprehensive Cryoseismic Catalog at Rhonegletscher: A Scalable Approach Using Distributed Acoustic Sensing and Machine Learning, *Machine Learning: Earth*, accepted.
- [80] Schroeder, D. M., E. Abrahams, A. L. Broome, W. Chu, R. Culberg, E. J. Dawson, E. J. MacKie, D. F. May, **M. R. Siegfried**, T. O. Teisberg and S. Zhao, 2026. Next generation radar bed measurements should be optimized for assimilation or repeat-pass profiling, *Philosophical Transactions of the Royal Society A*, accepted.
- 2025 [79] \*Hills<sup>†</sup>, B. H., T. J. Young<sup>†</sup>, D. A. Lilien<sup>†</sup>, E. Babcock, N. Bienert, D. Blankenship, J. Bradford, G. Brighi, A. Brisbourne, J. Dall, R. Drews, O. Eisen, M. R. Ershadi, T. A. Gerber, N. Holschuh, D. Jansen, T. M. Jordan, N. B. Karlsson, J. Li, C. Martín, K. Matsuoka, D. May, F. M. Oraschewski, J. Paden, N. M. Rathmann, N. Ross, D. M. Schroeder, M. Siegert, **M. R. Siegfried**, E. Smith and O. Zeising, 2025. Radar Polarimetry in Glaciology: Theory, Measurement Techniques, and Scientific Applications for Investigating the Anisotropy of Ice Masses, *Reviews of Geophysics*, **63**(4), e2024RG000842, doi:10.1029/2024RG000842.
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- [76] \*Savidge, E., J. Millstein\*, T. Snow\*, **M. R. Siegfried**, C. Bézu, K. Alley and B. Riel, 2025. Deteriorating Structural Integrity of Pine Island Glacier’s Southern Ice Shelf (2017–23) Identified with Satellite-Derived Surface Deformation, Ice Velocity, and Strain Rates, *Journal of Glaciology*, **71**(e116), 1–9, doi:10.1017/jog.2025.10076.
- [75] \*Verboncoeur, H., **M. R. Siegfried**, J. P. Winberry, N. Holschuh, D. Byrne\*, W. Sauthoff\*, T. C. Sutterley and B. Medley, 2025. Multi-decadal evolution of Cray Ice Rise region, West Antarctica, amid modern ice-stream deceleration, *Journal of Glaciology*, **71**(e3), 1–11, doi:10.1017/jog.2024.79.
- [74] Bingham<sup>†</sup>, R. G., J. A. Bodart<sup>†</sup>, M. G. P. Cavitte<sup>†</sup>, A. Chung<sup>†</sup>, R. J. Sanderson<sup>†</sup>, J. C. R. Sutter<sup>†</sup>, O. Eisen, N. B. Karlsson, J. A. MacGregor, N. Ross, D. A. Young, D. W. Ashmore, A. Born, W. Chu, R. Drews, S. Franke, V. Goel, J. W. Goodge, A. C. J. Henry, A. Hermant, B. H. Hills\*, N. Holschuh, M. R. Koutnik, G. J.-M. C. Leysinger Vieli, E. J. MacKie, E. Mantelli, C. Martín, F. S. L. Ng, F. M. Oraschewski, F. Napoleoni, F. Parrenin, S. V. Popov, T. Rieckh, R. Schlegel, D. M. Schroeder, M. J. Siegert, T. O. Teisberg, K. Winter, X. Cui, X. Tang, S. Yan, H. Davis, C. F. Dow, T. J. Fudge, T. A. Jordan, B. Kulesa, K. Matsuoka, C. J. Nyqvist, M. Rahnmooonfar, **M. R. Siegfried**, S. Singh, V. Višnjević, R. Zamora and A. Zuhr, 2025. Review article: AntArchitecture – building an age–depth model from Antarctica’s radiostratigraphy to explore ice-sheet evolution, *The Cryosphere*, **19**(10), 4611–4655, doi:10.5194/tc-19-4611-2025.
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- [67] \*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*, **21**, 1–5, doi:10.1109/lgrs.2024.3365994.
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- 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<sup>^</sup>, 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.
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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.
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## DATA SETS

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## EXPANDED ABSTRACTS

\* indicates student or postdoctoral advisee

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- [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*, doi:10.1109/IGARSS53475.2024.10642198.
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*Winner of the IEEE GRSS Symposium Prize Paper Award*

#### MENTORING **Postdoctoral Scholars**

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Roger Michaelides, 2020–2022

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Tasha Snow, 2021–2024

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#### **Graduate Students**

Jared Klemm (PhD), Geophysics, 2020–2021

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(*post Mines: Trottier Space Institute Postdoctoral Fellow, McGill University*)  
Wilson Sauthoff (PhD), Hydrologic Science & Engineering, 2020–present  
Hannah Verboncoeur (PhD), Geophysics, 2021–present  
Bailey Mullett (MS-NT), Hydrologic Science & Engineering, 2022–2024  
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*co-advised with Kamini Singha*  
Rachel Willis(PhD), Geophysics, 2023–2025  
Zachary Katz (PhD), Geophysics, 2023–present  
Samara Omar (PhD), Geophysics, 2024–present  
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Rohaiz Haris, Geophysics, 2024–present  
Marianna Marquardt, Geophysics, 2024–present

#### **Undergraduate Research**

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Becca Prentice, Geophysics, 2020–2022  
(*post-Mines step: PhD student at Stanford University*)  
Stephanie Holzschuh, Applied Math and Statistics, 2020–2021  
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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*)  
Mia Jungman, Geophysics, 2023–2024  
Duncan Byrne, Geophysics, 2023–2025  
(*post-Mines step: PhD student at University of Colorado, Boulder*)  
Anastasia Horne, Applied Math & Statistics, 2023–2025  
(*post-Mines step: Research Mathematician, Army Corps of Engineers*)  
Lucas Holt, Geophysics, 2024–2025  
Jack Logan, Geophysics, 2024–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 (*post-Mines: Geophysicist, Collier Geophysics*)

#### **Visiting Students**

Emma Pearce (PhD), University of Leeds, 2019  
Joanna Millstein (PhD), MIT, 2021–2023  
Ellie Abrahams (PhD), University of California Berkeley, 2022  
Eojin Lee (UG), Columbia University, 2022–2023  
Sawyer Kaarto (UG), Red Rocks Community College, 2022

#### **Dissertation Committee Membership**

Colin Beyers (2025–present) Mines, Department of Geophysics  
Joe Ruggiero (2025–present) Mines, Department of Geology & Geological Engineering

Jason Drebber (2024–present) Mines, Department of Geology & Geological Engineering  
 Kate Hulse (2024–present) Mines, Department of Civil & Environmental Engineering  
 Ellie Longar (2024–present) Mines, Department of Geology & Geological Engineering  
 Ellie Miller (2024–present) Mines, Department of Geology & Geological Engineering  
 Nicolas Sartore (2024–present) U. Wisconsin, Dept. of Atmospheric & Oceanic Sciences  
 Isabelle Peter (2024–present) Mines, Department of Civil & Environmental Engineering  
 Ryan Peterson (2024–present) Mines, Department of Applied Mathematics  
 Nicholas Dorogy (2023–present) Mines, Department of Geophysics  
 Ari Koshkin (2023–2025) Mines, Hydrologic Science & Engineering  
 Ahmad Tourei (2023–2025) Mines, Hydrologic Science & Engineering  
 Melody Zhang (2021–present) Mines, Department of Geology & Geological Engineering  
 Devon Dunmire (2020–2022) U. Colorado Boulder, Atmospheric & Ocean Sciences  
 Chloe Gustafson (2020) Columbia U., Lamont-Doherty Earth Observatory

### **Masters Thesis Committee Membership**

Rishi Banerjee (2023–2024) U. Manitoba, Earth Observation Science

### **TEACHING EXPERIENCE**

#### **Colorado School of Mines, Golden, CO**

##### *Instructor of Record*

GPGN486: Geophysics Field Camp	Summer 2026
GPGN470/570: Applications of Remote Sensing	Spring 2026
CSCI303: Data Science	Spring 2026
GPGN486: Geophysics Field Camp	Summer 2025
GPGN470/570: Applications of Remote Sensing	Spring 2025
GPGN573: Polar Cryosphere in the Earth System	Fall 2024
GPGN486: Geophysics Field Camp	Summer 2024
GPGN470/570: Applications of Remote Sensing	Spring 2024
CSCI303: Data Science	Spring 2024
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*

GEGN584: Field Methods in Hydrology	Fall 2023
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



*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

*Glaciology, Quaternary Geology, Structure and Geologic Mapping*

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

*Laboratory Teaching Assistant*

Mineralogy

Summer 2007

Instructor: Dr. Ed Meyer

*Grader*

Differential Equations

Winter 2008

INVITED  
TALKS

Approaches and Capabilities for International Polar Year 5

*National Academies' Exploring Key Research Topics for IPY5*

20 May 2025

New insights into ice-sheet change from six years of high resolution ICESat-2 laser altimetry

*AGU Fall Meeting*

11 Dec. 2024

Past/ongoing en- and subglacial work: Glaciology

*US Ice Drilling Program En- and Subglacial Access Working Group Meeting*

8 Dec. 2024

Big Data, meet Long Data: Examining decadal-scale variability of ice-ocean-freshwater processes in Antarctica

*Mines Research Council Seminar*

13 Mar. 2024

Big Data, meet Long Data: Examining decadal-scale variability of ice-ocean-freshwater processes in Antarctica

*Caltech Division of Geological and Planetary Sciences Seminar*

4 Mar. 2024

Centering community at scientific meetings: 30 years of the West Antarctic Ice Sheet Workshop

*AGU Fall Meeting 2023*

11 Dec. 2023

Cryosphere@Mines

*Finnish Ambassador Visit to Colorado School of Mines*

13 Jun. 2023

Subglacial Secrets: What drilling holes through the Antarctic ice sheet can teach us about the past, present, and future of ice

*Osher Lifelong Learning Institute, University of Denver*

4 May 2023

Source to sink: Tracing freshwater beneath the Antarctic ice sheet

*Colorado School of Mines Department of Geophysics Heiland Lecture*

7 Mar. 2023

Technology at the coast: Probing for ice-water-ocean-Earth processes

*National Academies's Future Directions for Southern Ocean and Antarctic**Nearshore and Coastal Research Community Workshop*

9 Feb. 2023

Glaciology at Mines

*Colorado School of Mines Student Society of Geophysicists*

16 Sep. 2022

Glaciology at Mines

*Tulane University Research Experiences for Undergraduates*

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

*UCSD Extension: Environmental Leadership & Sustainability*

06 Jul. 2015

Investigating coupled subglacial hydrologic and ice dynamic evolution using ground- and satellite-based observations

*Center for Climate Sciences Research Seminar, NASA-JPL*

19 Jun. 2015

Using CryoSat-2 to retrieve dynamic surface changes (& observations of stick-slip motion)

*IGPP Geodesy Seminar, Scripps Institution of Oceanography*

22 Apr. 2015

A decade of progress observing and modeling Antarctic subglacial water systems

*Subglacial Antarctic lake exploration: first results and future plans, The Royal Society*

[H. Fricker invited; M.R.S. presented]

30 Mar. 2015

Understanding the Antarctic Slip 'n' Slide

*Scripps Donor Brunch, Scripps Institution of Oceanography*

1 Mar. 2015

Highlights and reflections on The Workshop and beyond

*CMBC Brown Bag, Scripps Institution of Oceanography*

3 Jun. 2014

Instability of the Amundsen Sea Embayment

*Climate Journal Club, Scripps Institution of Oceanography*

22 May 2014

WISSARD: Progress, Pictures, and Prospects

*Scripps Polar Seminar, Scripps Institution of Oceanography*

4 Jun. 2013

GLAS accuracy and elevation change at Summit, Greenland

*Geolunch Brown Bag Series, Dartmouth College*

11 May 2010

## PROFESSIONAL COMMITTEE SERVICE

- NASA SWOT Mission, Science Team, Member, 2024–present
- EDGE Mission Science Team (in Phase A of NASA's ESE competition), 2023–present
- Ice Drilling Program Science Advisory Board, Member, 2023–present
- NASA Surface Topography and Vegetation Mission Incubation, Science Team, 2023–2025
- 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, 2024); *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.

### UNIVERSITY SERVICE

#### Colorado School of Mines

Mines Finance, Administration, and Operations Roundtable, 2025–present  
 Mines University Handbook Committee, 2024–present  
 Mines Geophysics Undergraduate Advisory Committee, 2022–present (chair, 2025–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, 2019–2025  
 Mines Diversity Council, 2019–2025  
 Mines Field Session Compensation Task Force, 2022, 2025

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 FIELD EXPERIENCE	Pingo Canadian Landmark, Surface Geophysics	2023
	<i>Mines Lead</i>	
	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	<b>Colorado School of Mines</b>	
	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**

Mentor for NSF-OPP Postdoctoral Research Fellow, 2023  
 NSF CAREER Award recipient, 2022  
 Mentor for NSF Graduate Research Fellowship Program recipient (H. Verboncoeur), 2022

**National Aeronautics and Space Administration**

Mentor for NASA FINESST Graduate Fellowship Program recipient (Z. Katz), 2025  
 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