

Matthew R. Siegfried [he/him]

CONTACT INFORMATION	Department of Geophysics Colorado School of Mines 1500 Illinois St Golden, CO 80401 USA	Tel: 303.384.2004 Mobile: 847.525.8487 siegfried@mines.edu https://www.mines.edu/glaciology
ACADEMIC APPOINTMENTS	Assistant Professor	January 2019 to present
	Department of Geophysics College of Earth Resource Sciences and Engineering Colorado School of Mines	
	Thompson Postdoctoral Fellow	May 2017 to December 2018
	Department of Geophysics School of Earth, Energy, and Environmental Sciences Stanford University Mentor: Dr. Dustin M. Schroeder	
EDUCATION	Postdoctoral Scholar	October 2015 to April 2017
	Institute of Geophysics and Planetary Physics Scripps Institution of Oceanography University of California, San Diego Supervisor: Dr. Helen A. Fricker	
	PhD in Earth Sciences	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	
	Master of Science in Earth Sciences	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	
	Bachelor of Arts in Earth Sciences	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 IN REVIEW	* indicates student-led manuscript	
	[44] Adusumilli, S., H. A. Fricker, B. Medley, L. Padman and M. R. Siegfried , in review. Multi-year variability in ocean-driven basal melting of Antarctic ice shelves, <i>Nature Geoscience</i> .	
	[43] Barcheck, C. G., E. E. Brodsky, P. M. Fulton, M. A. King, M. R. Siegfried and S. Tulaczyk, in review. Migratory earthquake precursors are dominant on a strain-energy limited ice stream fault, <i>Science</i> .	

- [42] Venturelli, R. A., **M. R. Siegfried**, K. Roush, W. Li, J. Burnett, R. Zook, H. A. Fricker, J. Priscu, A. Leventer and B. Rosenheim, in review. Mid-Holocene grounding line variability in the southern Ross Embayment, *Geophysical Research Letters*.
- REFEREED
JOURNAL
PUBLICATIONS
- [41] Begeman, C., S. Tulaczyk, L. Padman, M. King, **M. R. Siegfried**, T. Hodson and H. A. Fricker, 2020. Tidal pressurization of the ocean cavity near an Antarctic ice shelf grounding line, *Journal of Geophysical Research – Oceans*, **125**(4), doi:10.1029/2019JC015562.
- [40] Das, I., L. Padman, R. E. Bell, H. A. Fricker, K. J. Tinto, C. L. Hulbe, C. S. Siddoway, T. Dhakal, N. P. Frearson, C. Mosbeux, S. I. Cordero and **M. R. Siegfried**, 2020. Multidecadal Basal Melt Rates and Structure of the Ross Ice Shelf, Antarctica, Using Airborne Ice Penetrating Radar, *Journal of Geophysical Research – Earth Surface*, **125**(3), doi:10.1029/2019JF005241.
- [39] Elsworth, C., D. M. Schroeder and **M. R. Siegfried**, 2020. Interpreting englacial layer deformation in the presence of complex ice flow history with synthetic radargrams, *Annals of Glaciology*, doi:10.1017/aog.2019.41, in press.
- [38] Jordan, T., D. Schroeder, C. Elsworth and **M. R. Siegfried**, 2020. Estimation of ice fabric within Whillans Ice Stream using polarimetric phase-sensitive radar sounding, *Annals of Glaciology*, doi:10.1017/aog.2020.6, in press.
- [37] MacKie, E. J., D. M. Schroeder, J. Caers, **M. R. Siegfried** and C. Scheidt, 2020. Antarctic topographic realizations and geostatistical modeling used to map subglacial lakes, *Journal of Geophysical Research – Earth Surface*, **125**(3), doi:10.1029/2019JF005420.
- [36] Smith, B., H. A. Fricker, A. S. Gardner, B. Medley, J. Nilsson, F. S. Paolo, N. Holschuh, S. Adusumilli, K. Brunt, B. Castho, K. Harbeck, T. Markus, T. Neumann, **M. R. Siegfried** and H. J. Zwally, 2020. Pervasive ice sheet mass loss driven by competing ocean and atmosphere processes, *Science*, in press.
- 2019
- [35] Schroeder, D. M., J. A. Dowdeswell, M. J. Siegert, R. G. Bingham, W. Chu, E. J. MacKie, **M. R. Siegfried**, K. I. Vega, J. R. Emmons and K. Winstein, 2019. Multidecadal observations of the Antarctic ice sheet from restored analog radar records, *Proceedings of the National Academy of Sciences*, **116**(38), 18867–18873, doi:10.1073/pnas.1821646116.
- [34] Smith, B. E., N. Holschuh, A. S. Gardner, S. Adusumili, K. M. Brunt, B. Csatho, H. A. Fricker, K. Harbeck, A. Huth, T. Neumann, J. Nilsson and **M. R. Siegfried**, 2019. Land ice height-retrieval algorithm for NASA’s ICESat-2 photon-counting laser altimeter, *Remote Sensing of Environment*, **233**, 111352, doi:10.1016/j.rse.2019.111352.
- [33] Tinto, K., L. Padman, C. Siddoway, S. Springer, H. A. Fricker, I. Das, F. C. Tontini, D. Porter, N. Frearson, S. Howard, **M. R. Siegfried** and et al., 2019. Ross Ice Shelf response to climate driven by the tectonic imprint on seafloor bathymetry, *Nature Geoscience*, **12**, 441–449, doi:10.1038/s41561-019-0370-2.
- 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.

- [31] Chu, W., D. M. Schroeder and **M. R. Siegfried**, 2018. Retrieval of Englacial Firn Aquifer Thickness from Ice-Penetrating Radar Sounding in Southeast Greenland, *Geophysical Research Letters*, **45**(21), 11,770–11,778, doi:10.1029/2018GL079751.
 - [30] Begeman, C. M., S. M. Tulaczyk, O. J. Marsh, J. A. Mikucki, T. P. Stanton, T. O. Hodson, **M. R. Siegfried**, R. D. Powell, K. Christianson and M. A. King, 2018. Ocean stratification and low melt rates at the Ross Ice Shelf grounding zone, *Journal of Geophysical Research – Oceans*, **123**(10), 7438–7452, doi:10.1029/2018JC013987.
 - [29] *Adusumilli, S., H. A. Fricker, **M. R. Siegfried**, L. Padman, F. Paolo and S. Ligtenberg, 2018. Variable basal melt rates of Antarctic Peninsula ice shelves, 1994–2016, *Geophysical Research Letters*, **45**(9), 4086–4095, doi:10.1002/2017GL076652.
 - [28] Padman, L., **M. R. Siegfried** and H. A. Fricker, 2018. Ocean tide influences on ice sheet processes, *Reviews of Geophysics*, **56**(1), 142–184, doi:10.1002/2016RG000546.
 - [27] Paolo, F. S., L. Padman, H. A. Fricker, S. Adusumilli, S. Howard and **M. R. Siegfried**, 2018. Response of Pacific-sector Antarctic ice shelves to the El Niño/Southern Oscillation, *Nature Geoscience*, **11**, 121–126, doi:10.1038/s41561-017-0033-0.
- 2017
- [26] **Siegfried, M. R.**, B. Medley, K. Larson, H. A. Fricker and S. Tulaczyk, 2017. Snow accumulation variability on a West Antarctic ice stream observed with GPS reflectometry, 2007–2017, *Geophysical Research Letters*, **44**(15), 7808–7816, doi:10.1002/2017GL074039.
 - [25] Damsgaard, A., J. Suckale, J. Piotrowski, M. Houssais, **M. R. Siegfried** and H. A. Fricker, 2017. Sediment behavior controls equilibrium width of subglacial channels, *Journal of Glaciology*, **63**(242), 1034–1048, doi:10.1017/jog.2017.71.
 - [24] Kerry, K. and **M. R. Siegfried**, 2017. The feasibility of ground-based electromagnetic methods for mapping the subglacial hydrological structure beneath ice streams, *Journal of Glaciology*, **63**(241), 755–771, doi:10.1017/jog.2017.36.
 - [23] Scambos, T. A., R. E. Bell, A. M. Smith, D. G. Vaughan, R. B. Alley, S. Anandakrishnan, D. H. Bromwich, K. M. Brunt, K. Christianson, T. T. Creyts, S. B. Das, R. DeConto, P. Dutrieux, H. A. Fricker, D. Holland, J. MacGregor, B. Medley, D. Pollard, **M. R. Siegfried**, E. J. Steig and P. Yager, 2017. How Much, How Fast? A Review and Science Plan for Research on the Instability of Antarctica’s Thwaites Glacier in the 21st Century, *Global and Planetary Change*, **153**, 16–34, doi:10.1016/j.gloplacha.2017.04.008.
 - [22] Carter, S. P., H. A. Fricker and **M. R. Siegfried**, 2017. Antarctic subglacial lakes drain through sediment-floored canals: Theory and model testing on real and idealized domains, *The Cryosphere*, **11**, 381–405, doi:10.5194/tc-11-381-2017.
- 2016
- [21] **Siegfried, M. R.**, H. A. Fricker, S. P. Carter and S. Tulaczyk, 2016. Episodic ice velocity fluctuations triggered by a subglacial flood in West Antarctica, *Geophysical Research Letters*, **43**(6), 2640–2648, doi:10.1002/2016GL067758.
 - [20] Alley, K. E., T. A. Scambos, **M. R. Siegfried** and H. A. Fricker, 2016. Impacts of warm water on Antarctic ice shelf stability through basal channel formation, *Nature Geoscience*, **9**(4), 290–293, doi:10.1038/ngeo2675.

- [19] Achberger, A. M., B. C. Christner, A. B. Michaud, J. C. Priscu, M. L. Skidmore, T. J. Vick-Majors and the WISSARD Science Team (incl. **M. R. Siegfried**), 2016. Microbial Community Structure of Subglacial Lake Whillans, West Antarctica, *Frontiers in Microbiology*, **7**, 1457, doi:10.3389/fmicb.2016.01457.
 - [18] Damsgaard, A., D. L. Eghold, L. H. Beem, S. Tulaczyk, N. K. Larsen, J. A. Piotrowski and **M. R. Siegfried**, 2016. Ice flow dynamics forced by rapid water-pressure variations in subglacial granular beds, *Geophysical Research Letters*, **43**(23), 165–173, doi:10.1002/2016GL071579.
 - [17] Hodson, T., R. Powell, S. Brachfeld, S. Tulaczyk, R. Scherer and the WISSARD Science Team (incl. **M. R. Siegfried**), 2016. Physical processes in Subglacial Lake Whillans, West Antarctica: inferences from sediment cores, *Earth and Planetary Science Letters*, **444**, 56–63, doi:10.1016/j.epsl.2016.03.036.
 - [16] Marsh, O. J., H. A. Fricker, **M. R. Siegfried**, K. Christianson, K. W. Nicholls, H. F. J. Corr and G. Catania, 2016. High basal melting forming a channel at the grounding line of Ross Ice Shelf, Antarctica, *Geophysical Research Letters*, **43**(1), 250–255, doi:10.1002/2015gl066612.
 - [15] Vick-Majors, T. J., A. C. Mitchell, A. M. Achberger, B. C. Christner, J. E. Dore, A. B. Michaud, J. A. Mikucki, A. M. Purcell, M. L. Skidmore, J. C. Priscu and the WISSARD Science Team (incl. **M. R. Siegfried**), 2016. Physiological ecology of microorganisms in Subglacial Lake Whillans, *Frontiers in Microbiology*, **7**, 1705, doi:10.3389/fmicb.2016.01705.
- 2015
- [14] Fisher, A. T., K. D. Mankoff, S. M. Tulaczyk, S. W. Tyler, N. Foley and the WISSARD Science Team (incl. **M. R. Siegfried**), 2015. High geothermal heat flux measured below the West Antarctic Ice Sheet, *Science Advances*, **1**(6), e1500093–e1500093, doi:10.1126/sciadv.1500093.
 - [13] Fricker, H. A., **M. R. Siegfried**, S. P. Carter and T. A. Scambos, 2015. A decade of progress in observing and modeling Antarctic subglacial water systems, *Philosophical Transactions of the Royal Society A*, **374**(2059), 20140294, doi:10.1098/rsta.2014.0294.
 - [12] Mikucki, J., P. Lee, D. Ghosh, A. Purcell, A. Mitchell, K. Mankoff, A. T. Fisher, S. Tulaczyk, S. P. Carter, **M. R. Siegfried**, H. A. Fricker, T. Hodson, J. Coenen, R. Powell, R. P. Scherer, T. Vick-Majors, A. M. Achberger, B. C. Christner and M. Tranter, 2015. Subglacial Lake Whillans biogeochemistry: a synthesis of current knowledge, *Philosophical Transactions of the Royal Society A*, **374**(2059), 20140290, doi:10.1098/rsta.2014.0290.
- 2014
- [11] **Siegfried, M. R.**, H. A. Fricker, M. Roberts, T. A. Scambos and S. Tulaczyk, 2014. A decade of West Antarctic subglacial lake interactions from combined ICESat and CryoSat-2 altimetry, *Geophysical Research Letters*, **41**(3), 891–898, doi:10.1002/2013GL058616.
 - [10] Christner, B. C., J. C. Priscu, A. M. Achberger, C. Barbante, S. P. Carter, K. Christianson, A. B. Michaud, J. A. Mikucki, A. C. Mitchell, M. L. Skidmore, T. J. Vick-Majors and the WISSARD Science Team (incl. **M. R. Siegfried**), 2014. A microbial ecosystem beneath the West Antarctic ice sheet, *Nature*, **512**(7514), 310–313, doi:10.1038/nature13667.

- [9] Holt, T. O., N. F. Glasser, H. A. Fricker, L. Padman, A. Luckman, O. King, D. J. Quincey and **M. R. Siegfried**, 2014. The structural and dynamic responses of Stange Ice Shelf to recent environmental change, *Antarctic Science*, **26**(06), 646–660, doi:10.1017/S095410201400039X.
- [8] Purcell, A. M., J. A. Mikucki, A. M. Achberger, I. A. Alekhina, C. Barbante, B. C. Christner, D. Ghosh, A. B. Michaud, A. C. Mitchell, J. C. Priscu, R. Scherer, M. L. Skidmore, T. J. Vick-Majors and the WISSARD Science Team (incl. **M. R. Siegfried**), 2014. Microbial sulfur transformations in sediments from Subglacial Lake Whillans, *Frontiers in Microbiology*, **5**, 594, doi:10.3389/fmicb.2014.00594.
- [7] Tulaczyk, S., J. A. Mikucki, **M. R. Siegfried**, J. C. Priscu, C. G. Barcheck, L. H. Beem, A. Behar, J. Burnett, B. C. Christner, A. T. Fisher, F. H. A., K. D. Mankoff, R. D. Powell, F. Rack, D. Sampson, R. P. Scherer, S. Y. Schwartz and the WISSARD Science Team, 2014. WISSARD at Subglacial Lake Whillans, West Antarctica: scientific operations and initial observations, *Annals of Glaciology*, **55**(65), 51–58, doi:10.3189/2014AoG65A009.
- 2013
- [6] Carter, S. P., H. A. Fricker and **M. R. Siegfried**, 2013. Evidence of rapid subglacial water piracy under Whillans Ice Stream, West Antarctica, *Journal of Glaciology*, **59**(218), 1147–1162, doi:10.3189/2013JoG13J085.
- [5] Holt, T. O., N. F. Glasser, D. J. Quincey and **M. R. Siegfried**, 2013. Speedup and fracturing of George VI Ice Shelf, Antarctic Peninsula, *The Cryosphere*, **7**(3), 797–816, doi:10.5194/tc-7-797-2013.
- [4] Horgan, H. J., R. B. Alley, K. Christianson, R. W. Jacobel, S. Anandakrishnan, A. Muto, L. H. Beem and **M. R. Siegfried**, 2013. Estuaries beneath ice sheets, *Geology*, **41**(11), 1159–1162, doi:10.1130/G34654.1.
- [3] Priscu, J. C., A. M. Achberger, J. E. Cahoon, B. C. Christner, R. L. Edwards, W. L. Jones, A. B. Michaud, **M. R. Siegfried**, M. L. Skidmore, R. H. Spigel and others, 2013. A microbiologically clean strategy for access to the Whillans Ice Stream subglacial environment, *Antarctic Science*, **25**(05), 637–647, doi:10.1017/S0954102013000035.
- 2012
- [2] Taylor, V. F., B. P. Jackson, **M. R. Siegfried**, J. Navratilova, K. A. Francesconi, J. Kirshtein and M. Voytek, 2012. Arsenic speciation in food chains from mid-Atlantic hydrothermal vents, *Environmental Chemistry*, **9**(2), 130–138, doi:10.1071/EN11134.
- 2011
- [1] **Siegfried, M. R.**, R. L. Hawley and J. F. Burkhart, 2011. High-Resolution Ground-Based GPS Measurements Show Intercampaign Bias in ICESat Elevation Data Near Summit, Greenland, *IEEE Transactions on Geosciences and Remote Sensing*, **49**(10), 3393–3400, doi:10.1109/TGRS.2011.2127483.
- OTHER PUBLICATIONS
- Padman, L., and **M. R. Siegfried**, 2018. Ocean Tides Affect Ice Loss from Large Polar Ice Sheets, *EOS: Earth & Space Science News*, **99**, doi:10.1029/2018EO092835.
- Fricker, H. A., F. Paolo, **M. R. Siegfried**, and S. Adusumilli, 2018. Short-term changes in Antarctica’s ice shelves are key to predicting their long-term fate, *The Conversation*, <https://theconversation.com/short-term-changes-in-antarcticas-ice-shelves-are-key-to-predicting-their-long-term-fate-95207>.

DATA SETS	Smith, B., 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, 2019. ATLAS/ICESat-2 L3A Land Ice Height, Version 1, NSDIC: National Snow and Ice Data Center, Boulder, Colorado USA, doi: 10.5067/ATLAS/ATL06.001 .
FUNDED GRANTS	National Aeronautics and Space Administration • Solicitation: Planetary Science and Technology from Analog Research (PSTAR) Title: <i>Pingo SubTerranean Aquifer Reconnaissance and Reconstruction (Pingo STARR)</i> Period: 7/2020–6/2024 PI: B. Schmidt (Georgia Tech); Science PI: K. Hughson (Georgia Tech) Lead Mines PI: M. Siegfried Co-Is: H. Sizemore (Planetary Science Institute), J. Bradford (Mines), A. Swidinsky (Mines) Funded Amount: \$2,071,221 (\$665,614 to Mines) • Solicitation: IceBridge Science Team Title: <i>Quantifying the error distribution of Operation IceBridge swath altimetry to generate robust, long-duration time series of height-changes over dynamic features in Antarctica</i> Period: 4/2017–3/2020 Science PI/Science Team Member: M. Siegfried (Institutional PI: H. Fricker) Funded Amount: \$334,080 • Solicitation: Studies with ICESat and CryoSat-2 Title: <i>Understanding the climate drivers of Antarctic ice shelf changes through analyses of multi-mission satellite altimetry, airborne remote sensing and models</i> Period: 1/2017–12/2019 PI: L. Padman (ESR) Co-I: H. Fricker (SIO) Funded Amount: \$863,849 (\$384,955 to UCSD) National Science Foundation • Program: Antarctic Antarctic Integrated System Science Period: 7/2019–6/2022 Title: <i>WAIS Workshops 2019-2021: An annual transdisciplinary forum for studies of the West Antarctic Ice Sheet by the next generation of polar scientists</i> PI: M. Siegfried Funded Amount: \$123,524 • Program: Antarctic Antarctic Integrated System Science (supplement to <i>Collaborative Research: Subglacial Antarctica Lake Scientific Access</i>) Period: 5/2018–5/2019 Title: <i>Subglacial Lake Mercer temperature time series for quantifying lake dynamics</i> Science PI: M. Siegfried (Institutional PI: H. Fricker) Funded Amount: \$39,917 • Program: Antarctic Glaciology Period: 12/2017–11/2020 Title: <i>Mapping Antarctic subglacial water in three dimensions with novel electromagnetic techniques</i> Science PI: M. Siegfried (Institutional PI: H. Fricker) Co-I: K. Key Funded Amount: \$448,933

- Program: Antarctic Integrated System Science
Title: *Collaborative Research: Subglacial Antarctica Lake Scientific Access (SALSA)*
Period: 9/2016–8/2019
PI: J. Priscu (MSU)
Co-Is: M. Skidmore (MSU), A. Leventer (Colgate), E. Domack (U. South Florida),
Brad Rosenheim (U. South Florida), Brent Christner (U. Florida), W.B. Lyons (OSU),
H. Fricker (SIO)
Funded Amount: \$2,900,162 (\$349,732 to UCSD)

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 Scholar Advising

Roger Michaelides, 2020–present

Shane Grigsby, 2019–present

Graduate Student Advising

Jared Klemm, Geophysics, 2020–present

Wilson Sauthoff, Hydrologic Science & Engineering, 2020–present

Elena Savidge, Geophysics, 2020–present

Visiting Graduate Student Mentorship

Emma Pearce, University of Leeds, School of Earth and Environment, 2019

Undergraduate Student Mentorship

Matt Oleszko, Geophysics, 2019–present

Anna Valentine, Geophysics, 2020–present

Becca Prentice, Geophysics, 2020–present

Dissertation Committee Membership

Devon Dunmire, University of Colorado Boulder, Atmospheric & Ocean Sciences,
2020–present

TEACHING
EXPERIENCE

Colorado School of Mines, Golden, CO

Instructor

GPGN470/570: Applications of Remote Sensing Spring 2020

GPGN101: Geophysics & Society Spring 2020

GPGN498A/C: Geophysical Remote Sensing Spring 2019

Co-Instructor

GPGN486: Geophysics Field Camp Summer 2019

Cryospheric Science with ICESat-2 Hackweek 2019, U. Washington July 2019

Scripps Institution of Oceanography, La Jolla, CA

Co-Instructor

SIO115: Ice and the Climate System Winter 2017

GMT Workshop for geodynamics REU students June 2016

Guest Lecturer

The basal rheology knob

SIO209: Ice Sheet Seminar 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
<i>Teaching Assistant</i>	
Remote Sensing	Spring 2013
Instructors: Dr. David Sandwell, Dr. Helen Fricker	

Dartmouth College, Hanover, NH

<i>Teaching Assistant</i>	
Dartmouth College Field Program	Fall 2009
<i>Glaciology, Quaternary Geology, Structure and Geologic Mapping</i>	
Instructors: Dr. Bob Hawley, Dr. Erich Osterberg, Dr. Meredith Kelly	
Ecological Agriculture	Summer 2009
Instructors: Dr. Jill Mikucki, Dr. Sarah Smith	
Glaciology	Spring 2009
Instructor: Dr. Robert Hawley	
Polar Geobiology	Fall 2009
Instructor: Dr. Jill Mikucki	
Introduction to Computer Science	Spring 2006
Instructor: Dr. Thomas Cormen	
<i>Laboratory Teaching Assistant</i>	
Mineralogy	Summer 2007
Instructor: Dr. Ed Meyer	
<i>Guest Lecturer</i>	
Data analysis and scientific writing	
<i>ENVS25: Ecological Agriculture</i>	25 Aug. 2009
Paleoclimate and ice ages	
<i>EARS70: Glaciology</i>	19 May 2009
Life through a Snowball	
<i>EARS86: Polar Geobiology</i>	9 Dec. 2008
<i>Grader</i>	
Differential Equations	Winter 2008

INVITED TALKS

Slippery When Wet: Dynamic subglacial hydrology and the Antarctic ice sheet	
<i>Department of Geosciences Research Seminar, Boise State University</i>	26 Apr. 2018
Building a "Long Data" perspective to examine decadal-scale variability in Antarctica	
<i>Geophysics Seminar, Colorado School of Mines</i>	4 Apr. 2018
Deep, Dark, and Wet: Dynamic subglacial hydrology in Antarctica	
<i>Earth & Planetary Science Seminar, Washington University in St. Louis</i>	1 Feb. 2018
Piecing together a "Long Data" perspective to examine Antarctic ice-sheet variability	
<i>Earth and Climate Seminar, University of Maine</i>	25 Oct. 2017
Piecing together a "Long Data" perspective in Antarctica to understand ice-sheet variability	
<i>SIO Research Seminar, Scripps Institution of Oceanography</i>	31 Aug. 2017
Subglacial hydrology, basal processes, and velocity transients in Antarctica	

<i>Ice Sheet System Model Workshop</i>	23 Jun. 2016
Antarctic subglacial hydrology: A review	
<i>IDPO Subglacial Access Working Group Workshop</i>	21 May 2016
Episodic hydrology, episodic ice streams: Unraveling the impact of active subglacial lakes in Antarctica	
<i>Earth Section Seminar, University of California, Santa Cruz</i>	10 May 2016
Unraveling the impact of dynamic subglacial lake drainage in Antarctic	
<i>Geophysics Seminar, Scripps Institution of Oceanography</i>	22 Apr. 2016
Planes, penguins, and cookies: Scientific outreach from Antarctica	
<i>GPS and the Cryosphere, 2016 UNAVCO Science Workshop</i>	29 Mar. 2016
Dynamic subglacial hydrology in Antarctica: timescales, evolution, and impacts	
<i>Geophysics Seminar, Stanford University</i>	1 Mar. 2016
Extending the episodic hydrology record across Antarctica	
<i>West Antarctic Ice Sheet Workshop</i>	19 Sep. 2015
Peering under the ice to the Antarctic Slip 'n' Slide	
<i>UCSD Extension: Environmental Leadership & Sustainability</i>	06 Jul. 2015
Investigating coupled subglacial hydrologic and ice dynamic evolution using ground- and satellite-based observations	
<i>Center for Climate Sciences Research Seminar, NASA-JPL</i>	19 Jun. 2015
Using CryoSat-2 to retrieve dynamic surface changes (& observations of stick-slip motion)	
<i>IGPP Geodesy Seminar, Scripps Institution of Oceanography</i>	22 Apr. 2015
A decade of progress observing and modeling Antarctic subglacial water systems	
<i>Subglacial Antarctic lake exploration: first results and future plans, The Royal Society [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

- IRIS/UNAVCO, Polar Networks Science Committee, Member, 2018–present
- NASA IceBridge Mission, Science Team, Member, Jan. 2017–present
- American Meteorological Society Committee on Polar Meteorology and Oceanography, Member, Jan. 2017–present
- 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 Cryospheric Sciences (panel member, ad hoc)*, *NSF Antarctic Glaciology (ad hoc)*, *NSF Antarctic Earth Sciences (ad hoc)*, *NSF Antarctic Integrated System Science (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: *Cryosphere/Sea-Level* (2018 UNAVCO Science Workshop); *Advances in understanding processes at the beds of glaciers and ice sheets* (AGU Fall Meeting 2017); *Advances in understanding processes at the beds of glaciers and ice sheets* (AGU Fall Meeting 2016); *IgniteIGS—Early career perspectives on the future of ice-ocean research* (IGS La Jolla 2016); *Greenland Run-off* (IGS La Jolla 2016); *Advances in Our Understanding of Processes at the Beds of Glaciers and Ice Sheets* (AGU Fall Meeting 2015)
- Judging: *Flash Freeze Cryosphere Innovation Award for Students* (AGU Fall Meeting 2017); *Outstanding Student Presentation Award* (AGU Fall Meeting 2017)

Workshops

- Rapid Access Ice Drill (RAID) Science Workshop 2017, 2–3 Mar. 2017, La Jolla, California.
Helped develop and write Science and Implementation Plan for the future use of RAID.
- Subglacial Access Drilling: An Ice Drilling Program Office science planning workshop, 22–23 May 2016, Herndon, Virginia.
Invited participant to discuss community scientific goals, potential drilling targets, and proposed dates for major science projects to be included in the IDPO Long Range Science Plan.
- West Antarctica Ice Sheet science plan development, 13–15 Jan. 2016, University of Colorado, Boulder.
Co-authored white paper submitted to the National Science Foundation Antarctic Program entitled, How much, how fast? A decadal science plan quantifying the rate of change of the West Antarctic Ice Sheet now and in the future.

Outreach

- 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” (Earthar, 31 Dec. 2018)
- Featured in “The Machines That Spy on Antarctica’s Hidden Lakes” (Earthar, 19 Dec. 2018)
- Measuring the Earth with Space Lasers: ICESat-2, NASA’s newest mission, Clarence Ruth Elementary School, Lompoc, CA (13 Sept. 2018)

- Developed exhibit “Understanding Ice: Antarctica in 360” for Stanford Library’s Earth Day 2018 symposium (24 Apr. 2018)
- Worked with U.S. Senator Lisa Murkowski’s DC staff to highlight Operation IceBridge’s work in her home state of Alaska (Facebook, 17 Mar. 2017)
- Featured in “Science fest at South Pole: Scripps Institution of Oceanography participating in eight studies, leading seven, in Antarctica this winter” (San Diego Union Tribune, Page B1, 16 Oct. 2016)
- Featured in “What Are You Doing This (Austral) Summer?” (UC San Diego News, 6 Oct. 2016)
- Invited panelist for “A Deep Dive in Ocean and Climate Science”, hosted by U.S. Department of State at the COP21 Summit, Paris, France; [available on YouTube](#) (9 Dec. 2015)
- Live Q&A on [nature.com](#): “Life on the ice” (13 Nov. 2015)
- Fieldwork weblog: “Antarctic Journal” (*Nature News*, Oct.–Dec. 2015)
- Participated in briefing for Congressman Scott Peters (CA-52) on current climate change research (18 Feb. 2015)
- Featured in “Scripps Grad Students Attend Sustainability Conference at the Vatican” (*explorations now*, 3 Jul. 2014)
- Radio interview: “Maybe Next Year? Antarctic Research Suspended Under Government Shutdown” (KPBS News, 10 Oct. 2013)
- TV interview: “Government Shutdown’s Impact on San Diegans” (NBC7 San Diego Evening News, 1 Oct. 2013)
- Ocean Beach Elementary, 3rd and 4th Grade, 7 Jun. 2013
- Featured in “At the Ends of the Earth” (*Triton Magazine*, May 2013)
- Featured in “Drilling into the Unknown” (*explorations now*, 11 Jan. 2013)
- Ocean Beach Elementary, 3rd and 4th Grade, 26 Mar. 2012

UNIVERSITY
SERVICE

Colorado School of Mines

Geophysics Diversity, Inclusion, & Access Committee, committee chair, 2019–present
#idigmines, department representative, 2019–present
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, 2007

SIGNIFICANT
FIELD
EXPERIENCE

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	National Aeronautics and Space Administration	
	ICESat-2 Mission	Group Achievement Award
	Scripps Institution of Oceanography	
	Student Video Challenge, 2014	Award Winner
	Director's Cabinet Quarterly Meeting, May 2014	Invited Presenter
	Pontifical Academy of Sciences/Pontifical Academy of Social Sciences	
	<i>Sustainable Humanity, Sustainable Nature: Our Responsibility</i>	
	Joint Workshop, May 2014	Invited Observer
	West Antarctic Ice Sheet Workshop	
	Best Student Presentation, 2013	Award Winner
	United States Congress	
	Antarctic Service Medal, 2012	Medal Recipient
PROFESSIONAL MEMBERSHIPS	Dartmouth College	
	NASA Space Grant Graduate Student Award, 2010	Award Winner
	Dana Collection of Minerals, 2007-2008	Assistant Curator
	American Geophysical Union, 2008–present	
CONFERENCE ABSTRACTS	International Glaciological Society, 2010–present	
	American Meteorological Society, 2017–present	
	Society for Advancement of Chicanos/Hispanics and Native Americans in Science	
		2019–present
		* indicates student presentation
		† indicates M.R.S. presenting author
	[111] Siegfried, M. R., H. A. Fricker, C. Gustafson, K. Key, A. Leventer, J. E. Dore, B. A. Huber, K. Mankoff, J. C. Priscu, B. E. Rosenheim and the SALSA Science Team, 2019. Anatomy of a draining subglacial lake in West Antarctica, <i>AGU Fall Meeting</i> .	
	[110] Adusumilli, S., H. A. Fricker, B. Medley, L. Padman and M. R. Siegfried, 2019.	

Time-dependent freshwater fluxes from deep and shallow meltwater sources under Antarctica’s large ice shelves, *AGU Fall Meeting*.

- [109] Becker, M. K., H. A. Fricker, L. Padman, **M. R. Siegfried**, B. Medley, I. Das, S. I. Cordero, R. E. Bell and the ROSETTA-Ice Team, 2019. Mapping Marine Ice Beneath Ross Ice Shelf, Antarctica, with ROSETTA-Ice Radar Sounding and ICESat-2 Laser Altimetry, *AGU Fall Meeting*.
- [108] Bienert, N. L., D. M. Schroeder, S. T. Peters, E. Dawson, E. Mackie and **M. R. Siegfried**, 2019. Inferring Temperature Distribution in Shear Margins from Large-Offset Bistatic Radar Sounding, *AGU Fall Meeting*.
- [107] Gustafson, C., K. Key, **M. R. Siegfried** and H. A. Fricker, 2019. Electromagnetic imaging of subglacial hydrogeology of Whillans Ice Plain, West Antarctica, *AGU Fall Meeting*.
- [106] Jordan, T. M., D. M. Schroeder, A. Brisbourne, C. Martin, C. W. Elsworth, **M. R. Siegfried**, R. Schlegel and A. Smith, 2019. Measurement of Ice Fabric within Ice Streams using Polarimetric Phase-Sensitive Radar Sounding, *AGU Fall Meeting*.
- [105] Priscu, J. C., J. D. Barker, T. Campbell, B. C. Christner, C. Davis, J. E. Dore, H. A. Fricker, C. B. Gardner, D. M. Harwood, A. Leventer, W. Li, W. B. Lyons, A. B. Michaud, M. Patterson, B. E. Rosenheim, **M. R. Siegfried**, M. L. Skidmore, M. Tranter, R. Venturelli, T. Vick-Majors, B. Zook and the SALSA Science Team, 2019. SALSA: An Integrated Program Focusing on Carbon Transformations in Mercer Subglacial Lake located ~1100 m beneath the West Antarctic Ice Sheet, *AGU Fall Meeting*.
- [104] Skidmore, M. L., C. B. Gardner, A. Steigmeyer, **M. R. Siegfried**, J. D. Barker, J. E. Dore, B. G. Olivas, J. Hawkings, W. B. Lyons, M. Tranter, J. C. Priscu and the SALSA Science Team, 2019. A tale of two lakes — contrasting weathering regimes in proximal subglacial Antarctic systems, *AGU Fall Meeting*.
- [103] Smith, B. E., B. Medley, F. S. Paolo, J. Nilsson, N. Holschuh, S. Adusumilli, **M. R. Siegfried** and the ICESat-2 Land-Ice Team, 2019. Sixteen Years of Ice-Sheet Change from ICESat to ICESat-2, *AGU Fall Meeting*.
- [102] Venturelli, R., B. E. Rosenheim, A. Leventer, D. M. Harwood, M. O. Patterson, T. Campbell, **M. R. Siegfried**, H. A. Fricker and the SALSA and WISSARD Science Teams, 2019. A Dynamic Holocene Grounding Line: In situ sedimentary evidence from Whillans and Mercer ice streams, West Antarctica, *AGU Fall Meeting*.
- [101] Barcheck, G., E. Brodsky, P. Fulton, M. King, **M. R. Siegfried** and S. Tulaczyk, 2019. Insights into earthquake initiation from ice stream stick-slip dynamics, *International Antarctic Earth Science Workshop*.
- [100] Derby, L., N. Ross, F. Ferraccioli, R. Carr, T. Jordan, **M. R. Siegfried**, G. Paxman, K. Matsuoka, R. Forsberg and T. Casal, 2019. Active subglacial lakes of the Foundation Ice Stream, Antarctica, *International Glaciological Society British Branch Meeting*.
- [99] *Becker, M. K., H. A. Fricker, L. Padman, **M. R. Siegfried**, C. Mosbeaux and T. J. W. Wagner, 2019. An overlooked ice-shelf calving process for accelerating Antarctic Ice Sheet loss, *Forum for Research into Ice Shelf Processes*.

- [98] *Adusumilli, S., H. A. Fricker, B. Medley, L. Padman and **M. R. Siegfried**, 2019. Partitioning time-varying meltwater fluxes from Antarctica's large ice shelves into the intermediate and upper ocean, *Forum for Research into Ice Shelf Processes*.
 - [97] **Siegfried, M. R.**, H. A. Fricker, C. Gustafson, K. Key, A. Leventer, J. E. Dore, B. Huber, K. Mankoff, J. Priscu, B. Rosenheim and the SALSA Science Team, 2019. Physical properties of a draining subglacial lake, *International Symposium on Antarctic Earth Science*.
 - [96] **Siegfried, M. R.** and D. M. Schroeder, 2019. Interpreting radar bed-echo power from active subglacial lakes on lower Mercer and Whillans ice streams, West Antarctica, *IGS Symposium on Radioglaciology*.
 - [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*.
 - [94] Chu, W., D. Schroeder and **M. R. Siegfried**, 2019. Retrieval of firn aquifer thickness and englacial water volume using ice-penetrating radar sounding, *IGS Symposium on Radioglaciology*.
 - [93] Jordan, T., D. Schroeder, C. Elsworth, D. Jørgen and **M. R. Siegfried**, 2019. Estimation of ice fabric within the Whillans Ice Stream using polarimetric phase-sensitive radar sounding, *IGS Symposium on Radioglaciology*.
 - [92] Davis, C., W. Li, T. Vick-Majors, J. D. Barker, A. Michaud, J. E. Dore, **M. R. Siegfried**, M. Tranter, M. S. and dChris Gardner, R. Venturelli, T. Campbell, M. O. Patterson, A. Leventer, D. M. Harwood, B. E. Rosenheim, J. C. Priscu and B. C. Christner, 2019. Life Below an Ice Sheet: Mercer Subglacial Lake, West Antarctica, *Astrobiology Science Conference*.
 - [91] Jordan, T. M., D. M. Schroeder, C. W. Elsworth, D. Castelletti, J. Li, **M. R. Siegfried** and J. Dall, 2019. Polarimetric coherence: a data analysis method to determine ice fabric from phase-sensitive radar sounding, *EGU General Assembly*.
- 2018
- [90] *Adusumilli, S., H. A. Fricker, L. Padman and **M. R. Siegfried**, 2018. Time-varying freshwater fluxes from Antarctic ice shelves, *AGU Fall Meeting*.
 - [89] *Becker, M. K., H. A. Fricker, L. Padman, **M. R. Siegfried**, C. Mosbeux and T. J. Wagner, 2018. Dynamic small-scale morphology and mass-loss processes near the fronts of Antarctica's large ice shelves, *AGU Fall Meeting*.
 - [88] Chu, W., D. Schroeder and **M. R. Siegfried**, 2018. Retrieval of Englacial Firn Aquifer Thickness from Ice-Penetrating Radar Sounding in Southeastern Greenland, *AGU Fall Meeting*.
 - [87] Das, I., L. Padman, R. E. Bell, K. J. Tinto, H. A. Fricker, N. Frearson, C. S. Siddoway and **M. R. Siegfried**, 2018. Airborne Radar Reveals Multi-Decadal Basal Melt Rates for Ross Ice Shelf, Antarctica, *AGU Fall Meeting*.
 - [86] Padman, L., R. E. Bell, I. Das, C. Mosbeux, D. Porter, C. S. Siddoway, **M. R. Siegfried**, S. R. Springer, K. J. Tinto and the ROSETTA-Ice Team, 2018. Ice Shelf Vulnerability to Seasonal Upper Ocean Warming, *AGU Fall Meeting*.

- [85] Smith, B. E., A. S. Gardner, N. Holschuh, **M. R. Siegfried**, B. M. Csatho, A. F. Schenk, S. Adusumilli, T. Neumann, K. M. Brunt and K. Harbeck, 2018. ICESat-2 Over Antarctica and Greenland: First Evaluation of Land-Ice Elevation Products, *AGU Fall Meeting*.
- [84] Tinto, K. J., R. E. Bell, I. Das, H. A. Fricker, L. Padman, D. Porter, C. Siddoway, **M. R. Siegfried**, S. R. Springer and the ROSETTA-Ice Team, 2018. Tectonic setting controls long term stability of Ross Ice Shelf, *AGU Fall Meeting*.
- [83] **Siegfried, M. R.** and D. M. Schroeder, 2018. Reconciling conflicting observations of active subglacial lakes: A case study on lower Mercer and Whillans ice streams, *WAIS Workshop*.
- [82] *Adusumilli, S., H. A. Fricker, L. Padman and **M. R. Siegfried**, 2018. Time-varying freshwater fluxes from Antarctic ice shelves, *WAIS Workshop*.
- [81] *Becker, M. K., H. A. Fricker, L. Padman, **M. R. Siegfried**, C. Mosbeux and T. J. Wagner, 2018. Dynamic small-scale morphology and mass-loss processes near the front of Ross Ice Shelf, *WAIS Workshop*.
- [80] Das, I., L. Padman, R. E. Bell, K. J. Tinto, H. A. Fricker, N. Frearson, C. S. Siddoway and **M. R. Siegfried**, 2018. Multi-Decadal Basal Melt Rates from Airborne Radar for Ross Ice Shelf, Antarctica, *WAIS Workshop*.
- [79] Schroeder, D. M., J. A. Dowdeswell, M. J. Siegert, R. G. Bingham, W. Chu, E. J. MacKie, **M. R. Siegfried**, K. I. Vega, J. R. Emmons and K. Winstein, 2018. Multi-Decadal Observations of the Antarctic Ice Sheet from Archival Radar Film, *WAIS Workshop*.
- [78] **Siegfried, M. R.** and D. M. Schroeder, 2018. Radar sounding of active subglacial lakes on the Siple Coast, *Bay Area Glaciology Meeting*.
- [77] Mosbeux, C., T. Wagner, M. Becker, H. A. Fricker and **M. R. Siegfried**, 2018. Buoyancy stresses as drivers of ice-shelf calving, *IGS Symposium on Timescales, Processes, and Glacier Dynamics*.
- [76] **Siegfried, M. R.**, D. M. Schroeder and D. Castelletti, 2018. Looking forward and backward: New techniques for quantifying dynamic surface-height changes with radar altimetry in Antarctica, *European Space Agency's 25 Years of Progress in Radar Altimetry*.
- [75] **Siegfried, M. R.**, S. Adusumilli, H. A. Fricker, T. Scambos, D. Schroeder and B. Smith, 2018. Investigating Large Active Subglacial Lake Drainages in East Antarctica, *Scientific Committee on Antarctica Research Open Science Conference*.
- [74] *Becker, M. K., H. A. Fricker, R. E. Bell, C. Mosbeux, L. Padman, D. F. Porter, **M. R. Siegfried** and T. J. Wagner, 2018. Ross Ice Shelf front morphology from airborne and satellite laser altimetry, *Workshop on Antarctic Surface Hydrology and Future Ice Shelf Stability*.
- [73] Begeman, C. B., S. M. Tulaczyk, O. J. Marsh, J. A. Mikucki, T. P. Stanton, T. O. Hodson, **M. R. Siegfried**, R. D. Powell, K. Christianson and M. A. King, 2018. Ocean stratification reduces melt rates at the grounding zone of Ross Ice Shelf, *WAIS Workshop*.

2017

- [72] **Siegfried, M. R.**, S. Adusumilli, H. A. Fricker, T. A. Scambos, D. M. Schroeder and B. E. Smith, 2017. Unraveling the cause of large surface-height anomalies on Slessor and Recovery glaciers, East Antarctica, with multi-mission data integration, *AGU Fall Meeting*.
- [71] *Adusumilli, S., **M. R. Siegfried**, F. S. Paolo, H. A. Fricker and L. Padman, 2017. Twenty-three years of height changes on Antarctic Peninsula ice shelves, *AGU Fall Meeting*.
- [70] *Becker, M. K., H. A. Fricker, L. Padman, R. E. Bell, **M. R. Siegfried**, C. C. M. Dieck and the ROSETTA-Ice Team, 2017. Mapping Ross Ice Shelf with ROSETTA-Ice airborne laser altimetry, *AGU Fall Meeting*.
- [69] Begeman, C. B., S. M. Tulaczyk, O. Marsh, J. Mikucki, T. P. Stanton, T. O. Hodson, **M. R. Siegfried**, R. D. Powell, K. Christianson and M. A. King, 2017. Ocean stratification reduces melt rates at the grounding zone of Ross Ice Shelf, *AGU Fall Meeting*.
- [68] †Key, K. and **M. R. Siegfried**, 2017. The feasibility of imaging subglacial hydrology beneath ice streams with ground-based electromagnetics, *AGU Fall Meeting*.
- [67] Tinto, K. J., C. S. Siddoway, L. Padman, H. A. Padman, I. Das, D. F. Porter, S. R. Springer, **M. R. Siegfried**, F. C. Tontini, R. E. Bell and the ROSETTA-Ice Team, 2017. Duality of Ross Ice Shelf systems: crustal boundary, ice-sheet processes, and ocean circulation from ROSETTA-Ice surveys, *AGU Fall Meeting*.
- [66] **Siegfried, M. R.**, 2017. Six years of variable height-changes of Siple Coast ice streams from CryoSat-2 altimetry, *WAIS Workshop*.
- [65] *Adusumilli, S., **M. R. Siegfried**, F. S. Paolo, H. A. Fricker and L. Padman, 2017. Contrasting causes of decadal-scale variability of ice-shelf height changes across the Antarctic Peninsula, *WAIS Workshop*.
- [64] *Becker, M. K., H. A. Fricker, L. Padman, R. E. Bell, **M. R. Siegfried**, C. C. M. Dieck and the ROSETTA-Ice Team, 2017. Mapping Ross Ice Shelf with ROSETTA-Ice airborne laser altimetry, *WAIS Workshop*.
- [63] Begeman, C. B., S. M. Tulaczyk, O. J. Marsh, J. A. Mikucki, T. P. Stanton, T. O. Hodson, **M. R. Siegfried**, R. D. Powell, K. Christianson and M. A. King, 2017. Ocean stratification reduces melt rates at the grounding zone of Ross Ice Shelf, *WAIS Workshop*.
- [62] *Elsworth, C. W., D. M. Schroeder and **M. R. Siegfried**, 2017. Internal layer deformation reveals past ice flow over the central sticky spot of Whillans Ice Stream, West Antarctica, *WAIS Workshop*.
- [61] Padman, L., **M. R. Siegfried** and H. A. Fricker, 2017. Tides on Antarctic Ice Shelves from Cryosat-2 Radar Altimetry, *WAIS Workshop*.
- [60] *Vega, K. I., D. M. Schroeder, E. J. MacKie, **M. R. Siegfried**, J. R. Emmons, K. Winstein, R. G. Bingham and J. A. Dowdeswell, 2017. Initial Analysis of High-Resolution Digitized Radar Sounding Data Recovered from the SPRI/NSF/TUD Film Archive of Antarctic Ice Sheet, *WAIS Workshop*.

- [59] Damsgaard, A., J. Suckale, J. A. Piotrowski, M. Houssais, **M. R. Siegfried** and H. A. Fricker, 2017. Discrete-element simulation of subglacial sediments: Grounding-line proximate till mechanics and soft-bed channel dynamics, *GSA Annual Meeting*.
 - [58] **Siegfried, M. R.**, 2017. What's happening at the bed: Radar sounding of dynamic surface-height anomalies in East Antarctica, *Bay Area Glaciology Meeting 2017*.
 - [57] *Adusumilli, S., **M. R. Siegfried**, F. S. Paolo, H. A. Fricker and L. Padman, 2017. Twenty-three years of satellite radar altimetry over Antarctic ice shelves, *Forum for Research into Ice Shelf Processes Workshop*.
 - [56] *Becker, M., H. A. Fricker, L. Padman, **M. R. Siegfried**, R. E. Bell, C. D. Locke, S. Adusumilli, C. Bertinato, K. J. Tinto and the ROSETTA-Ice Team, 2017. High-Resolution Mapping of Ross Ice Shelf Thickness from ROSETTA-Ice Airborne LiDAR Surveys, *Forum for Research into Ice Shelf Processes Workshop*.
 - [55] *Adusumilli, S., **M. R. Siegfried**, F. S. Paolo, H. A. Fricker and L. Padman, 2017. Twenty-two years of radar-derived height changes over Antarctic ice shelves, *European Geosciences Union General Assembly 2017*.
 - [54] **Siegfried, M. R.** and H. A. Fricker, 2017. Fourteen years of subglacial lake activity in Antarctica from multi-mission altimetry, *North American CryoSat Science Meeting*.
 - [53] *Adusumilli, S., **M. R. Siegfried**, F. S. Paolo, H. A. Fricker and L. Padman, 2017. Extending Antarctic ice shelf height change time series using CryoSat-2, *North American CryoSat Science Meeting*.
 - [52] **Siegfried, M. R.**, 2017. SALSA Surface Geophysics Update: Current state at Subglacial Lake Mercer, *SALSA Project Planning Meeting*.
- 2016
- [51] Damsgaard, A., D. L. Egholm, L. H. Beem, S. Tulaczyk, N. K. Larsen, J. A. Piotrowski and **M. R. Siegfried**, 2016. Subglacial sediment mechanics investigated by computer simulation of granular material, *AGU Fall Meeting*.
 - [50] Meyer, C. R., B. P. Lipovsky and **M. R. Siegfried**, 2016. Inferring subglacial lake water pressure from a bending model of surface displacement observations, *AGU Fall Meeting*.
 - [49] **Siegfried, M. R.**, B. C. Medley, K. M. Larson, H. A. Fricker and S. Tulaczyk, 2016. Detection of variability in surface processes with GPS interferometric reflectometry: application on Whillians Ice Plain, *WAIS Workshop*.
 - [48] Damsgaard, A., D. L. Egholm, L. H. Beem, S. Tulaczyk, N. K. Larsen, J. A. Piotrowski and **M. R. Siegfried**, 2016. Creep and stick-slip in subglacial granular beds forced by variations in water pressure, *WAIS Workshop*.
 - [47] Das, I., J. Millstein, W. Chu, **M. R. Siegfried**, L. Padman, R. Bell, K. Tinto, H. A. Fricker and the ROSETTA-ICE Team, 2016. Basal reflectivity, mass balance and structure of the Ross Ice Shelf, *WAIS Workshop*.
 - [46] Meyer, C. R., B. P. Lipovsky and **M. R. Siegfried**, 2016. Pressure changes in Subglacial Lakes, *WAIS Workshop*.

2015

- [45] **Siegfried, M. R.**, D. M. Schroeder, T. Scambos, S. P. Carter and H. A. Fricker, 2016. A large, rapid subglacial lake drainage beneath Slessor Glacier, East Antarctica, and its potential impact in the Filchner Trough, *IGS Symposium on Ice-Ocean Interaction*.
- [44] Damsgaard, A., D. L. Egholm, L. H. Beem, S. Tulaczyk, N. K. Larsen, J. A. Piotrowski and **M. R. Siegfried**, 2016. Creep and stick-slip in subglacial granular beds forced by ocean tides, *IGS Symposium on Ice-Ocean Interaction*.
- [43] Key, K. and **M. R. Siegfried**, 2016. The feasibility of imaging subglacial water systems near the grounding zone using electromagnetic soundings, *IGS Symposium on Ice-Ocean Interaction*.
- [42] **Siegfried, M. R.**, H. A. Fricker, S. P. Carter and S. Tulaczyk, 2015. Rapid subglacial water system evolution triggered by subglacial floods in West Antarctica, *AGU Fall Meeting*.
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