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CONTACT INFORMATION

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ACADEMIC APPOINTMENTS

Associate Professor — April 2024 to present

Assistant Professor — 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

Thompson Postdoctoral Fellow — May 2017 to December 2018
Department of Geophysics
School of Earth, Energy, and Environmental Sciences
Stanford University
Mentor: Dr. Dustin M. Schroeder

Postdoctoral Scholar — October 2015 to April 2017
Institute of Geophysics and Planetary Physics
Scripps Institution of Oceanography
University of California, San Diego
Supervisor: Dr. Helen A. Fricker

EDUCATION

PhD in Earth Sciences — October 2015
Institute of Geophysics and Planetary Physics
Scripps Institution of Oceanography, La Jolla, CA
Dissertation: *Investigating Antarctic ice sheet subglacial processes beneath the Whillans Ice Plain, West Antarctica, using satellite altimetry and GPS*
Adviser: Dr. Helen A. Fricker

Master of Science in Earth Sciences — July 2010
Dartmouth College, Hanover, NH
Thesis: *On the use of high-precision GPS surveys for validation of ICESat altimetry measurements and investigation of seasonal ice-surface fluctuations*
Adviser: Dr. Robert L. Hawley

Bachelor of Arts in Earth Sciences — June 2008
Dartmouth College, Hanover, NH
Magna cum Laude, *Phi Beta Kappa*
Senior Thesis for High Honors: *Hydrothermal Waters of Ischia, Italy: A revisitation of groundwater mixing and the ramifications for environmental arsenic contamination*
Adviser: Dr. Benjamin Bostick

MANUSCRIPTS IN REVIEW

* *indicates student or postdoctoral advisee*
ˆ *indicates student on whose dissertation committee I served*
† *indicates co-first authors*

[93] *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*.

[92] *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*.

[91] *Hills, B., **M. R. Siegfried**, N. Holschuh, H. Verboncoeur* and D. Schroeder, in review. Resolving radiostratigraphy with squinted synthetic aperture radar focusing, *Journal of Glaciology*.

[90] *Katz, Z. S., **M. R. Siegfried** and L. Padman, in review. Ice Stream Deceleration and Slip-Event Timing is Modulated at Long-Period Ocean Tidal Frequencies at Whillans Ice Plain, West Antarctica, *Journal of Geophysical Research: Earth Surface*.

[89] ^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*.

[88] *Sauthoff, W., **M. R. Siegfried**, R. A. Venturelli and B. E. Smith, in review. Dynamic Boundaries of Antarctic Active Subglacial Lakes: Time-Evolving Outlines Reveal Underestimated Water Fluxes, *Geophysical Research Letters*.

[87] *Snow, T., A. Harris, S. Grigsby, E. Abrahams, E. Savidge*, T. Scambos, F. Pèrez, 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*.

[86] *Willis, R., J. Grimm, F. Stanek, P. Edme, A. Fichtner, B. P. Lipovsky, P. Paitz, F. Walter, **M. R. Siegfried** and E. R. Martin, in review. Creating a Comprehensive Cryoseismic Catalog at Rhonegletscher: A Scalable Approach Using Distributed Acoustic Sensing and Machine Learning, *Machine Learning: Earth*.

[85] 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*.

[84] Matsuoka, K., G. Moholdt, J. F. Arthur, J. A. Bodart, X. Cui, F. Ferraccioli, R. Forsberg, V. Goel, T. A. Jordan, F. S. McCormack, R. Mottram, H. D. Pritchard, C. Shackleton, K. Tinto, F. Boberg, M. G. P. Cavitte, R. Drews, P. Dutrieux, J. Ebbing, O. Eisen, H. Eisermann, A. S. Gardner, C. A. Greene, N. Holschuh, S. S. R. Jamieson, B.-H. Kim, N. Krauzig, B. Kulessa, C. Leuschen, J. Li, L. Li, J. Liebsch, J. A. MacGregor, E. MacKie, A. Mahagaonkar, J. Maton, M. Morlighem, F. Navarro, P. Neff, I. N. Otosaka, F. Pattyn, A. Ruppel, R. J. Sanderson, H. Seroussi, A. Shepherd, **M. R. Siegfried**, T. Slater, A. P. Stroeven, M. Studinger, T. Teisberg, R. A. Venturelli, P. J. Winberry, C. Zhao, L. An, J. L. Bamber, R. E. Bell, R. G. Bingham, J. Brehmer-Moltmann, G. Eagles, J. Greenbaum, J. Gronset, W. S. Lee, E. L. Meur, L. M. Jon, K. Lindbäck, S. Lidström, M. Lösing, M. Minowa, M. Pandey, Y. Ray, M. Scheinert, D. M. Schroeder, T. Seehaus, K. Shahateet, D. Steinhage, X. Tang, D. Taylor, H. Verboncoeur*, J. Yang and D. A. Young, in review. Towards an improved understanding of the Antarctic coastal zone and its contribution to future global sea level, *Reviews of Geophysics*.

[83] 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*.

[82] Ross, N., R. J. Sanderson, B. Kulessa, 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.

[81] 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.

[80] Sutterley, T. C., S. L. Howard, L. Padman and **M. R. Siegfried**, in review. pyTMD: Python-based tidal prediction software, *Journal of Open Source Software*.

Refereed Journal Publications

[79] *Hills†, B. H., T. J. Young†, D. A. Lilien†, 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*, accepted.

[78] ^Peter, I., E. J. Anderson, **M. R. Siegfried** and N. T. Kurtz, 2025. A Novel Algorithm for Ice-Water Discrimination in Large Lakes using ICESat-2 and Data Driven Machine Learning, *Earth and Space Science*, **12**(6), e2024EA004155, doi:10.1029/2024EA004155.

[77] ^Sartore, N. B., T. J. Wagner, **M. R. Siegfried**, N. Pujara and L. K. Zoet, 2025. Wave erosion, frontal bending, and calving at Ross Ice Shelf, *The Cryosphere*, **19**, 249–265, doi:10.5194/tc-19-249-2025.

[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*, 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 Crary 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†, R. G., J. A. Bodart†, M. G. P. Cavitte†, A. Chung†, R. J. Sanderson†, J. C. R. Sutter†, 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. Kulessa, K. Matsuoka, C. J. Nyqvist, M. Rahnemoonfar, **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.

[73] Bryant, M. B., A. A. Borsa, E. J. Anderson, C. C. Masteller, R. J. Michaelides*, **M. R. Siegfried** and A. P. Young, 2025. Multiple modes of shoreline change along the Alaskan Beaufort Sea observed using ICESat-2 altimetry and satellite imagery, *The Cryosphere*, **19**, 1825–1847, doi:10.5194/tc-19-1825-2025.

[72] Campbell, T. C., M. L. Skidmore, M. O. Patterson, J. E. Dore, D. M. Harwood, A. Leventer, A. B. Michaud, B. E. Rosenheim, **M. R. Siegfried**, A. Steigmeyer, M. Tranter, R. A. Venturelli, J. C. Priscu and the SALSA Science Team, 2025. Dynamic subglacial meltwater history archived in Antarctic subglacial lake sediments , *GSA Bulletin*, doi:10.1130/B37731.1.

[71] Horgan, H. J., C. Stewart, C. Stevens, G. Dunbar, L. Balfoort, B. E. Schmidt, P. Washam, M. A. Werder, D. Mandeno, J. Marschalek, C. Hulbe, N. Holschuh, R. Levy, B. Hurwitz, S. Jendersie, K. Johnson, J. Lawrence, R. Morgenstern, A. D. Mullen, E. Quartini, W.

Sauthoff*, **M. R. Siegfried**, H. Still, S. Thorpe-Loversuch, T. van de Flierdt, R. Venturelli and A. Whiteford, 2025. A West Antarctic grounding-zone environment shaped by episodic water flow, *Nature Geoscience*, **18**(5), 389–395, doi:10.1038/s41561-025-01687-3.

[70] Roth, D. L., G. Jin, M. Bezada, C. C. Masteller, **M. R. Siegfried**, A. Titov and B. Tate, 2025. A River on Fiber: Spatially Continuous Fluvial Monitoring with Distributed Acoustic Sensing, *Seismica*, accepted.

[69] 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, 2025. Next generation radar bed measurements should be optimized for assimilation or repeat-pass profiling, *Philosophical Transactions of the Royal Society A*, accepted.

2024

[68] *Hills, B. H., **M. R. Siegfried** and D. M. Schroeder, 2024. Entrained Water in Basal Ice Suppresses Radar Bed-Echo Power at Active Subglacial Lakes, *Geophysical Research Letters*, **51**(13), doi:10.1029/2024gl109248.

[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.

[66] Freer, B. I. D., O. J. Marsh, H. A. Fricker, A. E. Hogg, **M. R. Siegfried**, D. Floricioiu, W. Sauthoff*, R. Rigby and S. F. Wilson, 2024. Coincident Lake Drainage and Grounding Line Retreat at Engelhardt Subglacial Lake, West Antarctica, *Journal of Geophysical Research: Earth Surface*, **129**(9), e2024JF007724, doi:10.1029/2024JF007724.

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†, M. R.**, R. A. Venturelli†, M. O. Patterson, W. Arnuk, T. D. Campbell, C. D. Gustafsonˆ, A. B. Michaud, B. K. Galton-Fenzi, M. B. Hausner, S. N. Holzschuh*, B. Huber, K. D. Mankoff, D. M. Schroeder, P. Summers, S. Tyler, S. P. Carter, H. A. Fricker, D. M. Harwood, A. Leventer, B. E. Rosenheim, M. L. Skidmore, J. C. Priscu and the SALSA Science Team, 2023. The life and death of a subglacial lake in West Antarctica, *Geology*, **51**(5), 434–438, doi:10.1130/G50995.1.

[62] *Snow, T., W. Zhang, E. Schreiber, **M. R. Siegfried**, W. Abdalati and T. Scambos, 2023. Alongshore Winds Force Warm Atlantic Water Toward Helheim Glacier in Southeast Greenland, *Journal of Geophysical Research: Oceans*, **128**, doi:10.1029/2023JC019953.

[61] Davis, C. L., R. A. Venturelli, A. B. Michaud, J. R. Hawkings, A. M. Achberger, T. J. Vick-Majors, B. E. Rosenheim, J. E. Dore, A. Steigmeyer, M. L. Skidmore, J. D. Barker, L. G. Benning, **M. R. Siegfried**, J. C. Priscu, B. C. Christner and the SALSA Science Team, 2023. Biogeochemical and historical drivers of microbial community composition and structure in sediments from Mercer Subglacial Lake, West Antarctica, *ISME Communications*, **3**(1), doi:10.1038/s43705-023-00216-w.

[60] Robel, A., S. Sim, C. Meyer, **M. R. Siegfried** and C. Gustafson, 2023. Contemporary ice sheet thinning drives subglacial groundwater exfiltration with potential feedbacks on glacier flow, *Science Advances*, **9**(33), doi:10.1126/sciadv.adh3693.

[59] Rosenheim†, B. E., A. B. Michaud†, J. Broda, A. Gagnon, R. A. Venturelli, T. D. Campbell, A. Leventer, M. Patterson, **M. R. Siegfried**, B. C. Christner, D. Duling, D.

Harwood, J. E. Dore, M. Tranter, M. L. Skidmore, J. C. Priscu and the SALSA Science Team, 2023. A method for successful collection of multicores and gravity cores from Antarctic subglacial lakes, *Limnology and Oceanography: Methods*, **21**(5), 279–294, doi:10.1002/lom3.10545.

[58] Ryan, J. C., B. Medley, C. M. Stevens, T. C. Sutterley and **M. R. Siegfried**, 2023. Role of snowfall versus air temperatures for Greenland Ice Sheet melt-albedo feedbacks, *Earth and Space Science*, **10**(11), e2023EA003158, doi:10.1029/2023EA003158.

[57] Stubblefield, A. G., C. R. Meyer, **M. R. Siegfried**, W. Sauthoff* and M. Spiegelman, 2023. Reconstructing subglacial lake activity with an altimetry-based inverse method, *Journal of Glaciology*, 1–15, doi:10.1017/jog.2023.90.

[56] Venturelli, R. A., B. Boehman, C. Davis, J. R. Hawkings, S. E. Johnston, C. D. Gustafson, A. B. Michaud, C. Mosbeux, **M. R. Siegfried**, T. J. Vick-Majors, V. Galy, R. G. M. Spencer, S. Warny, B. C. Christner, H. A. Fricker, D. M. Harwood, A. Leventer, J. C. Priscu, B. E. Rosenheim and the SALSA Science Team, 2023. Constraints on the Timing and Extent of Deglacial Grounding Line Retreat in West Antarctica, *AGU Advances*, **4**, e2022AV000846, doi:10.1029/2022AV000846.

2022

[55] Bienert, N. L., D. M. Schroeder, S. T. Peters, E. J. MacKie, E. J. Dawson, **M. R. Siegfried**, R. Sanda and P. Christoffersen, 2022. Post-Processing Synchronized Bistatic Radar for Long Offset Glacier Sounding, *IEEE Transactions on Geoscience and Remote Sensing*, **60**, 1–17, doi:10.1109/tgrs.2022.3147172.

[54] ^Gustafson, C. D., K. Key, **M. R. Siegfried**, J. P. Winberry, H. A. Fricker, R. A. Venturelli and A. B. Michaud, 2022. A dynamic saline groundwater system mapped beneath an Antarctic ice stream, *Science*, **376**(6593), 640–644, doi:10.1126/science.abm3301.

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2021

[52] **Siegfried, M. R.** and H. A. Fricker, 2021. Illuminating active subglacial lake processes with ICESat-2 laser altimetry, *Geophysical Research Letters*, **48**(14), doi:10.1029/2020GL091089.

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[48] Horgan, H. J., L. van Haastrecht, R. B. Alley, S. Anandakrishnan, L. H. Beem, K. Christianson, A. Muto and **M. R. Siegfried**, 2021. Grounding zone subglacial properties from calibrated active-source seismic methods, *The Cryosphere*, **15**(4), 1863–1880, doi:10.5194/tc-15-1863-2021.

[47] MacGregor, J., L. Boisvert, B. Medley, A. Petty, J. Harbeck, R. Bell, B. Blair, E. Blanchard-Wrigglesworth, E. Buckley, M. Christoffersen, J. Cochran, B. Csatho, E. De Marco, R. Dominguez, M. Fahnestock, S. Farrell, S. P. Gogineni, J. Greenbaum, C. Hansen, M. Hofton, J. Holt, K. Jezek, L. Koening, N. Kurtz, R. Kwok, C. Larsen, C. Leuschen,

S. Manizade, S. Martin, T. Neumann, S. Nowicki, J. Paden, J. Richter-Menge, E. Rignot, F. Rodríguez-Morales, **M. R. Siegfried**, B. Smith, J. Sonntag, M. Studinger, K. Tinto, M. Truffer, T. Wagner, J. Woods, D. Young and J. Yungel, 2021. The scientific legacy of NASA's Operation IceBridge, *Reviews of Geophysics*, **59**(2), e2020RG000712, doi:10.1029/2020RG000712.

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2020

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Smith, B., D. Hancock, K. Harbeck, L. Roberts, T. Neumann, K. Brunt, H. A. Fricker, A. Gardner, **M. R. Siegfried**, S. Adusumilli, B. Csathoó, 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

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Sauthoff, W., T. Snow, J. D. Millstein*, J. Colliander and **M. R. Siegfried**, 2024. Democratizing Science in the Cloud. *EOS: Earth & Space Science News*, **105**, doi:10.1029/2024EO240385.

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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.

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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)*, doi:10.48550/arXiv.2404.10927.

[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*, doi:10.1109/IGARSS53475.2024.10641847.

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[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*, doi:10.1109/IGARSS53475.2024.10642198.

2023

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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 senstive radar sounder, *IGARSS 2021: 2021 IEEE International Geoscience and Remote Sensing Symposium*.

2020

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Winner of the IEEE GRSS Symposium Prize Paper Award

Mentoring

Postdoctoral Scholars

Shane Grigsby, 2019–2021
(*post Mines: R&D Scientist, National Geospatial Intelligence Agency*)

Roger Michaelides, 2020–2022
(*post Mines: Asst. Professor, Washington University in St. Louis*)

Tasha Snow, 2021–2024
(*post Mines: Asst. Researcher, NASA Goddard/U. Maryland*)

Benjamin Hills, 2023–2025
(*post Mines: Senior Geophysicist, Vista Clara, Inc.*)

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)

Elena Savidge (PhD), Geophysics, 2020–2024
(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
(post Mines: Project Hydrogeologist, Flo Americas Ltd.)

Gabriel Thomas (MS), Hydrologic Science & Engineering, 2022–2024
co-advised with Kamini Singha

Rachel Willis(PhD), Geophysics, 2023–2025
Zachary Katz (PhD), Geophysics, 2023–present
Samara Omar (PhD), Geophysics, 2024–present
co-advised with Jeff Shragge
Rohaiz Haris, Geophysics, 2024–present
Marianna Marquardt, Geophysics, 2024–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: PhD 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)*
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 Cosortium*)
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
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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 Huelse (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
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Isabelle Peter (2024–present) Mines, Department of Civil & Environmental Engineering
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Ahmad Tourei (2023–present) Mines, Hydrologic Science & Engineering
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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, Quaternery 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 Subgiacal 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
Dartmouth College Journeys — 18 Jun. 2022

Process2Paleo: Connecting modern observations to the geologic record to explore the life and

death of a subglacial lake
Scripps Polar Hour 28 Oct. 2021
Slippery when wet: Exploring the hydrosphere beneath the Antarctic ice sheet
Colorado State Antarctic Lecture Series 19 Oct. 2021
Glaciology data volumes and data rates in Antarctica
2021 Antarctic Subsea Cable Workshop 28 Jun. 2021
What lies beneath: Exploring the hydrosphere beneath the Antarctic ice sheet
Delaware County Institute of Science 8 Feb. 2021
(Seminar on SALSA subglacial lake results)
British Antarctic Survey Jun. 2020
[seminar canceled due to COVID19]
(Seminar on ICESat-2 results)
Newcastle University Jun. 2020
[fellowship delayed to COVID19; seminar canceled]
(Seminar declined due to COVID)
Stanford Geophysics Seminar 4 Jun. 2020
Antarctica at Depth: New observations of subglacial water beneath ice streams
CU Boulder INSTAAR Noon Seminar 16 Mar. 2020
[canceled due to COVID19]
U.S. work int he Ross Sea Sector
International Ross Sea Region Collaboration Workshop, Korea 21 Jul. 2019
Antarctica at Depth: Drilling for Subglacial Access
U.S. Ice Drilling Program's School of Ice 24 June 2019
SALSA – A Field Debrief
Stanford University Cryospheric Scientists 12 Feb. 2019
Slippery When Wet: Dynamic subglacial hydrology and the Antarctic ice sheet
Department of Geosciences Research Seminar, Boise State University 26 Apr. 2018
Building a "Long Data" perspective to examine decadal-scale variability in Antarctica
Geophysics Seminar, Colorado School of Mines 4 Apr. 2018
Deep, Dark, and Wet: Dynamic subglacial hydrology in Antarctica
Earth & Planetary Science Seminar, Washington University in St. Louis 1 Feb. 2018
Piecing together a "Long Data" perspective to examine Antarctic ice-sheet variability
Earth and Climate Seminar, University of Maine 25 Oct. 2017
Piecing together a "Long Data" perspective in Antarctica to understand ice-sheet variability
SIO Research Seminar, Scripps Institution of Oceanography 31 Aug. 2017
Subglacial hydrology, basal processes, and velocity transients in Antarctica
Ice Sheet System Model Workshop 23 Jun. 2016
Antarctic subglacial hydrology: A review
IDPO Subglacial Access Working Group Workshop 21 May 2016
Episodic hydrology, episodic ice streams: Unraveling the impact of active subglacial lakes in Antarctica
Earth Section Seminar, University of California, Santa Cruz 10 May 2016
Unraveling the impact of dynamic subglacial lake drainage in Antarctic
Geophysics Seminar, Scripps Institution of Oceanography 22 Apr. 2016
Planes, penguins, and cookies: Scientific outreach from Antarctica
GPS and the Cyrosphere, 2016 UNAVCO Science Workshop 29 Mar. 2016
Dynamic subglacial hydrology in Antarctica: timescales, evolution, and impacts
Geophysics Seminar, Stanford University 1 Mar. 2016
Extending the episodic hydrology record across Antarctica
West Antarctic Ice Sheet Workshop 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 Service

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 *Mines Lead*	2023
Alaskan North Slope, Surface Geophysics *Mines Lead*	2021
Whillans Ice Plain, West Antarctica, Surface Geophysics *Expedition Lead, Field Medic*	2019–2020
Greenland, Airborne Geophysics (Operation IceBridge) *Mission Science Team member visit*	2019
Whillans Ice Plain, West Antarctica, Surface Geophysics *Expedition Lead, Field Medic*	2018–2019
Whillans Ice Plain, West Antarctica, Surface Geophysics *Expedition Lead, Field Medic*	2017–2018
Whillans Ice Plain, West Antarctica, Surface Geophysics *Expedition Lead, Field Medic*	2016–2017
Ross Ice Shelf, Antarctica, Airborne Geophysics *Flight Scientist, Data Engineer*	2015
Whillans Ice Plain, West Antarctica, Surface Geophysics *Expedition Lead, Field Medic*	2014–2015
Whillans Ice Plain, West Antarctica, Surface Geophysics *GPS Team Leader, Field Medic*	2013–2014
Whillans Ice Plain, West Antarctica, Surface Geophysics *Surface Geophysics Team Leader, Field Medic*	2012–2013
Whillans Ice Plain, West Antarctica, Surface Geophysics	2011–2012
Northern New Mexico, Southern Colorado, Geology and Geomorphology *Field Trip Organizer and Leader*	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
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
Aisstant 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