TASHA M. SNOW
Curriculum Vitae

Colorado School of Mines
Department of Geophysics
1500 Illinois St., Golden, Colorado 80401

Phone: (206) 940-5518
Email: tsnow@mines.edu
Website: tsnow03.github.io

Education

Ph.D. Geography, University of Colorado Boulder (CU), 2021 (3.95 GPA)
Advisors: W. Abdalati, T. Scambos
Committee: F. Straneo, M. Serreze, C. Farmer
Specialties: Tidewater glacier dynamics
Physical oceanography of polar fjords
Machine learning and time series analysis for glacier-ocean processes
Thesis: "Evaluating fjord and coastal sea surface temperatures and their implications for glacier variability in Greenland and Antarctica". Expanded the application of satellite-derived sea surface temperatures to study the oceans around Greenland and Antarctica. Produced the first ground-truthed method for reconstructing surface and subsurface water temperatures near Helheim Glacier. Identified coastal upwelling along a trough as a previously unrecognized mechanism that drives warm water onto the continental shelf toward Helheim Glacier and may impact heat transport in other glacier systems around Greenland. Constructed a novel processing pipeline for sea surface temperatures using Landsat thermal infrared, machine learning, and atmospheric corrections. Used Landsat sea surface temperatures and field observations to determine the seasonal and interannual variability of the Antarctic Coastal Current in the eastern Amundsen Sea.

M.S. Marine Science, University of South Florida (USF), 2014 (3.82 GPA)
Advisors: A. Shevenell, B.P. Flower (Deceased)
Committee: J. Channell, A. Hine
Thesis: "Timing of Svalbard/Barents Sea Ice Sheet Decay since the Last Glacial Termination". Using a deep-sea sediment core from eastern Fram Strait, I measured changes in foraminiferal stable isotopes, ice-rafted debris, and other sedimentologic parameters with various stratigraphic correlation techniques to reconstruct local ice stream dynamics, meltwater events from the Barents Sea Ice Sheet, and regional climate variability (30,000 years to present).

B.S. Oceanography, University of Washington (UW), 2007 (3.54 GPA)
Advisors: R. Keil, V. Armbrust, T. Rynearson, M. Parker
Thesis: "Composition and distribution of phytoplankton around the Galapagos Archipelago"

Professional Experience

Co-Founder and Lead of CryoCloud (cryointhecloud.com), Colorado School of Mines, 2022 – present
- Design and deployment of the CryoCloud JupyterHub for NASA Cryosphere communities (hub.cryointhecloud.com)

- Designer and maintainer of the CryoCloud Jupyter Book with cloud-computing training and Cryosphere tutorial notebooks (book.cryointhecloud.com)
- Contributor and maintainer of CryoCloud GitHub organization (github.com/cryointhecloud) and Zenodo Community (zenodo.org/communities/cryointhecloud)
- Docker image construction and maintenance
- Cloud-computing workshop organizer and trainer
- Community building

Research Associate, Colorado School of Mines, Department of Geophysics, Mines Glaciology Lab, 2021 – present
- Ice-ocean interactions at ice shelves in Antarctica
- Automated polynya detection using deep learning
- Open-source science and cloud-computing
- NASA ICESat-2 Science Team member
- New technologies/techniques employed to date:
  - Satellite remote sensing – ICESat-2 laser altimetry
  - Data fusion of Landsat, MODerate Resolution Spectroradiometer, and Sentinel imagery with seal- and ship-deployed ocean field observations

Postdoctoral Researcher, CU Boulder, Cooperative Inst. for Research in Env. Sciences, 2021

Graduate Research Assistant, CU Boulder, Geography Department, 2015-2020
- Ice-ocean interactions at marine-terminating outlet glaciers in Greenland and Antarctica
- Technologies/techniques employed to date:
  - Satellite remote sensing - Landsat 7 ETM+, Landsat 8 OLI+TIRS, MODIS
  - Thermal infrared and visible imagery - Analysis of sea surface temperatures and glacier change
  - Interferometric Synthetic Aperture Radar (InSAR) processing
  - *Programming languages:* Python, Matlab
  - *Software/system proficiency:* ArcGIS, QGIS, GMT5SAR, ENVI, Linux
  - MODTRAN (MODerate resolution atmospheric TRANsmission) - models atmospheric propagation of electromagnetic radiation
  - Scikit learn – random forest, convergent cross-mapping, empirical dynamical modeling, long short term memory

Teaching Assistant, CU Boulder, Geography Department, Spring 2018
- Special Topics in Geography 4110/5110: Advanced Remote Sensing
- Taught weekly labs
- Aided students in project development and execution

Graduate Research Assistant, University of South Florida, College of Marine Science, 2011-2015
- Quaternary glacial history of the Antarctic and Barents Sea Ice Sheets
- Climate impacts of meltwater from the Arctic and Antarctic during deglaciation
- Technologies/techniques employed:
  - Finnigan MAT253 Continuous Flow SIRMS with Gasbench II - Performed mechanical and methodological troubleshooting to achieve measurement precision goals; Helped redesign the lab data processing method to correct for systematic errors within the raw measurements
  - Finnigan Delta Plus XL Dual-Inlet SIRMS with Kiel III
  - Ramped Pyrox Programmed Temperature Combustion system
  - AVAATECH X-Ray Fluorescence Scanner (MARUM Core Repository, Bremen, Germany)
  - GEOTEK Multi-Sensor Core Logger (MARUM Core Repository, Bremen, Germany)
  - *Computer programming:* Matlab, Scilab, Bacon (Bayesian accumulation model for R), Match (Paleoclimate sequence correlation for Matlab)
  - Time series and univariate biometry data analysis methods

- Adobe Illustrator, Analyseries
- Stable isotope & trace element geochemistry ($\delta^{18}O$, $\delta^{13}C$, Mg/Ca, Ba/Ca), ^{14}C and Pb-210 dating, foraminifera assemblage and ice-rafted debris studies

Undergraduate Research Assistant, University of Washington, Marine Molecular Biotechnology Lab, 2005-2007

- Independent Research: "Effects of silicate limitation on domoic acid production in *P. multiseries* and genes involved in the production of domoic acid"
- Independent Research: "Differences in growth rates between genetically distinct isolates of *Ditylum brightwellii* under various nutrient limitations"
- Techniques employed:
  - Reverse transcription, CODEHOP primer design, cloning, polymerase chain reaction (PCR), quantitative PCR, Enzyme Linked ImmunoSorbent Assay (ELISA), and gel electrophoresis
  - Diatom classification, microscopy, culturing, and fluorometry
  - Statistical analysis of growth rates

Teaching Assistant, University of Washington, College of Oceanography, 2006

- Oceanography 102: The Changing Oceans (online)

Military Experience

Naval Officer, United States Navy, 2007-2010

- Certified Officer of the Deck - Responsible for ship's safety, 180+ personnel, equipment/ systems, and operations while on daily watch
- Lead in preparing ship for aviation certification - Coordinated efforts of three Departments to pass major inspection with best program on the Naval Station
- Electronic Warfare Officer - Responsible for maintenance and operation of ship's various weapon countermeasures and associated control systems; led team of four personnel
- Assistant Operations Officer - Lead in scheduling, coordinating, and supervising 130+ training, VIP, and public relations events with 25 international navies
  - Created and presented daily operations PowerPoint briefs to ship's Captain and Operational Staff
- Student Commanding Officer of UW NROTC – student commander for all operations, events, and training and evaluation of 80+ personnel preparing for commission in the Navy at UW; direct supervisor of six department supervisors
- Resident expert of all NAVOSH, OSHA, and NIOSH standards as Asst. Safety Manager
- Administrative Officer - Managed, trained, and evaluated seven personnel resulting in 30% increase in production rate and 100% warfare qualification
- Oversaw $15k budget for sending sailors home for emergencies while overseas
- Public Affairs Officer - Led tours, served as a ship spokesman during news interviews, and wrote articles for Navy-wide dissemination
- IRS Volunteer Income Tax Assistant, US Navy, Mayport, FL (360 hrs)
- Volunteer Tutor, Special Needs Class, Pensacola Elementary, Pensacola, FL (76 hrs)

Publications

Snow, T.M., Zhang, W., Schreiber, E.P., Scambos, T., Abdalati, W. (submitted). Alongshore winds force warm Atlantic Water toward Helheim Glacier in southeast Greenland, *Journal of Geophysical Research: Oceans*.

Analysis code under construction:
https://github.com/tsnow03/AtlanticWaterIntrusions2023

Alley, K. E., Alley, R. B., Crawford, A. D., Ochwat, N., **Snow, T.**, Muto, A. Wild, C. T., Pettit, E. C. (submitted). A record of West-Antarctic ocean changes written in ice-shelf basal channels, *Science Advances*.

Savidge, E., **Snow, T.**, Siegfried, M. R., Zheng, Y., Bôas, A., Bortolotto, G. A., Boehme, L., Alley, K. E. (2023). Wintertime Polynya Structure and Variability at Pine Island Glacier, West Antarctica, from Thermal Remote Sensing and Seal-borne Observations, *IEEE Transactions on Geoscience and Remote Sensing*.
https://doi.org/10.1109/TGRS.2023.3271453
Analysis code: https://doi.org/10.5281/zenodo.7843547

Dotto, T. S., Heywood, K. J., Hall, R. A., Scambos, T. A., Zheng, Y., Nakayama, Y., **Snow, T.**, Wåhlin, A. K., Wild, C., Truffer, M., Muto, A., Alley, K. E., Boehme, L., Bortolotto, G., Pettit, E. (2022). Ocean variability beneath Thwaites Eastern Ice Shelf driven by the Pine Island Bay Gyre strength, *Nature Communications,* 13:7840.
https://doi.org/10.1038/s41467-022-35499-5

Snow, T., Straneo, F., Holte, J., Grigsby, S.P., Abdalati, W., Scambos, T. (2021). More than skin deep: sea surface temperature as a means of inferring Atlantic Water variability on the southeast Greenland continental shelf near Helheim Glacier, *Journal of Geophysical Research: Oceans, 126, e2020JC016509*. https://doi.org/10.1029/2020JC016509
Analysis code: https://doi.org/10.5281/zenodo.4305125

White Papers

Millstein, J., **Snow, T.,** Sauthoff, W., Scheick, J., Siegfried, M. (2023). CryoCloud: Accelerating Discovery for NASA Cryosphere Communities with Open-Cloud Infrastructure (NASA Request for Information). Zenodo. https://doi.org/10.5281/zenodo.7662993

Honors, Grants, and Awards

Over $1.6 million in grants and awards

- **AWS Graduate Research Cloud grant** ($5,000 requested), 2023
  Title: Informing Automatic Semantic Segmentation of Extremely Underrepresented Classes in Satellite Data with Geophysical-Featurization
  PI: Ellianna Abrahams
  Student Advisor: Fernando Pérez
  Collaborator: Tasha Snow
- **NASA Unsolicited Proposals grant ($362,875 awarded)**, Lead/Lead author, 2022
  Title: *Accelerating ICESat-2 science with collaborative cloud-computing*
  PI: Matthew Siegfried
  Co-I/Science-PI: Tasha Snow
  No-cost Co-I: Jessica Scheick
- **NASA ROSES Topical Workshops, Symposia, and Conferences grant ($249,999 awarded)**, Lead/Lead author, 2022
  Title: *Accelerating discovery for NASA Cryosphere communities with open-cloud infrastructure*
  PI: Matthew Siegfried
  Co-I/Science-PI: Tasha Snow

No-cost Co-I: Fernando Pérez

- **NASA Cryospheric Science grant ($582,084 awarded)**, Lead/Lead author, 2021
  Title: *Seeds of change: Investigating the impact of Antarctic basal channel and persistent polynya co-evolution on ice shelf stability*
  PI: Matthew Siegfried
  Co-I/Science-PI: Tasha Snow
  Co-I: Bia Villas-Boâs, Ted Scambos
  International Co-I: Karen Alley, Lars Boehme
  No-cost Co-I: Fernando Pèrez, Susheel Adusumilli
- **Nature, Environment, Science & Technology (NEST) Studio for the Arts Graduate Summer Fellowship**, $10k, Collaborator, 2021
  Awarded to CU graduate students to explore the interrelation, generative overlaps, and productive differences between the CU arts-based and earth science-based earth disciplines. Funded research: "Sensing ice: Explorations of knowing nature"
- ***AAAS "Catalyzing Advocacy in Science and Engineering" workshop student competition winner***, 2020
  Student competition to attend the AAAS "Catalyzing advocacy in science and engineering" workshop in Washington, D.C. to learn about Congress, the federal budget, and effective science communication. Postponed due to COVID-19 outbreak.
- ***NASA Earth and Space Science Fellowship***, ***$***35k/Yr, 2016-2019
  Awarded to Masters and PhD students based on the scientific merit of the proposed research, the relevance of the proposed research to NASA's Earth Science Research Objectives, and academic excellence. Provides 3 years of salary support with a $10k allowance for university and student costs. Funded research: "Evaluating fjord and coastal sea surface temperature influences on Greenland outlet glacier variability".
- ***CIRES Graduate Student Research Award***, 2 semesters Salary & Tuition, 2016
  Cooperative Institute for Research in Environmental Sciences (CIRES) fellowship intended to support a CIRES graduate student who has shown exceptional achievement in their graduate career at CIRES and an engagement with and commitment to CIRES.
- ***Travel grant to present at International Glacial Society Symposium***, $1k, 2016
  NSF funding awarded by International Glacial Society (IGS) for early career scientists and graduate students to attend the Symposium on Interactions of Ice Sheets and Glaciers with the Oceans in La Jolla, CA.
- ***Antarctic Science Bursary Research Award***, $7.5k, Returned-change in institution, 2014
  Awarded to support the development of the careers of promising young scientists, working in any field of Antarctic science. Funded research: "Tracing Circumpolar Deep Water intrusion in the Moscow University/Totten Glacier system, East Antarctica using novel microbial biomarkers". Returned due to change in institution.
- ***NSF Graduate Research Fellowship***, $32k/Yr & Tuition, 2013-2015
  Awarded to outstanding graduate students who are pursuing research-based Masters and doctoral degrees in fields within NSF's mission. Provides 3 years of support for the graduate education of individuals who have demonstrated their potential for significant achievements in science and engineering research.
- ***Travel grant to present at Intl. Conference in Paleoceanography in Spain***, $670, 2013
- ***The Jack and Katharine Ann Lake Fellowship in Marine Science***, $15k, Honorary, 2013
  $15k fellowship awarded by USF College of Marine Science to high-ranking student applicants. Honorary due to receipt of the NSF GRFP.
- ***Geological Society of America Graduate Student Research Grant***, $2125, 2013
  Provides partial support of thesis research in the geological sciences for graduate students enrolled in universities in the United States, Canada, Mexico and Central America. Funded research: "Arctic Sea Ice in Fram Strait during Termination 1 (25-13 ka)"
- ***Schlanger Ocean Drilling Fellowship***, $30k, 2012-2013

5 awards offered annually for graduate students to conduct research related to the Integrated Ocean Drilling Program. Fellows travel to Ocean Leadership headquarters in Washington, D.C., to present initial results and take part in U.S. Science Support Program related activities. Funded research: "Early circum-Arctic glacial decay during major deglaciations of the past 500 kyr?"

- ***Charles H. Bussmann Graduate Scholarship***, $2.5k, 2012
  Marine Technology Society scholarship intended for students in marine science or technology who have a particular interest/focus in marine instrumentation
- ***USF Graduate Fellowship***, Tuition Waiver and $7k Stipend, 2011
- ***Navy and Marine Corps Achievement Medal***, 2010
  As Assistant Operations Officer, planned and coordinated 100+ international multi-ship and theater security cooperation events. Managerial persistence as Safety Officer and Aviation Officer improved ship readiness and was critical to USS DOYLE's superior performance during its aviation certification.
- ***Navy and Marine Corps Achievement Medal***, 2009
  As a Volunteer IRS Income Tax Assistant, volunteered 360+ hours to help process 12,500 tax returns, saving service members, retirees and their families more than $2.5 million in tax preparation fees, resulting in more than $22 million in speedy tax refunds.
- ***UW Mary Gates Research Endowment***, $4.5k, 2006-2007
  Funded undergraduate research: "The Production of Domoic Acid in Pseudo-nitzschia multiseries"
- ***Marine Technology Society ROV Scholarship***, $2k, 2006
- ***Noel Gray Oceanography Scholarship***, $250, 2006
  University of Washington, College of Oceanography Award
- ***Association for Women in Science Scholarship***, $1k, 2005
- ***Navy Reserve Officer Training Corps Scholarship***, Full Tuition and Stipend, 2003-2007
- ***Grays Harbor Community Foundation Scholarship***, $2k, 2003 & 2006
- ***Ewing C. Kelly Scholarship***, $2k, 2003
  Washington state-wide scholarship for good citizenship and academic achievement
- ***Scottish Rite Scholarship***, $1k, 2003

Students Advised

3 graduate & 6 undergraduate students advised

Graduate:
Wilson Sauthoff, Colorado School of Mines, PhD, 2022-present
Ellianna Abrahams, University of California Berkeley, PhD, 2022-present
Elena Savidge, Colorado School of Mines, PhD, 2021-present

Undergraduate:
Eojin Lee, Undergraduate Intern, 2022-present
Michael Field, Mines Undergraduate Research Fellowship (MURF) internship, 2021-2022
Matthew Martinez, Research Experience for Community College Students (RECCS) Internship, 2020
Sheena Skinner, Research Experience for Community College Students (RECCS) Internship, 2017
Brandon Shepherd, CIRES Undergraduate Summer Internship, 2016
Hannah Shapiro, Undergraduate Senior Thesis, 2012-2014
Thesis: "Carbon preservation in eastern Fram Strait following the Last Glacial Maximum"

Invited Presentations

May 2023 Accelerating discovery for Cryosphere communities with open cloud-infrastructure, Physical Oceanography Data Center Seminar

Apr 2023 Pairing eyes in the sky with instruments in the deep: new applications of thermal infrared imagery in Antarctic ice-ocean systems using open cloud-computing workflows, National Snow and Ice Data Center Seminar, Boulder, CO

Apr 2023 The Landsat single-channel sea surface temperature algorithm: new applications in Antarctic ice-ocean systems using open cloud-computing workflows, Group for High Resolution Sea Surface Temperature Seminar, https://www.ghrsst.org/non-classe/4-april-2023-tasha-snow-title-to-be-announced-save-the-date/

Mar 2023 Pairing eyes in the sky with instruments in the deep: new applications of thermal infrared imagery in Antarctic glacier-ocean systems using open cloud-computing workflows, National Center for Atmospheric Research Computational and Information Systems Lab Seminar, Boulder, CO

Mar 2023 CryoCloud open cloud infrastructure, Future of Greenland Ice Sheet Science Workshop, Atlanta, GA

Mar 2023 Accelerating discovery for NASA Cryosphere communities with open-source data science and cloud-infrastructure, Women in Data Science (WiDS) Central Massachusetts Conference, Worcester, MA

Mar 2023 CryoCloud: Accelerating discovery for NASA Cryosphere communities with open cloud infrastructure, Pangeo Showcase https://doi.org/10.5281/zenodo.7857296

Feb 2023 Pairing eyes in the sky with instruments in the deep: new applications for thermal infrared imagery in glacier-ocean systems, University of Texas San Antonio Antarctic Sea Ice and Southern Ocean Seminars, SnowT_Appl of Thermal IR to Polar Ocean.mp4

Jan 2023 Accelerating discovery for NASA Cryosphere communities with open cloud infrastructure, American Meteorological Society Annual Meeting, Denver, CO https://doi.org/10.5281/zenodo.7812464

Oct 2022 The heat is on: New applications for thermal infrared imagery in glacier-ocean systems, NASA Goddard Institute for Space Studies

Feb 2022 The heat is on: Investigating new applications for thermal infrared imagery in glacier-ocean systems, Scripps, La Jolla, CA, https://drive.google.com/file/d/1F8lGxh30gcuRmnj-Xv45K4VlHZ5aF5KF/view?usp=sharing

Oct 2021 The heat is on: Examining new applications for thermal infrared imagery in glacier-ocean systems, Caltech, Pasadena, CA

May 2021 The heat is on: Investigating new applications for satellite-based sea surface temperatures in glacier-ocean systems, Chosen graduate commencement speaker for University of Colorado Geography Department, Boulder, CO

Sep 2019 The heat is on: examining new applications for thermal infrared imagery in glacier-ocean systems, University of Göthenburg, Göthenburg, Sweden

Sep 2019 The heat is on: investigating new applications for thermal infrared imagery in glacier-ocean systems, University of St. Andrews, St. Andrews, UK

Field Experience

- **Researcher**, Canadian Arctic, Aug 2022 (2 weeks)
  Objective: Measure structure from motion of Sydkap Glacier, Canada using drone surveys, six-person team working on Sydkap Glacier
- **Media Facilitator and Research Assistant**, International Thwaites Glacier Collaboration NBP19-02, *RV/IB N.B. Palmer*, Amundsen Sea, West Antarctica, Jan-Mar 2019 (8 weeks)
  Objective: Determine the natural processes that drive Thwaites Glacier to retreat or control its response to climate, investigate the glacier's recent history, and help reduce uncertainty in its sea level contribution
  - Contributor in daily lead-PI planning meetings
- **Research Assistant**, FirnCover Research Campaign, Greenland, Apr-May 2017 (5 weeks)
  Objective: Measure compaction rates on the Greenland Ice Sheet to provide accurate ground-truth measurements that span Greenland's accumulation facies and climate regions. 25 days on ice, snowmobile traverse, six-person team camping on ice sheet
  - Snow density measurements, ice coring, designed and installed five GPS stations
- **Research Assistant & Marine Mammal Observer**, *RV/IB N.B. Palmer*, NBP14-02*,* Sabrina Coast, East Antarctica, Jan-Mar 2014 (6 weeks)
  Objective: Evaluate recent and longer-term ocean-cryosphere linkages within the Totten and Mertz glacier systems using physical-chemical, geophysical, and geological surveys
  - Sediment coring/sampling (including biomarker sampling), CTD, limited multibeam and seismic data processing
- **Research Assistant**, *R/V L.M. Gould,* LMG13-11, Antarctic Peninsula, Oct-Nov 2013 (3 weeks)
  Objective: Understand the deglacial history of the western Antarctic continental shelf during the early to middle Holocene and refine new and existing paleoproxies
  - Sediment coring/sampling
- **Undergraduate Research Assistant**, *R/V T.G. Thompson*, Senior Thesis Cruise, Galapagos Archipelago, Ecuador, Jan 2006 (1 week)
  - Phytoplankton tows, chlorophyll extraction, CTD
- **Undergraduate Research Assistant**, *R/V T.G. Thompson*, Puget Sound, WA, Oct 2005 (2 days)

Synergistic Activities

Academic Service:

- Interagency Ocean Observing Committee Open Ocean Cloud **Working Group Member**, 2022-present
- AGU Fall Meeting **Session Chair**, *A Data-driven Cryosphere: Insights from Machine Learning and Other Statistical Methods*, 2021
- West Antarctic Ice Sheet Workshop **Session Co-Convener**, 2020
- International Thwaites Glacier Collaboration **Media Facilitator**, Antarctica, 2019
  - Supervised team of three media for 2 months onboard NBP19-02

    - Served as liaison between media and scientists to improve communication of research in media outlets
- CU Geography Department **Graduate Rep.**, CU Boulder, 2018
- CIRES Graduate Association **Co-Chair,** CU Boulder, 2016-2018
    - Oversaw CIRES graduate student travel grant applications and selection
    - Developed and organized 19 academic and non-academic professional development events for CIRES graduate students and postdocs
- Forum on Science Ethics and Policy **Co-Director**, CU Boulder, 2016-Present
    - Organized 10+ science policy and ethics panels and professional development opportunities for CU students
    - Developed "Sciencing with Purpose" science ethics and policy podcast series (3) for young scientists and professionals. Episode 1: https://soundcloud.com/sciencingwithpurpose/1-elevating-the-conversation
- College of Marine Science Dean's Advisory Council **Student Rep.**, USF, 2014-2015
- College of Marine Science Graduate Student Symposium **Coordinator**, USF, 2012

Referee Service:
- Journals: *Nature Geoscience, Journal of Glaciology, Ocean Science*
- Proposals: *NASA Cryospheric Sciences (panel member), NSF OPP Joint Arctic and Antarctic Glaciology (panel member, adhoc reviewer)*

Instructor - Leadership Skills:
- Hone Your Leadership Skills II **Workshop Lead**, CIRES Graduate Association, 2019
- Hone Your Leadership Skills **Workshop Lead**, CIRES Graduate Association, 2018

Instructor - Open Science:
- Cryosphere Software **Workshop Coordinator** and a **Tutorial Lead**, fusion of tutorials from various open-source science projects within the Cryosphere community, Future of Greenland Ice Sheet Science Workshop, 2023
- CryoCloud open-source science and cloud-computing **Workshop Lead** at ICESat-2 Science Team Fall, 2022
- **Tutorial Lead** and **Project Lead** for the NASA ICESat-2 Hackweek, 2021

Training Received:
- Inclusive Leadership Training, International Thwaites Glacier Collaboration, 2021
- Fiske Planetarium Science Communication Workshop, CU Boulder, 2018
- Engaged Scientist Workshop, CU Boulder, 2016
- COSEE Advanced Presentation Bootcamp, USF, 2014
- Science & Policy Communications Workshop, AGU Science Policy Conference, 2013
- COSEE Presentation Bootcamp, USF, 2013

Professional Memberships:
- American Geophysical Union
- Marine Technology Society
- The Geological Society of America
- International Glaciological Society
- European Geophysical Union
- American Meteorological Society

Outreach

- **Fiske Planetarium "Climate Change in Our Backyard" Committee and Presenter**, CU Boulder, Boulder, CO, Apr 2016-Present

- Presenter:
    - **'Not so far removed: Discovering the changes at the Poles and implications for Colorado',** Live presentations using 3D footage from field work in Greenland and Antarctica
    - **'Colorado's changing heartbeat',** Live talk on phenology
- Developed a 15-min planetarium video giving climate change background, released to >200 planetariums worldwide
- Minor role in writing proposal to University of Colorado Boulder, Office of Outreach and Engagement to fund Fiske Planetarium project (awarded $23.5k)

- **Panelist** on "Direct Encounters with Arctic Landscapes as a Part of Professional Artistic and Scientific Endeavors - An Interdisciplinary Panel Discussion", University of Colorado Boulder, 2022.
- **Science mentor** on the *Nature, Environment, Science & Technology (NEST) Studio for the Arts Graduate Summer Fellowship, 2021*. Mentor in the design and production of the University of Colorado Boulder Earth Science multimedia exhibit, "Sensing Ice: Explorations of Knowing Nature", which included MODIS sea surface temperature imagery around Greenland.
- **Girls Lead the Way Department Lead**, lead for designing and delivering two geophysics demonstrations for high school girls, Colorado School of Mines, Golden, CO 2021
- **Climate change Q & A panelist for "Climate Change in Our Backyard" video premier**, 2021
- **International Thwaites Glacier Collaboration video for International Women's Day**, Twitter/Facebook, 2021
- **Thwaites Glacier Twitter Q&A** answering questions about work conducted by the International Thwaites Glacier Collaboration and the importance of the glacier, Twitter, 2020
- **Interactive elementary school demo** of thermal infrared remote sensing and applications for climate change to help achieve CO state climate change teaching requirements, 80 5th graders and teachers, Louisville Elementary School, CO, 2020
- **Interactive middle school assembly and demo** of thermal infrared remote sensing and applications for climate change, 118 middle schoolers and 12 faculty, St. Stephen's Episcopal School, Bradenton, FL, 2019
- **International Thwaites Glacier Collaboration Blog "Snow on Ice"**, www.thwaitesglacier.org/blog, Cruise blog for International Thwaites Glacier Collaboration Antarctic research cruise NBP19-02, 10,000+ views, 2019
- **University of Colorado Science Ambassador**, NSF Portal to the Public, Created a water density and glacier fjord circulation demonstration for "Meet a CU Scientist" public library events, CU Boulder, Boulder, CO, Oct-Dec 2017
- **Scientist Presenter for Career Day**, Presented to 18 classes of 2-6 graders about what it means to be a glaciologist, Molholm Elementary School, Lakewood, CO, Apr 2017
- **National Ocean Sciences Bowl Trout Bowl Science Judge**, High school academic competition, CU Boulder, Boulder, CO, Feb 2017
- **Climate Science and Resiliency NGSS Co-Design Workshop Science Mentor**, Science mentor for teachers designing middle or high school unit on Climate Science and Resiliency aligned to Next Generation Science Standards and relevant Colorado Academic Standards, Denver Public Schools, Denver, CO, Dec 2016-Jan 2017
- **Oceanography Camp for Girls Science Mentor**, 3-week camp teaching 9th grade girls about the ocean using hands-on lab and field experiences, USF College of Marine Science, St. Petersburg, FL, Jun-July 2013 & 2015
- **Saint Petersburg Science Festival Marketing Committee**, St. Petersburg, FL, July-Oct 2014
- **Antarctic Science Blog**, www.ameliashevenell.wordpress.com, Cruise blog for Antarctic research cruise NBP14-02 and LMG13-11, 2013-2014

- **Saint Petersburg Science Festival**, Paleoceanography demonstration for the public, St. Petersburg, FL, Oct 2012 & 2013
- **National Ocean Sciences Bowl Spoonbill Bowl**, Volunteer at high school academic competition, USF, St. Petersburg, FL, Feb 2013
- **Big Brothers Big Sisters of Pinellas County**, St. Petersburg, FL, Mar-Oct 2012
- **Florida Marine Science Educators Association (FMSEA) Conference***,* Ocean exploration lab demonstrations, USF, St. Petersburg, FL, May 2012
- **Great American Teach-In**, Marine science demonstration for local 4th grade classes, Lewis Elementary School, Temple Terrace, FL, Nov 2011
- **Coastal Areas Climate Change Education Partnership Symposium and Showcase**, Climate change poster presentation, Tampa, FL, Nov 2011

Abstracts and Presentations

Millstein, J., **Snow, T.**, Sauthoff, W., Colliander, J., Holdgraf, C., Pérez, F., Sutterley, T., Siegfried, M. Accelerating Discovery for NASA Cryosphere Communities with Open-Cloud Infrastructure, ICESat-2 Science Team Meeting, 2022. (Oral Presentation)

Snow, T., Sauthoff, W., Zhao, M., Bachelot, L., Zinck, A., Siegfried, M. A tale at the coastline: paired year-round ICESat-2 and Landsat thermal infrared observations of persistent polynyas, ICESat-2 Science Team Meeting, 2022.

Snow, T., Wåhlin, A., Queste, B., Bortolotto, G., Boehme, L., Savidge, E., Abrahams, E., Siegfried, M. R., Abdalati, W. Pairing eyes in the sky with instruments in the deep: mapping the Antarctic Coastal Current in the eastern Amundsen Sea, West Antarctic Ice Sheet Meeting, 2022. (Oral Presentation)

Savidge, E., **Snow, T.**, Siegfried, M. R., Zheng, Y., Villas Bôas, A. B., Bortolotto, G. A., Boehme, L., Alley, K. E. Linking Thermal Remote Sensing and Seal-borne Measurements to Investigate Polynya Structure and Variability at Pine Island Glacier, West Antarctica. West Antarctic Ice Sheet Meeting, 2022. (Poster)

Snow, T., Field, M., Abrahams, E., Sapienza, F., Zheng, W., Savidge, E., Taylor, J., Pérez, F., Alley, K., Siegfried, M. Persistent polynya variability infers basal channel outflow at the Eastern Thwaites Ice Shelf, International Glaciological Society Symposium on Ice, Snow, and Water in a Warming World, 2022. (Oral Presentation)

Savidge, E., **Snow, T.**, Siegfried, M. R., Zheng, Y., Villas Bôas, A. B., Bortolotto, G. A., Boehme, L., Alley, K. E. Linking Thermal Remote Sensing and Seal-borne Measurements to Investigate Polynya Structure and Variability at Pine Island Glacier, West Antarctica. International Glaciological Society Symposium on Ice, Snow, and Water in a Warming World, 2022. (Poster)

Snow, T., Field, M., Abrahams, E., Sapienza, F., Zheng, W., Savidge, E., Pérez, F., Taylor, J., Abdalati, W., Scambos, T., Siegfried, M. R. Single channel and split-window SSTs from Landsat in Antarctica, Group for High Resolution Sea Surface Temperature 23rd International Science Team Meeting, 2022. (Poster)

Snow, T., Siegfried, M. R., Savidge, E., Field, M., Alley, K., Scambos, T., Villas Bôas, A. B., Adusumilli, S., Bortolotto, G., Boehme, L., Abrahams, E., Pérez, F., Sapienza, F., Grigsby, S., Zheng, W., Taylor, J., Zheng., Y., Dotto, T., Queste, B., Wåhlin, A., Abdalati, W. Investigating the impact of Antarctic basal channel and persistent polynya

co-evolution on ice shelf stability, International Thwaites Glacier Collaboration Science Team Meeting, 2022. (Oral Presentation)

Savidge, E., **Snow, T.**, Siegfried, M., Zheng, Y., Bôas, A.B., Bortolotto, G., Boehme, L., Alley, K. Investigating Persistent Polynya Structure and Variability at Pine Island Glacier, West Antarctica, Using Seal-borne Measurements and Thermal Remote Sensing, AGU Fall Meeting, 2021. (Poster)

Snow, T., Sapienza, F., Grigsby, S., Taylor, J., Savidge, E., Zheng, W., Alley, K., Pérez, F., Siegfried, M. Basal channel outflow inferred from persistent polynya variability at the Eastern Thwaites Ice Shelf, AGU Fall Meeting, 2021. (Poster)

Snow, T., Sapienza, F., Grigsby, S., Taylor, J., Savidge, E., Zheng, W., Alley, K., Pérez, F., Siegfried, M. Basal channel outflow inferred from persistent polynya variability at the Eastern Thwaites Ice Shelf, WAIS Workshop, 2021. (Oral Presentation)

Snow, T., Schreiber, E., King, M., Roberts, C., Holte, J., Abdalati, W., Scambos, T. Mechanisms modulating warm Atlantic Water temperatures and inflow toward Helheim Glacier in southeastern Greenland, American Geophysical Union Fall Meeting, 2020. (Oral Presentation)

Snow, T., Evaluating fjord and coastal sea surface temperatures and their implications for glacier variability in Greenland and Antarctica, CU Boulder Geography Dept. Colloquium, 2020. (Oral Presentation)

Sapienza, F., **Snow, T.**, Cima, A., Grigsby, S., Heagy, L., Perez, F., Siegfried, M., Taylor, J. Multimodal Dataset Integration for Cloud Masking of ICESat-2, American Geophysical Union Fall Meeting, 2020. (Poster)

Grigsby, S., Sapienza, F., **Snow, T.**, Cima, A., Heagy, L., Perez, F., Siegfried, M., Taylor, J. Spatio-Temporal Interpolation of Cloud Data, American Geophysical Union Fall Meeting, 2020. (Poster)

Cima, A., Sapienza, F., **Snow, T.**, Grigsby, S., Heagy, L., Perez, F., Siegfried, M., Fusion of ICESat-2 and complementary remote sensing data for interactive visualization in Jupyter, American Geophysical Union Fall Meeting, 2020. (Oral Presentation)

Shaeffer, E., MacFerrin, M., **Snow, T.** Tracking the Movement and Spatial Patterns of High-elevation Crevasses in the Interior of the Greenland Ice Sheet, American Geophysical Union Fall Meeting, 2020. (Poster)

Snow, T., Queste, B., Wahlin, A., Boehme, L., Seasonal and interannual variability of the Antarctic Coastal Current in the eastern Amundsen Sea, West Antarctic Ice Sheet Workshop, 2020. (Oral Presentation)

Queste, B., Heywood, K., Sheehan, P., Zheng, Y., **Snow, T.**, Wahlin, A., Boehme, L. Observations of a large anticyclonic eddy west of Thwaites Ice Tongue, The Scientific Committee on Antarctic Research Meeting, 2020. (Poster)

Snow, T., Straneo, F., Holte, J., Grigsby, S., Abdalati, W., Scambos, T., Mechanisms modulating warm Atlantic Water temperatures flowing toward Helheim Glacier in southeastern Greenland. The Forum for Research into Ice Shelf Processes, 2020. (Virtual Poster Talk)

Snow, T., Straneo, F., Holte, J., Grigsby, E., Abdalati, W., Scambos, T., Roberts, C., King, M., What lies beneath: subsurface Atlantic Water variability near Helheim Glacier from a new sea surface temperature-derived proxy, Program for Arctic Regional Climate Assessment Annual Meeting, College Park, MA, 2020. (Poster)

Roberts, C., Csatho, B.M., Schenk, A., Nuth, C., Schild, K., King, M., Bevan, S., van der Veen, C., **Snow, T.**, Noel, B., Shekhar, P., Luckman, L., and Babonis, G. Active subglacial water storage detected at Helheim Glacier, southeast Greenland, through detailed elevation reconstruction, American Geophysical Union Fall Meeting, San Francisco, CA, 2019. (Oral Presentation)

Snow, T., Straneo, F., Abdalati, W., Scambos, T., Holte, J., Roberts, C., What lies beneath: using sea surface temperatures to reconstruct sub-surface continental shelf ocean variability near Helheim Glacier, Greenland, American Geophysical Union Fall Meeting, San Francisco, 2019. (Poster)

Snow, T., Straneo, F., Scambos, T., Holte, J., Abdalati, W., Only skin deep? Linking sea surface temperatures with sub-surface continental shelf and fjord ocean variability near Helheim Glacier, Greenland, American Meteorological Society Meeting, Boulder, CO, 2019. (Oral Presentation)

Snow, T., Straneo, F., Scambos, T., Holte, J., Abdalati, W., Only skin deep? Linking sea surface temperatures with sub-surface continental shelf and fjord ocean variability near Helheim Glacier, Greenland, European Geophysical Union Annual Meeting, Vienna, Austria, 2019. (Oral Presentation)

Snow, T., Skinner, S., Shepherd, B., Straneo, F., Abdalati, W., Scambos, T., Only skin deep? Linking sea surface temperatures with glacier discharge and deep fjord temperature change, American Geophysical Union Fall Meeting, Washington D.C., 2019. (Poster)

Snow, T., Skinner, S., Shepherd, B., Straneo, F., Abdalati, W., Scambos, T., Only skin deep? Linking Landsat and MODIS sea surface temperatures with glacier change, International Glacial Society Symposium on timescales, processes and glacier dynamics, Buffalo, NY, 2018. (Oral Presentation)

Snow, T., Skinner, S., Shepherd, B., Straneo, F., Abdalati, W., Scambos, T., Only skin deep? Evaluating the utility of Landsat sea surface temperatures in Sermilik Fjord, Program on Arctic Regional Climate Assessment, Greenville, MA, 2018. (Oral Presentation)

Snow, T., Skinner, S., Shepherd, B., Straneo, F., Scambos, T., Abdalati, W., Only skin deep?: Evaluating the utility of remotely sensed sea surface temperatures in Greenland fjords, American Geophysical Union Fall Meeting, New Orleans, LA, 2017. (Poster)

Snow, T., Skinner, S., Shepherd, B., Straneo, F., Abdalati, W., Scambos, T., Evaluating the utility of remotely sensed sea surface temperatures in studying ice-ocean interactions at Sermilik Fjord, Greenland, International Glacial Society Symposium on Polar Ice, Polar Climate, Polar Change, Boulder, CO, 2017. (Oral Presentation)

Snow, T., Shepherd, B., Abdalati, W., Scambos, T. Insights into ice-ocean interactions and fjord circulation from fjord sea surface temperatures at the Petermann Glacier, Greenland, American Geophysical Union Fall Meeting, San Francisco, CA, 2016. (Poster)

Snow, T., Glacier-ocean interactions: The warm, the cold, and the undetectable, NOAA review of CIRES, Boulder, CO, 2016. (IGNITE Oral Presentation)

Snow, T., Hacking the science-funding crisis, International Glacial Society Symposium on Interactions of Ice Sheets and Glaciers with the Oceans, La Jolla, CA, 2016. (IGNITE Oral Presentation)

Snow, T., Shepherd, B., Scambos, T., Abdalati, W., Fjord sea surface temperatures and ice terminus retreat at Petermann Glacier, Greenland, International Glacial Society Symposium on Interactions of Ice Sheets and Glaciers with the Oceans, La Jolla, CA, 2016. (Poster)

Shevenell, A., **Snow, T.**, Domack, E., Leventer, A., Gulick, S., Huber, B., Orsi, A., Goddard, E., Fernandez-Vasquez, R., High-resolution Deglacial to Holocene paleoceanographic records from the Sabrina Coast, East Antarctica: Preliminary foraminifer-based results from NBP14-02, AGU Fall Meeting, San Francisco, CA, 2014. (Poster)

Snow, T., Leventer, A., Domack, E., Huber, B., Orsi, A., Blankenship, D., Gulick, S., Shevenell, A., Lavoie, C., NBP14-02: The Sabrina Coast Marine Record of Ocean-Cryosphere Dynamics, AGU Fall Meeting, San Francisco, CA, 2014. (Abstract)

Snow, T.M., Shevenell, A., Alonso-Garcia, M., Flower, B.P., Roehl, U., Goddard, E., Early circum-Arctic glacial decay following the Last Glacial Maximum, International Conference on Paleoceanography, Sitges, Spain, 2013. (Poster)

Snow, T.M., Shevenell, A., Alonso-Garcia, M., Flower, B.P., Roehl, U., Goddard, E., Early circum-Arctic glacial decay following the Last Glacial Maximum, Consortium for Ocean Leadership, Washington, D.C., 2013. (Oral Presentation)

Snow, T.M., Alonso-Garcia, M., Flower, B.P., Shevenell, A., Roehl, U., Goddard, E., Early circum-Arctic glacial decay following the Last Glacial Maximum, USF College of Marine Science Graduate Student Symposium, Saint Petersburg, FL, 2013. (Oral Presentation)

Snow, T.M., Alonso-Garcia, M., Flower, B.P., Shevenell, A., Roehl, U., Goddard, E., Early circum-Arctic glacial decay following the Last Glacial Maximum?. AGU Fall Meeting, San Francisco, CA, 2012. (Poster)

Snow, T.M., Alonso-Garcia, M., Flower, B.P., Roehl, U., Goddard, E., Early circum-Arctic glacial decay following the Last Glacial Maximum?, USF College of Marine Science Graduate Student Symposium, Saint Petersburg, FL, 2012. (Oral Presentation)

Snow, T.M., The production of domoic acid in *Pseudo-nitzschia multiseries*, University of Washington Undergraduate Research Symposium, Seattle, WA, 2007. (Poster)

Guo, W., **Snow, T.M.**, Phytoplankton distribution, growth and grazing dynamics around the Galapagos Archipelago, University of Washington Undergraduate Research Symposium, Seattle, WA, 2006. (Oral, Co-Presented)

Certifications

- Toastmasters International Competent Communicator
- PADI Open Water

Find me on

Twitter: @TashaMSnow
ORCiD: 0000-0001-5697-5470
GitHub: tsnow03
Blogs:
Snow on Ice - www.thwaitesglacier.org/blog, Cruise blog for International Thwaites Glacier Collaboration Antarctic research cruise NBP19-02, 10,000+ views, 2019
Expedition Antarctica - https://ameliashevenell.wordpress.com/about/tasha-snow/, Cruise blog for LMG13-11 and NBP14-02 to Antarctica, 2013/14