



**MEGHAN SHARP** (she/her)

Corvallis, Oregon, USA

e-mail: [sharpmeg@oregonstate.edu](mailto:sharpmeg@oregonstate.edu)

web: [msharp.strikingly.com](http://msharp.strikingly.com)

---

## Education

**Doctor of Philosophy– in progress:** College of Earth, Ocean, and Atmospheric Science, Oregon State University, United States of America

- *Proposed Thesis:* Sea Ice Buttressing and Rift Propagation at Thwaites Ice Shelf, West Antarctica
- *Advisor:* Dr. Erin Pettit

**Master of Science in Geoscience – 2021:** University of Calgary, Canada

- *Thesis:* Amplification of Surface Topography during Surges of Tweedsmuir Glacier
- *Advisors:* Dr. Dan Shugar, Dr. Gwenn Flowers
- *GPA:* 4.0 (4.0 scale)

**Certificate in University Teaching and Learning – 2021:** Taylor Institute for Teaching and Learning, University of Calgary, Canada

**Bachelor of Science in Geophysics (Honours) –2019:** University of British Columbia, Canada

- *Thesis:* Glacier-Volcano Interaction in the Katla Caldera: A Box Model of Available Meltwater
- *Advisors:* Dr. Mark Jellinek
- *GPA:* A (85.5%), Dean's Honour list in final three years

**GoGlobal Exchange Program – 2016:** University of Iceland (Háskóli Íslands)– Reykjavík, Iceland

---

## Research Interests

*Keywords:* Geophysics, Remote Sensing, Glaciology, Volcanology

*Techniques:* Photogrammetry, Time series analysis, Numerical modelling

---

## Relevant Coursework

- **Mathematics:** Partial Differential Equations, Multivariable Calculus, Linear Algebra
- **Physics:** Continuum Mechanics, Advanced Physics of Earth and Other Planets, Thermal Physics
- **Programming & Data Analysis:** MATLAB, Python, Big Data Analysis, Time Series Analysis
- **Remote Sensing:** Advanced Photogrammetric Techniques, Geographical Information Systems
- **Cryosphere:** Advanced Glaciology, Snow Hydrology

MEGHAN SHARP (she/her)  
sharpmeg@oregonstate.edu

## Research Experience

### **Master's Research Assistant** (September 2019- September 2021)

#### **Department of Geoscience, University of Calgary, Alberta**

- Reconstructed glacier surges of Tweedsmuir Glacier from historic air photos using an array of geospatial software (ESRI ArcGIS Pro (+ Python API), Global Mapper GIS, QGIS, Python and MATLAB)
- Analysed surface DEMs using time series analysis techniques, including wavelet and Fourier transforms
- Presented the story of Tweedsmuir Glacier through a series of change detection maps at a variety of conferences for both scientist and non-scientist audiences

### **Undergraduate Research Assistant** (January 2016- May 2019)

#### **with Dr. Mark Jellinek, Department of Earth, Ocean, and Atmospheric Sciences, UBC Vancouver**

- Attended and delivered presentations at weekly meetings with graduate and undergraduate team members
- Created numerical models in collaboration with senior students to investigate magma-water interactions
- Assisted with laboratory research projects related to fluid mechanics and volcanology

### **Remote Sensing Research Assistant** (May 2017- September 2017)

#### **National Research Council of Canada's Flight Research Laboratory, Ottawa, Ontario**

- Conducted geographical remote sensing surveys using airborne hyperspectral imagers
- Processed hyperspectral data using both MATLAB and geospatial software (ENVI) and translated this data into presentable maps
- Communicated results of environmental remote sensing survey at National Research Council's Student Research Symposium

## Scientific Field Experience

### **Antarctic Field Assistant** (November 2022- January 2023)

#### **International Thwaites Glacier Collaboration, United States Antarctic Program**

- Collected field data for research in ice-ocean interactions at Thwaites Ice Shelf, including ice penetrating radar, drone photogrammetry, meteorological station maintenance, and firn core sampling using skis and snowmobiles in a remote field camp.

### **Glaciology Field Assistant** (July- August 2021)

#### **Department of Geoscience, University of Calgary**

- Planned and executed Ice Penetrating Radar surveys in Tatshenshini-Alsek Provincial Park, British Columbia (adjacent to Kluane National Park, Yukon)

### **Geophysical Field Assistant** (August 2021- June 2022)

#### **Frontier Geosciences Inc., North Vancouver**

- Collaborated with team and local communities to conduct terrestrial and overwater seismic refraction, reflection, and bathymetry surveys for infrastructure design in Nunavut, northern British Columbia, and northern Ontario

MEGHAN SHARP (she/her)  
sharpmeg@oregonstate.edu

---

### **Geophysical Field Assistant** (December 2021)

#### **DMT Geosciences Ltd., Calgary**

- Assisted with terrestrial seismic refraction and reflection surveys over frozen ground in northern Alberta winter conditions
- Conducted a helicopter-accessed quaternary mapping survey at the terminus of Tweedsmuir Glacier

---

### **High Arctic Field Assistant** (July 2019- September 2019)

#### **Department of Geography, UBC Vancouverx**

- Initiated and executed the collection of ecological and environmental field data in a remote environment (Alexandra Fiord, Ellesmere Island)
- Assisted a glacier mapping field team using Garmin GPS instruments
- Conducted a helicopter-assisted muskox survey in Sverdrup Pass

---

### **Wildlife Tracking Volunteer** (March 2021)

#### **Parks Canada, Banff Field Unit**

- Identified wildlife tracks along transects through the snow, performed on skis and by foot

---

## **Teaching Experience**

---

### **Science Instructor** (July 2022 & October 2019)

#### **Inspiring Girls\* Expeditions, Girls\* on Ice Canada Yukon Expedition & Expeditions@Home**

- Led and supervised field science experiments on a nine-day backcountry expedition
- Worked with instructor team to create curriculum that promotes experiential learning of science and art through *scaffolding*, *Socratic questioning*, and *inquiry-based* teaching methods

---

### **Teaching Assistant** (September 2019- April 2021)

#### **Department of Geoscience, University of Calgary**

*Course:* Computational Methods for Geophysicists (GOPH 419)

- Nominated by students for a *Teaching Excellence Award*
- Adapted teaching methods to an effective online learning platform during COVID-19 pandemic

*Course:* Time Series Analysis and 1D Data Processing (GOPH 517)

- Introduced practical applications of time series analysis techniques and evaluated and mentored students on their scientific writing skills
- Provided technical feedback on structure of codes in MATLAB and Python

*Course:* Introduction to Geophysics (GOPH 351)

- Instructed and provided technical feedback on assignments covering a breadth of geophysics topics
- Hosted weekly office hours to assist student learning

---

### **Substitute Lecturer** (October 2019)

#### **Department of Geoscience, University of Calgary**

*Course:* Introduction to Geophysics (GOPH 351)

- Delivered lecture material in an interactive and engaging manor

---

### **Certificate in University Teaching and Learning** (January 2021)

#### **Taylor Institute for Teaching and Learning, University of Calgary**

- Developed teaching skills through a series of courses focused on postsecondary education
- Reflected on and refined personal teaching philosophy
- Designed research-informed lesson plans and enhanced teaching practises with the latest digital learning technologies

MEGHAN SHARP (she/her)  
sharpmeg@oregonstate.edu

---

## Additional Work Experience

---

**Program Coordinator** (September 2022- Present)

**Inspiring Girls\* Expeditions- Pacific Northwest Branch**

- Oversee and collaborate on logistical planning for multiple youth backcountry science expeditions
- Manage, hire, onboard, and train a team of instructors, guides, and logistical support coordinators
- Manage finances by creating yearly expedition budgets and building sustainable partnerships
- Collaborate with parallel branches to design and execute an online application process that prioritizes inclusivity of a diverse applicant pool
- Participate in reoccurring Justice, Equity, Diversity, and Inclusion trainings and discussions

**Intern Instructor & Course Logistics Assistant** (July 2018- September 2018)

**Outward Bound Canada, Rocky Mountain Sector**

- Worked collaboratively with instructor team to solve problems in the field
- Supervised and guided students in a backcountry environment

**Co-author, *Earth Matters*** (2016 & 2018)

**Department of Earth, Ocean, and Atmospheric Sciences, UBC, Vancouver, British Columbia**

- Conducted interviews of accomplished researchers
- Produced engaging articles for the annual Earth Science Review

**Mechanical Engineering Intern** (May 2015- September 2016)

**L3 Wescam, Burlington, Ontario**

- Designed and updated mechanical drawings and computer-aided design models in SolidWorks and AutoCAD

---

## Volunteer Experience

---

**Early Career Researcher (ECR) Steering Committee Member** (July 2023- Present)

**International Thwaites Glacier Collaboration**

- Advised senior researchers on the needs of the early career researcher community
- Organized activities for early career researchers at international conferences

**Vice President** (July 2021- September 2022)

**Inspiring Girls\* Expeditions- Girls\* on Ice Canada**

- Oversaw overall progress of large-scale projects and ensure that projects adhere to organizational bylaws and philosophies
- Participated on hiring committees, reviewed job applications, and conducted interviews

**Ski Patroller & Assistant Patrol Leader: Communications** (September 2019- Present)

**Lake Louise Ski Resort, Canadian Ski Patrol**

- Ensured the safety of alpine recreationists by responding to and leading first aid situations, as well as taking proactive measures, such as identifying and solving hazards on ski runs
- Created and delivered relevant information in an engaging newsletter format

**New Expedition & Outreach Officer** (January 2020- Present & August 2018)

**Inspiring Girls\* Expeditions- Girls\* on Ice Canada**

- Developed a new expedition and formed partnerships with Northern Canadian institutions
- Assisted with funding applications, including one of 15 successful *Hydro Flask Parks For All Grants*, out of 150 total applicants

MEGHAN SHARP (she/her)  
sharpmeg@oregonstate.edu

---

### **Equity, Diversity & Inclusion Committee** (September 2020- September 2021)

---

#### **Department of Geoscience, University of Calgary**

- Participated in committee meetings to foster inclusion and equity within the Geoscience department
- Assisted in the design of a departmental EDI survey

---

### **Women in STEM Advocate** (September 2018- May 2019)

---

#### **UBC Young Women for Science**

- Delivered presentations and science demonstrations at local high schools in British Columbia
- Acted as a role model for the next generation of female scientists

---

### **Geophysics Undergraduate Representative** (September 2015- May 2018)

---

#### **G.M. Dawson Club (Geoscience Club), University of British Columbia**

- Maintained a professional relationship and communication between students and geophysical industry by organizing student-industry networking events

---

## **Awards & Scholarships**

---

#### **NSERC Canadian Graduate Scholarship- Doctoral Program (CGS-D)\*\***

- Three-year financial support awarded based on research potential and academic excellence  
\*\* Note: declined and accepted Postgraduate Scholarship- Doctoral (PGS-D) due to attendance of an international institution.

#### **Collage of Earth, Ocean, and Atmospheric Science Student Research Scholarship**

- Awarded based on research potential and academic excellence

#### **Jen Higgins Grant for Young Women, Alpine Club of Canada– 2022**

- Support for a nine-day, all-female, ski mountaineering expedition on the Columbia Icefield

#### **Teaching Excellence Award, University of Calgary– 2021**

- Nominated by students and awarded for “time and energy dedicated to students inside and outside of the classroom” – GOPH 419 student

#### **University of Calgary Graduate Studies Scholarship– 2021**

- Nominated and awarded based on academic achievement in a Graduate program

#### **Alberta Graduate Excellence Scholarship– 2019 & 2020 (x2 years)**

- Awarded based on research potential, academic excellence, and extracurricular involvement of students pursuing graduate studies in Alberta

#### **Cynthia Riediger Memorial Graduate Scholarship in Geoscience- 2020**

- Awarded based on academic performance in Geoscience Master’s program

#### **Northern Scientific Training Program Grant– 2020**

- Financial assistance awarded to individual projects for research in the North

#### **CSEG Foundation Student Scholarship– 2020 & 2017**

- Awarded based on academics, professional potential in geophysical industry

#### **Thomas and Marguerite MacKay Memorial Scholarship– 2018**

- Nominated by the Faculty of Science at the University of British Columbia

#### **KEGS & BC Geophysical Society Scholarship–2018 & 2017 (x2 years)**

- Awarded based on academics, promising career in geophysics and extra-curricular activities

MEGHAN SHARP (she/her)  
sharpmeg@oregonstate.edu

## Presentations & Publications

### Peer-Reviewed Publications

Geertsema, M., Menounos, B., Bullard, G., Carrivick, J. L., Clague, J. J., Dai, C., ... **Sharp, M.A.** (2022). The 28 November 2020 landslide, tsunami, and outburst flood – A hazard cascade associated with rapid deglaciation at Elliot Creek, British Columbia, Canada. *Geophysical Research Letters*, 49, e2021GL096716. <https://doi.org/10.1029/2021GL096716>

**Sharp, M. A.**, Shugar, D. H., Flowers, G. E. (In Review). Wavelet transform captures signatures of surges in the surface topography of Tweedsmuir Glacier

**Sharp, M. A.**, Rowell, C.R., Jellinek, A.M. (In Review). Topographic and ice loading controls on subglacial drainage during the 1918 eruption of Katla volcano, Iceland: Implications for meltwater storage and hydrovolcanism

### Theses/Dissertations

Amplification of surface topography during surges of Tweedsmuir Glacier, Master of Science thesis (2021), Supervised by D.H. Shugar & G.E. Flowers, University of Calgary

Glacier-Volcano interaction in the Katla Caldera: A box model of available meltwater, Bachelor of Science Honours thesis (2019), Supervised by A.M. Jellinek, University of British Columbia

### Presentations

**Sharp, M.A.\***, Shugar, D.H., Flowers, G.E. (2021) Spectral analysis of surface topography through Tweedsmuir Glacier's surge cycle. St. Elias Glaciology Meeting, (Oral, international conference, MSc).

**Sharp, M.A.\***, Shugar, D.H., Flowers, G.E. (2020) Reconstruction of Tweedsmuir Glacier's surge cycle with historical images. Northwest Glaciologists Meeting, (Oral, international conference, MSc).

**Sharp, M.A.\***, Shugar, D.H., Flowers, G.E. (2019) Glacier-Volcano Interaction in the Katla Caldera. University of British Columbia Undergraduate Symposium, (Oral, institutional symposium, BSc).

### Posters Presentations

**Meghan A. Sharp\***, Christian T. Wild, Haylee Smith, Erin C Pettit, Karen E Alley, Adrian Luckman, Atsuhiko Muto, Martin Truffer, Ted Scambos, TARSAN Team. (2023) Drivers and Mechanisms of Rift Propagation: Initial Observations on Thwaites Eastern Ice Shelf, West Antarctica, (Poster, international conference, PhD).

**Sharp, M.A.\***, Shugar, D.H., Flowers, G.E. (2020) Reconstruction of Tweedsmuir Glacier's surge cycle with historical images. American Geophysical Union, (Poster, international conference, MSc).

**Sharp, M.A.\***, Shugar, D.H., Flowers, G.E. (2020) Reconstruction of Tweedsmuir Glacier's surge cycle with historical images. Arctic Change, (Poster, international conference, MSc).

**Sharp, M.A.\***, Leblanc G. (2017) Hyperspectral Imaging of 'Disturbed Snow'. National Research Council Student Symposium, (Poster, institutional symposium, internship).

### Academic Magazine Articles

**Sharp, M.**, Armstrong, C. (2018). Earth Science Goes Viral. *Earth Matters*. Vol(4). UBC Dept of Earth and Ocean Sciences. Editors: Alan Shapiro.

McMillan, R., **Sharp, M.** (2016). Red Planet. *Earth Matters*. Vol(3). UBC, Dept of Earth and Ocean Sciences. Editors: Chuck Kosman.

---

## Certifications

---

- Advanced First Aid, Canadian Ski Patrol (valid through December 2023)
- Crevasse Rescue Skills Training (2021)
- Possession and Acquisition Firearms License (2019)
- Pleasure Craft Operators Card (valid through 2031)
- Avalanche Safety Training 1 (2017)

---

## Interests

---

- **Alpine skiing:** Ski raced for 11 years, ski mountaineering objectives on the Columbia Icefield
- **Sea kayaking:** Paddled 115 kilometres in a two-day river and ocean expedition in New Zealand
- **Photography:** A collection of my personal interpretations of wild spaces ([view portfolio](#))