

## Seth William Campbell

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### Education

2014	Ph.D. Earth & Climate Sciences	University of Maine, Orono
2010	M.S. Earth Sciences	University of Maine, Orono
2008	B.S. Earth Sciences	University of Maine, Orono
2005	M. Business Administration	University of Maine, Orono
2001	B.A. Environmental Science, Minor: Geology	University of Maine, Farmington

### Current Employment

2022 – Present	University of Maine, Associate Professor of Glaciology; Climate Change Institute and School of Earth & Climates
2018 – Present	Juneau Icefield Research Program, Director of Academics & Research
2018 – 2022	University of Maine, Assistant Professor of Glaciology; Climate Change Institute and School of Earth & Climate Sciences

### Prior Employment

2016 – 2021	ERDC-CRREL, Research Geophysicist (Intermittent Status)
2015 – 2018	University of Maine, Research Assistant Professor
2016 – 2018	University of Washington, Post-Doctoral Research Associate
2014 – 2016	ERDC-CRREL, Research Geophysicist
2014 – 2017	University of California, Davis, Research Associate
2011 – 2014	University of Maine, Graduate Research Assistant
2009 – 2014	ERDC-CRREL, Research Physical Scientist
2010 – 2012	University of Washington, Professional Research Staff
2008 – 2009	University of Maine, Graduate Teaching Assistant
2000	E/Pro Engineering & Environmental Consulting, Survey Technician
1999 – 2000	Central Maine Power Company, Survey Technician
1999	Maine Dept. of Environmental Protection, Research Technician
1998	U.S. Environmental Protection Agency, Environmental Research Intern

## Refereed Publications (30)

### 2022 (3)

\*Braddock S, Hall BL, Johnson JS, Balco G, \*Spoth M, Whitehouse PL, **Campbell S**, Goehring BM, Rood D, Woodward J (2022) Minimal late Holocene ice-mass change inferred from relative sea-level data, Pine Island Bay, Antarctica. *Nature Geoscience*, 1-5.

Johnson J, Venturelli R, Balco G, Allen C, \*Braddock S, **Campbell S**, Goehring B, Hall B, Neff P, Nichols K, Rood D, Thomas L, Woodward J (2022) Existing and potential evidence for Holocene grounding line retreat-readvance in Antarctica. *The Cryosphere*, IF: 5.516

Davies B, Bendle J, Carrivick J, McNabb R, McNeil C, Pelto M, **Campbell S**, Holt T, Ely J (2021) Structural glaciology and glacial geology of Juneau Icefield in Alaska and British Columbia. *Earth Surface Processes and Landforms*, 1-34, IF: 3.722

\*Hill A, **Campbell S**, Schild K (2022) Structure and stability of McMurdo Ice Shelf and Hut Point Peninsula and impacts to research infrastructure in West Antarctica. *Cold Regions Science & Technology*, Accepted. IF: 3.726

### 2021 (4)

**Campbell S**, Roy S, Briggs M, Douglas T, Saari S. Ground-penetrating radar, electromagnetic Induction, terrain, and vegetation observations coupled with machine learning to map permafrost distribution at Twelvemile Lake, Alaska. *Permafrost & Periglacial Processes*, 2021: 1-20, IF: 4.368

Gerbi C, \*Mills S, \*Clavette R, **Campbell S**, \*Bernsen S, \*Clemens-Sewell D, \*Lee I, Hawley R, Kreutz K, \*Hruby K (2021) Microstructure in a shear margin: Jarvis Glacier, Alaska. *J. Glaciol.*, 1-14. IF: 3.261

McNeil C, Amundson J, O'Neel S, Motyka R, Sass L, \*Zechmann J, **Campbell S** (2021) The Imminent Calving Retreat of Taku Glacier. *EOS*, 102.

### 2020 (4)

McNeil C, O'Neel S, Loso M, Pelto M, Sass L, Baker E, **Campbell S** (2020) Explaining mass balance and retreat dichotomies at Taku and Lemon Creek Glaciers, Alaska. *J. Glaciol.*, 1-13. IF: 3.261

\*Kochtitzky W, Winski D, \*McConnell E, Kreutz K, **Campbell S**, Enderlin E, Copland L, Williamson S, \*Main B, Jiskoot H (2020) Climate and surging of Donjek Glacier, Yukon, Canada. *Arctic, Antarctic, & Alpine Res.*, 52(1), 264-280. IF: 2.231

\*Lee I, Hawley R, \*Bernsen S, **Campbell S**, Gerbi C, \*Hruby K (2020) A novel tilt sensor for studying ice deformation: application to streaming ice on Jarvis Glacier, Alaska. *J. Glaciol.*, 66(255), 74-82. IF: 3.261

\*Hruby K, Gerbi C, **Campbell S**, Koons P, Martin C, Hawley R (2020) The impact of temperature and crystal orientation fabric on the dynamics of mountain glaciers and ice streams. *J. Glaciol.*, 66(259), 755-765. IF: 3.261

### 2019 (1)

Miner K, Kreutz K, Jain S, **Campbell S**, Liljedahl (2018) A screening-level approach to quantifying risk from glacial release of organochlorine pollutants in the Alaskan Arctic. *Nature (Journal of Exposure Science & Environmental Epidemiology)*. IF: 3.531

### 2018 (6)

**Campbell S**, Affleck R, \*Sinclair S (2018) Ground-Penetrating Radar Studies of Permafrost, Periglacial, and Near-Surface Geology at McMurdo Station, Antarctica. *Cold Regions Science & Tech.*, (148), 38-49  
IF: 3.726

Miner K, **Campbell S**, Gerbi C, Liljedahl A, Anderson T, Perkins BL, \*Bernsen S, Kreutz KJ (2018) Organochlorine Pollutants within a Polythermal Glacier in the Interior Eastern Alaska Range. *Water*, 10, 1157, 14 pp. doi:10.3390/w10091157. IF: 2.544

\*Sinclair S, Licciardi J, **Campbell S**, Madore B (2018) Origin of De Geer moraines in the Seacoast region of New Hampshire. *J. of Quaternary Science*, 13 pp. ISSN 0267-8179. IF: 2.939

\*Kehrl L, Conway H, \*Holschuh N, **Campbell S**, Kurbatov A, Spaulding N (2018) Evaluating the Duration and Continuity of Potential Climate Records from the Allan Hills Blue Ice Area, East Antarctica. *Geophys. Res. Letters*, 45(9), 4096-4104. IF: 4.58

\*Polashenski D, Osterberg E, Koffman B, Winski D, Kreutz K, Wake C, Ferris D, Introne D, **Campbell S**, Stamieszkin K, Lewis G\* (2018) Denali ice core methanesulfonic acid records north Pacific marine primary production. *Geophys. Res. Letters*, 123(9), 4642-4653. IF: 4.58

Winski D, Osterberg E, Kreutz K, Wake C, Ferris D, **Campbell S** (2018) A 400-year ice core melt layer record of summertime warming in the Alaska Range. *J. Geophys. Res.,: Atmospheres*, 123. <https://doi.org/10.1002/2017JD027539>. IF: 3.82

### 2017 (3)

**Campbell S**, Courville Z, \*Sinclair S, \*Wilner J (2017) Brine, Englacial structure, and basal properties near the terminus of McMurdo Ice Shelf, Antarctica. *Ann. Glaciol.* 58(74). IF: 3.131

\*Winski D, Osterberg E, Ferris D, Kreutz K, Wake C, **Campbell S**, Hawley R, Roy S, Birkel S, Introne D, Handley M (2017) Industrial-age doubling of snow accumulation in Central Alaska linked to tropical ocean warming. *Nature Scientific Reports*, (2017) 7:17869. IF: 3.998

Osterberg E, \*Winski D, Kreutz K, Wake C, Ferris D, **Campbell S**, Introne D, Handley M, Birkel S (2017) 1200-Year Composite Ice Core Record of Aleutian Low Intensification. *Geophysical Res. Letters*, 44, 7447–7454, doi:10.1002/2017GL073697. IF: 4.58

### 2016 (3)

Balco G, Todd C, Huybers K, **Campbell S**, \*Vermeulen M, \*Hegland M, Goehring B, Hillebrand T (2016) Cosmogenic-nuclide exposure ages from the Pensacola Mountains adjacent to the Foundation Ice Stream, Antarctica. *American Journal of Science*, **316**, 542-577. DOI: 10.2475/06.2016.02. IF: 2.917

Douglas T, Jorgenson T, Brown D, **Campbell S**, Hiemstra C, Saari S, Bjella K, Liljedahl A (2016) Degrading permafrost mapped with electrical resistivity tomography, airborne LiDAR, and seasonal thaw measurements. *Geophysics*, **81**(1), WA71–WA85, DOI: 10.1190/GEO2015-0149.1. IF: 2.793

Briggs M, **Campbell S**, Nolan J, Ntarlagiannis D, Day-Lewis F, Lane J (2016) Geophysical methods for characterizing the active layer and new permafrost formation. *Permafrost & Periglacial Processes*, 15 pp. DOI: 10.1002/ppp.1893. IF: 4.368

### 2015 (1)

Arcone S, Breton D, **Campbell S**, Barrowes B, Lamie N (2015) Surface Wave Propagation over a Rough Talus Slope at 160 MHz. IEEE Extended Abstract. Doi: 10.1109/APS.2015.7304670, 568-569.

### 2014 (2)

Arcone S, **Campbell S**, Pfeffer T (2014) GPR Profiles of Glacial Till, and its Transition to Bedrock: Interpretation of Water Content, Depth, and Signal Loss from Diffractions. *J. Environ. & Engineering Geophysics*, **19**(4), 207–228, DOI: 10.2113/JEEG19.4.207. IF: 3.329

**Campbell S** and Arcone S (2014) Surficial and bedrock geology mapping with ground-penetrating radar in New England: general results and a case study from Mount Adams, New Hampshire. SEG Technical Program Expanded Abstract. pp 2145-2147.

### 2013 (3)

\***Campbell S**, Balco G, Conway H, Todd C, Huybers K, Simmons C, Vermeulen M\* (2013a) Radar-detected englacial stratigraphy in the Pensacola Mountains, Antarctica; implications for recent changes in ice flow and accumulation. *Ann. Glaciol.*, **54**(63), 91-100. IF: 3.131

\***Campbell S**, Roy S\*, Kreutz K, Arcone S, Koons P, Osterberg E (2013b) Strain Rate Estimates for Crevasse formation at an Alpine Ice Divide: Mount Hunter, Alaska. *Ann. Glaciol.*, **54**(63), 200-208. IF: 3.131

\*Spaulding N, Kurbatov A, Bender M, Higgins J, Mayewski P, Arcone S, \***Campbell S**, Dunbar N, Introne D (2013) Climate archives from 90 to 250 ka in horizontal and vertical ice cores from the Allan Hills Blue Ice Area, Antarctica. *Quaternary Research*, **80**, 562-574. IF: 2.198

### 2012 (3)

\***Campbell S**, Kreutz K, Wake C, Osterberg E, Arcone S, Introne D, \*Winski D, \*Volkening K (2012a) Melt regimes, internal stratigraphy, flow dynamics, and glaciochemistry of three glaciers in the Alaska Range. *J. Glaciol.*, **58**(207), 99-109. DOI: 10.3189/2012JoG10J238. IF: 3.261

\***Campbell S**, Kreutz K, Wake C, Osterberg E, Arcone S, \*Winski D, \*Volkening K (2012b) Flow dynamics of an accumulation basin: A case study of the upper Kahiltna Glacier on Mount McKinley, Alaska. *J. Glaciol.*, **58**(207), 185-195. DOI: 10.3189/2012JoG10J233. IF: 3.261

\*Winski D, Kreutz K, Osterberg E, \***Campbell S**, Wake C (2012) High Frequency Observations of Melt Effects on Snowpack Stratigraphy, Kahiltna Glacier, Central Alaska Range. *Hydro. Processes*, **26**(17), 2573-2582. IF: 3.276

## **Technical Reports, Community White Papers, and Other Publications (15)**

### 2021 (3)

Albert M, Koutnik M, **Campbell S**, Childress L, Fudge TJ, Holt J, Johnson A, Priscu J, Schuur T, Smith H, Sori M, Zacny K, Schulte, Walker C (2021) First ice cores from Mars: A report to NASA from the Mars Ice Core Working Group, 74 pp.

**Campbell S**, Boucher A, Rico I, Krumdieck N, Adema G, Ach J, Markle B, Nicholson L, Partan B (2021) Five Year Juneau Icefield Research Program Operations Plan: 2021-2026. Technical Report to the U.S. National Forest Service – Tongass National Forest. 28 pp. (Required to maintain UMaine relationship and access to Tongass National Forest through JIRP Facilities)

**Campbell S**, Krumdieck N, Miller M, Fleisher J, Whitney E, Beedle M, Linder G, McGee S, Adema S, Partan B, Ach J, Boucher A, Pinchak A, Ditrich T, Connor C, Fabiani A, Hoiem J, Bellefonaine J (2021) History of the Juneau Icefield Research Program on Tongass National Forest: Documenting Camps, Facilities, and History of Juneau Icefield Research and Education since the 1940's. Technical Report to the U.S. National Forest Service – Tongass National Forest. 52 pp. (Required to maintain UMaine relationship and access to Tongass National Forest through JIRP Facilities)

### 2020 (3)

Gabrielli P, **Campbell S**, Courville Z, Kreutz K, Kurbatov A, Neff P, Osterberg E, Pettit E, Rupper S (2020) Ice Drilling Program Ice Core Working Group: Alpine Glaciers & Ice Caps. A white paper produced as a result of the ICWG Science Planning Virtual Workshop April 2-3, 2020. 15 pp.

**Campbell S**, Markle B, Courville Z., Ray L, Foreman C., Schild K., Friess A, Winglee R (2020) Developing Polar-Extreme Environment Collaborations to Support NASA Earth and Space Science Missions: White Paper to summarize potential NASA-JIRP Partnership for Polar testing, Training, and Proving Grounds on the Juneau Icefield, Alaska. 12 pp.

**Campbell S** (2019) Juneau Icefield Research Program Directors Summary – 2019. 10 pp.

### 2019 (2)

Spector P, Stone J, Lifton N, Ackert R, Goehring B, Balco G, McIntosh B, **Campbell S**, Zimmerer M, Vick-Majors T, Winebrenner D (2019) White Paper for the NSF Ice Drilling Program Subglacial Access Science Planning Workshop: Drilling priorities to determine past extent of the Antarctic Ice Sheet. 10 pp.

Baker EH, McGee S, **Campbell S**, Pierce JL, McNeil CJ (2019) Weather station data on the Juneau Icefield: U.S. Geological Survey data release, <https://doi.org/10.5066/P9DUI71J>. (5% Author)

### 2018 (2)

**Campbell S**, Lamie N, Schild K (2018) Structure and stability of the McMurdo Ice Shelf Transition Zone and Glaciated Hillside near Scott Base, Antarctica. ERDC-CRREL Technical Report, 35 pp.

Sinclair S, **Campbell S**, Arcone S, Affleck R (2018) Using Ground-Penetrating Radar to delineate regions of massive ice at McMurdo Station, Antarctica. ERDC-CRREL Technical Report, 43 pp.

### 2017 (2)

Affleck R, **Campbell S**, Sinclair S\*, Tischbein B (2017) Subsurface assessment at McMurdo Station, Antarctica. ERDC-CRREL Technical Report, 135 pp.

**Campbell S**, Courville Z, Sinclair S\*, Wilner J\* (2017) Geophysical Survey of McMurdo Ice Shelf to Determine Infrastructure Stability and for Future Planning. ERDC-CRREL Technical Report, 33 pp.

### 2014 (1)

**Campbell S**, Haskins K, Winn B, Stanley J, Zabilansky L (2014) Testing of oil skimmer equipment components for use in Arctic Environments. Report to Dept. of the Interior Bureau of Safety and Environmental Enforcement, 200 pp. BSEE [Link](#).

### 2011 (1)

**Campbell S** (2011) Learning about climate change from ice cores. Publication for the National Park Service U.S. Department of the Interior, Denali National Park and Preserve.

### 2010 (1)

Lawson D, Finnegan D, Klaar M, **Campbell S** (2010) Climate monitoring in Glacier Bay National Park and Preserve: capturing climate change indicators. 2010 Report to Glacier Bay National Park and Preserve, Alaska.

### Conference Proceedings & Published Abstracts (Oral Presentations) (Student author\*) (27)

#### Conference Session Co-Chair:

**2015:** American Geophysical Union; Applications of Near Surface Geophysics in Periglacial Regions

**2014:** American Geophysical Union; Applications of Near Surface Geophysics in Cold Regions

**2013:** Northeast GSA; Ground-Penetrating Radar Investigations for Geologic Formations

### 2021 (3)

**Campbell S**, Courville Z, Arcone S, Price D, Kaluziński L, Lines A, Hottell K (2021) Ground-penetrating radar for crevasse detection on Polar Ice Sheets. American Geophysical Union Conference. NS13A-04. December 13, 2021. (Invited)

Lorenzo J, Karunatilake S, Douglas. T, **Campbell S**, Haviland H, Zanetti M, Weber R, Fassett C, Patterson D, Bates (2021) Alaskan analogs for icy soils on Mars: The permafrost tunnel and the Juneau Icefield. U.S. Geological Survey Workshop, *LPI Contributions*, 2595, 8110.

Davies B, Bendle J, Carrivick J, McNabb R, McNeil C, **Campbell S**, Pelto M (2021) Recent, rapid and profound changes to glacier morphology and dynamics, Juneau Icefield, Alaska. European Geophysical Union. Glaciers and Ice Caps under Climate Change, EGU21-1539.

### 2020 (3)

**Campbell S**, Balco G, Ackert R, Goehring B (2020) Improving West Antarctic Ice Sheet Reconstructions from Compiling Local GPR Observations. 18<sup>th</sup> International Conference on Ground-Penetrating Radar. June 14-19, 2020. (Invited Extended Abstract and talk) (Oral presentation canceled due to COVID)

Kreutz K, Jenk T, Winski D, Feng L, Osterberg E, **Campbell S**, Wake C, Schwikowski M (2020) Microradiocarbon age constraints in the Mount Hunter, Alaska Ice Core: Implications for Central Alaska Holocene Ice Extent and Climate. American Geophysical Union Conference. C033-07, 10 December 2020.

\*Braddock S, \*Spoth M, Hall B, Johnson J, **Campbell S** (2020) Holocene relative sea-level change in the Pine Island-Thwaites Glacier region of West Antarctica. American Geophysical Union Conference. G013-06, 14 December 2020.

### 2019 (3)

\*Boucher A, Pope A, **Campbell S** (2019) American Geophysical Union Conference. *Supporting Diverse Student Participation in the Juneau Icefield Research Program*. Scheduled for December, 2019. (Invited Talk; Note: Annie Boucher delivered this presentation because I was in Antarctica completing field research). (Invited)

\*Nesbitt IM, Smith S, Koffman B, **Campbell S**, Arcone A (2019) A decision-making framework for sedimentation analyses in dammed river corridor impoundments. Northeast Geological Society of America Meeting, Session 36, T13. March 18, 2019.

Kreutz KJ, Winski D, Osterberg EC, Wake, CP, **Campbell S**, Introne DS, Ferris D (2019) Moisture transport dynamics in the north pacific over the last millennium and impacts on the Mount Hunter (Alaska)

ice core isotope record. Northeast Geological Society of America Meeting, Session 37, T15. March 18, 2019.

### 2018 (6)

Middleton JL, \*Mason Z, Mukhopadhyay S, Ackert R, Putnam A, **Campbell S** (2018) Cosmogenic nuclides suggest long-term Pleistocene exposure of subglacial bedrock at the Ohio Range in the West Antarctic Ice Sheet. American Geophysical Union Conference, C22B-05, December 11, 2018.

\*Kaluzienski L, Koons PO, Enderlin E, Arcone S, **Campbell S**, Courville Z, \*Deck C (2018) C43A-03 Evolution of the McMurdo Shear Zone, Antarctica: Determining Critical Kinematic Threshold Values for Crevasse Initiation and Predicting Long-term Changes to Shear Zone Stability. American Geophysical Union Conference, December 13, 2018.

Gerbi C, \*Mills S, \*Bernsen S, \*Lee I, \*Clemens-Sewell D, \*Hruby K, **Campbell S**, Hawley R, \*Clavette R, \*Bellefontaine J, Kreutz K (2018) C44A-07 Crystallographic Orientations in the Lateral Margin of Jarvis Glacier, Eastern Alaska Range. American Geophysical Union Conference, December 13, 2018.

**Campbell S**, \*Boucher A, Jennings C (2018) 72 Year Legacy of Research & Training in Polar Earth Systems Science: The Juneau Icefield Research Program. Geological Society of America Meeting; Indianapolis, Indiana. November 11, 2018. (Invited)

Arcone S, **Campbell S**, \*Nesbitt I (2018) Lacustrine sedimentation in New England imaged with ground-penetrating radar: Little evidence for catastrophic Holocene landscape alteration. Northeast Geological Society of America Conference. Burlington, VT., 3-2. March 18, 2018.

\*Nesbitt I, **Campbell S**, Arcone S, Smith S (2018) Holocene sediment volume determined by ground-penetrating radar and sidescan sonar in Maine, USA. Northeast Geological Society of America Conference. 26-8. March 19, 2018.

### 2017 (1)

\*Winski D, Osterberg E, Kreutz K, Wake C, Ferris D, **Campbell S**, Baum M, Bailey A, Birkel S, Introne D, Handley M (2017) A 400-year ice core melt layer record of summertime warming in the Alaska Range. American Geophysical Union Conference, PP23E-03, December 12, 2017.

### 2015 (2)

**Campbell S**, Kreutz K, Arcone S, Braddock S\*, Osterberg E, Koons P (2015) Determining winter mass balance and the previous year snowline position on the Juneau Icefield, Alaska, using ground-penetrating radar. Northeast Geological Society of America Meeting; Bretton Woods, NH. March, 2015.

**Campbell S** (2015) Influences of terrain and vegetation on permafrost distribution: case studies from Tanana Flats and 12-Mile Lake, Alaska. Northeast Geological Society of America Meeting; Bretton Woods, NH. March, 2015.

### 2013 (5)

**Campbell S**, Williams K, Marston L\*, Kreutz K, Wake C, Osterberg E (2013) Linking ice core climate research to the K-12 and broader community in Denali National Park, Alaska. AGU Conference; San Francisco, CA. December, 2013.

**Campbell S** and Arcone S (2013) Applications of Ground-Penetrating Radar Profiles to Surficial and Bedrock Geology Mapping in New Hampshire. Geological Society of America Meeting; Denver, CO. October, 2013.

**Campbell S**, McNeil C\*, Arcone S, Kreutz K, Koons P, Hamilton G, Conway H (2013) Determining winter mass balance and the previous year snowline position of the Juneau Icefield, Alaska, using high-frequency ground-penetrating radar. International Glaciological Society Radioglaciology Conference; Lawrence, KS, September, 2013.

**Campbell S** and Arcone S (2013) Applications of Ground-Penetrating Radar Profiles to Surficial and Bedrock Geology Mapping in New Hampshire. Northeast Geological Society of America Meeting; Bretton Woods, NH. March, 2013.

**Campbell S**, Arcone S, Kreutz K, Hamilton G, Conway H, McNeil C\*, Braddock S\* (2013) Preliminary winter accumulation rates for mass balance estimates of the Juneau Icefield, Alaska using 400 MHz ground-penetrating radar. Invited speaker, AGU-SEG Cryosphere Workshop; Boise, ID. January, 2013.

#### 2012 (4)

**Campbell S**, Saari S, Douglas T, Day-Lewis F, Walvoord M, Nolan J\*, Briggs M (2012) Shallow Geology and Permafrost Characterization using Ground-Penetrating Radar to infer Hydrological Controls and Landscape Evolution of Interior Alaska. AGU Conference; San Francisco, CA. December, 2012.

Arcone S and **Campbell S** (2012) Multi-Bandwidth GPR Profiles of Granite in New Hampshire: Attributes of Fracture Horizons and Wavelets. AGU Conference; San Francisco, CA. December, 2012.

**Campbell S**, Kreutz K, Arcone S, Osterberg E (2012) Strain Rate Estimates on Mount Hunter, Alaska: What Causes Crevassing at an Ice Divide? Arctic Workshop; Winter Park, CO. March, 2012.

**Campbell S** (2012) GPR investigation of glacier structure and dynamics near exposure-dating sites in the Pensacola Mountains, Antarctica. Workshop on geological constraints for Antarctic ice sheet models; Lamont-Doherty Earth Observatory Workshop, NY. April, 2011.

#### **Conference Proceedings (Poster Presentations) (\*Student Author) (47)**

#### 2021 (2)

Stecher B, Balter-Kennedy A, **Campbell S**, Corbett L, Balco G, Lowell T, JIRP Geomorphology group, Bierman P, Schaefer J (2021) A Holocene deglaciation history of the Juneau Icefield, Southeastern Alaska, using cosmogenic <sup>10</sup>Be. American Geophysical Union Conference. C15E-840. 13 December 2021.

Balter-Kennedy A, Varuolo-Clarke A, Case E, **Campbell S**, Eppel A, Carranza M (2021) A Virtual Expedition to the Juneau Icefield. American Geophysical Union Conference. ED55B-0297. 17 December 2021.

#### 2020 (3)

\*Hill A, Schild K, **Campbell S** (2020) Quantifying Surface Changes on the McMurdo Ice Shelf. American Geophysical Union Conference. C022-0019, 9 December 2020.

Gerbi C, \*Mills S, \*Clavette R, **Campbell S**, \*Bernsen S, \*Clemens-Sewall D, \*Lee I, Hawley R, Kreutz K, \*Hruby K (2020) Microstructure in a Glacial Shear Margin. American Geophysical Union Conference. C010-0008, 8 December 2020.



\*Kindstedt I, Schild K, Winski D, Kreutz K, Hall D, Copland L, **Campbell S**, \*McConnell E (2020) Examining Sources of a Wintertime Cold Bias in Remote Sensing Temperatures from the St. Elias Range. American Geophysical Union Conference. C038-0011, 11 December 2020.

### 2019 (3)

Gerbi C, \*Hruby K, Koons P, **Campbell S**, Martin C, Hawley R (2019) Rheological impact of crystallographic fabric in the margin of streaming ice. American Geophysical Union Conference. San Francisco, CA. C51C-1305, December 13, 2019.

\*Orehovschi M, Koffman B, Osterberg E, Winski D, Ferris D, Polashenski D, Stamieszkin K, Kreutz K, Wake C, **Campbell S** (2019) Volcanic ash stimulation of marine primary production in the northeastern subarctic Pacific over the past 200 years. American Geophysical Union Conference, San Francisco, CA. C11C-1304, December 9, 2019.

\*Verboncoeur H, \*Stock J, \*Muhlheim R, \*Bingham E, \*Costantini W, \*Dryak M, \*Armstrong R, **Campbell S**, \*Brazo J (2019) Characterization of a Shallow Firn Aquifer at the Matthes-Llewellyn Glacier Divide, Juneau Icefield, Alaska. American Geophysical Union Conference, San Francisco, CA. C13C-1307, December 9, 2019.

### 2018 (8)

**Campbell S**, \*Barnett C, \*Borreggine M, \*Goss G, \*Henzmann I, \*Miller R, \*Kaluziński L (2018) C51F-1123 Ground-Penetrating Radar Ice Thickness Survey of Matthes, Llewellyn, and Tulsequah Glaciers on the Juneau Icefield, Alaska and Canada. American Geophysical Union Conference, December 14, 2018.

**Campbell S**, Liljedahl A, Douglas T, \*Bernsen S, \*Gatesman T, Gerbi C (2018) An interdisciplinary approach to assess water resources originating from glaciated watersheds. Northeast Geological Society of America Conference. 22-2. Burlington, VT. March 18, 2018.

\*Nesbitt I, **Campbell S**, Arcone S, Smith S, Koffman B (2018) NS41B-0830 Sedimentary architecture and accumulation rates of multiple lakes in New England, USA. American Geophysical Union Conference, December 2018.

\*Bernsen S, Gerbi C, **Campbell S**, Vel S, Christianson K (2018) NS43B-0839 A Numerical Toolbox to Guide Radar and Seismic Field Campaign Planning. American Geophysical Union Conference, December 2018.

\*McConnell E, Kreutz K, **Campbell S**, Winski D, Copland L, Zdanowicz C, \*Kochtitzky W, Introne D, Nolan A (2018) C41C-1779 Calibrating Ice Core, Weather Station, and NASA MODIS Ice-Surface Temperature Records to Analyze Atmospheric Variability in the St. Elias, Yukon, Canada. American Geophysical Union Conference, December 13, 2018.

Kreutz K, Winski D, Osterberg E, Introne D, **Campbell S**, Wake C, Ferris D (2018) PP21F-1474 The possible influence of shifting North Pacific moisture source on the Mt. Hunter (Alaska) ice core deuterium excess record over the past millennium. American Geophysical Union Conference, December 2018.

\*Hruby K, Gerbi C, Koons PO, Martin C, **Campbell S**, Hawley R (2018) C31C-1543 Determining the Influence of Lateral Margin Mechanical Properties on Glacial Flow. American Geophysical Union Conference, December 2018.

\*Lee I, Hawley R, Bernsen S, Gerbi C, Clemens-Sewell D, **Campbell S**, Waszkiewicz, Kreutz K (2018) C31C-1548: Collection and Analysis of Shear Strain Data of Polythermal Ice from Jarvis Glacier, Alaska. American Geophysical Union Conference, December 2018.

### 2017 (9)

**Campbell S**, Liljedahl A, Douglas T, Bernsen S\*, Gatesman T, Gerbi C (2017) Contributions to Jarvis Creek Watershed, Alaska, from winter snowpack and glacier melt inferred through airborne and ground-penetrating radar. American Geophysical Union Meeting, New Orleans, LA. C33A-1544, December 13, 2017.

Courville Z, **Campbell S**, Sinclair S, \*Wilner J (2017) C51B-0347: Brine, englacial structure, and basal properties near the terminus of the McMurdo Ice Shelf, Antarctica. American Geophysical Union Meeting, New Orleans, LA. C51B-0347, December 15, 2017.

\*Kaluziński L, Koons P, Enderlin E, Courville Z, **Campbell S**, Arcone S, Jordan M, Ray L (2017) Field Observations and Modeling Results of the McMurdo Shear Zone, Antarctica: Implications on Shear Margin Dynamics and Long- Term Viability of the South Pole Traverse, American Geophysical Union Meeting, New Orleans, LA. C51B-0356, December 15, 2017.

Kreutz K, Campbell S, Winski D, Osterberg E, \*Kochtitzky W, Copland L, Dixon D, Introne D, \*Medrzycka D, \*Main B, \*Bernsen S, Wake C (2017) Sub-annual North Pacific hydroclimate variability since 1450AD from updated St. Elias ice core isotope and accumulation rate records. American Geophysical Union Meeting, New Orleans, LA PP31A-0959 December 13, 2017.

\*Polashenski D, Osterberg E, Kreutz K, Wake C, Ferris D, Introne D, Campbell S (2017) Denali Ice Core MSA: A Record of North Pacific Primary Productivity. American Geophysical Union Meeting, New Orleans, LA. PP31A-0961, December 13, 2017.

\*Nesbitt I, **Campbell S**, Arcone S, Smith S (2017) Using ground-penetrating radar and sidescan sonar to compare lake bottom geology in New England. American Geophysical Union Meeting, New Orleans, LA. PP44B-01, December 14, 2017.

\*Granville C, Osterberg E, Winski D, Kreutz K, Wake C, **Campbell S**, Ferris D (2017) Synoptic Conditions and Tropical Forcing of Summer Melt Events at the Denali Ice Core Drill Site. American Geophysical Union Meeting, New Orleans, LA. GC53E-1864 December 15, 2017.

Lee I, Hawley R, Sewell D, **Campbell S**, Waszkiewicz M, Bernsen S, Gerbi C, Kreutz K, Koons P (2017) Construction and Deployment of Tilt Sensors along the Lateral Margins of Jarvis Glacier, Alaska to improve understanding of the Deformation Regime of Wet-Based Polythermal Glaciers. American Geophysical Union Meeting, New Orleans, LA. H41J-0812 December 14, 2017.

Jongebloed U, Osterberg E, Kreutz K, Ferris D, **Campbell S**, Saylor P, Winski D, Handley M (2017) Elevational and Spatial Gradients of Atmospheric Metal Pollution in the North Pacific. Geophysical Union Meeting, New Orleans, LA. A11K-0158, December 11, 2017.

### 2015 (10)

**Campbell S**, Hollander J\*, Slavin B\*, Wolf J\*, Wilner J\*, Smith B\*, Moore T\* (2015) Spatial and temporal variability of winter accumulation on Taku Glacier, Southeast Alaska, between 2012 and 2015. American Geophysical Union Meeting, San Francisco, CA. December, 2015.

Wilner J\*, Smith B\*, Moore T\*, Slavin B\*, Hollander J\*, Wolf J\*, **Campbell S** (2015) Estimating temporal redistribution of surface melt water into upper stratigraphy of the Juneau Icefield, Alaska. American Geophysical Union Meeting, San Francisco, CA. December, 2015.

Gaedeke A, Liljedahl A, Gatesman T\*, **Campbell S**, Hock R, O'Neel S (2015) Long-term linkages between glaciers, permafrost, and hydrology at two glacierized watersheds in Alaska. American Geophysical Union Meeting, San Francisco, CA. December, 2015.

Osterberg E, Wake C, Kreutz K, Winski D, Ferris D, Introne D, **Campbell S**, Birkel S (2015) Denali ice core record of North Pacific hydroclimate, temperature and atmospheric circulation over the past millennium. American Geophysical Union Meeting, San Francisco, CA. December, 2015.

Winski D, Osterberg E, Ferris D, Kreutz K, Wake C, **Campbell S** (2015) Denali Ice Core record of Alaska Summertime Temperature over the past Millennium. American Geophysical Union Meeting, San Francisco, CA. December, 2015.

Winski D, Osterberg E, Ferris D, Kreutz K, Wake C, **Campbell S** (2015) A Record of Rising 20<sup>th</sup> Century Snow Accumulation from the Denali Ice Core. American Geophysical Union Meeting, San Francisco, CA. December, 2015.

Boucher A\*, Koons P, Roy S, Birkel S, Kaluziński L, **Campbell S** (2015) Implications of fault damaged bedrock to tectonic and landscape evolution in Coastal Alaska. American Geophysical Union Meeting, San Francisco, CA. December, 2015.

**Campbell S**, Balco G, Conway H, Huybers K (2015) A GPR approach to searching for pre-WAIS collapse glacier ice. West Antarctic Ice Sheet Annual Science Workshop, Loveland, CO. September, 2015.

Kreutz K, **Campbell S**, Osterberg E, Wake C, Winski D, Roy S, Koons P (2015) Geophysical approaches to improve Holocene ice core based hydro-climate reconstructions in the Northeast Pacific. Northeast Geological Society of America Meeting; Bretton Woods, NH. March, 2015.

Winski D, Osterberg E, Kreutz K, Baum M, Wake C, **Campbell S** (2015) Abrupt summer warming in the Alaska Range from melt layers in the Mount Hunter Ice Core. Northeast Geological Society of America Meeting; Bretton Woods, NH. March, 2015.

### 2013 (5)

**Campbell S**, Kreutz K, Arcone S (2013) Ground-penetrating radar vertical resolution, signal attenuation, and penetration in temperate and polar glaciers: case studies from North America and Antarctica. AGU Conference; San Francisco, CA. December, 2013.

Wu N\*, **Campbell S**, Douglas T (2013) Developing an Ice Volume Estimate of the Jarvis Glacier, Alaska, using Ground-Penetrating Radar and High Resolution Satellite Imagery. AGU Conference; San Francisco, CA. December, 2013.

Douglas T, Bjella K, **Campbell S** (2013) What's down below? Current and potential future applications of geophysical techniques to identify subsurface permafrost conditions. AGU Conference; San Francisco, CA. December, 2013.

Burzynski A\*, Osterberg E, Kreutz K, Wake C, **Campbell S**, Volkening K\*, Winski D (2013) Relationships between atmospheric aerosols and snow chemistry at Denali, Alaska. AGU Conference; San Francisco, CA. December, 2013.

Horing J\*, **Campbell S**, Douglas T, Saari S (2013) Thickness and Extent of Permafrost Determined by Resistivity Profiles Compared to Vegetation Type in Tanana Flats, Alaska. Geological Society of America Conference; Denver, CO. October, 2013.

### 2012 (3)

Braddock S\*, Sandler H\*, Boucher A\*, McNeil C\*, **Campbell S**, Kreutz K (2012) Accumulation Rate Variability and Winter Mass Balance Estimates using High Frequency Ground-Penetrating Radar and Snow Pit Stratigraphy on the Juneau Icefield, Alaska. AGU Conference; San Francisco, CA. December, 2012.

Shapiro H\*, Osterberg H, Kreutz K, Wake C, **Campbell S** (2012) Using temperature and precipitation at an alpine weather station (Denali, AK) to represent regional climate patterns. AGU Conference; San Francisco, CA. December, 2012.

Kreutz N, Plourde J\*, **Campbell S**, Kreutz K, Wanamaker A (2012) Developing K-5 and public outreach products for Alaskan glaciology and sea level using the iPad App platform. Arctic Workshop; Winter Park, CO. March, 2012.

### 2011 (4)

Astley B, Douglas T, **Campbell S**, Snyder C, Goggin E, Saari S (2011) Response of permafrost to anthropogenic land surface disturbance near Fairbanks, Alaska. AGU Conference; San Francisco, CA. December, 2011.

Osterberg E, Thompson J\*, Landis J\*, Albert M, **Campbell S**, Hawley R, Virginia R (2011) Tracking radioactive fallout from the Fukushima Dai-ichi Accident in Arctic Snow. AGU Conference; San Francisco, CA. December, 2011.

Astley B, Snyder C, **Campbell S**, Arcone S, Smith B (2011) An integrated geophysical program to map permafrost extent, Fort Wainwright, Alaska. Symposium on the Application of Geophysics to Engineering and Environmental Problems; Charleston, SC. April, 2011.

**Campbell S**, Kreutz K, Wake C, Osterberg E, Arcone S, Winski D, Volkening K\* (2011) Application of Ground Penetrating Radar to the selection of an ice core drill site on the Kahiltna Glacier of Mount McKinley, Alaska. Symposium on the Application of Geophysics to Engineering and Environmental Problems; Charleston, SC. April, 2011.

### **Papers Submitted, In Revision, In Review, or In Preparation (\*student author) (8)**

Balco G, Brown N, Nichols K, Venturelli R, Adams J, Braddock S, **Campbell S**, Goehring B, Johnson J, Rood D, Wilcken K, Hall B, Woodward J (2022) Reversible ice sheet thinning in the Amundsen Sea Embayment during the late Holocene. *Science*, In Review. IF: 47.728

**Campbell S**, McNeil C, Arcone S, Conway H, Kreutz K, Schild KM, \*Braddock S, \*Slavin B, \*Wilner J, \*Smith B, \*Hollander J, \*Wolf J (2021) Variable Snow Accumulation Derived from Surface-based Ground-Penetrating Radar Profiles across the Juneau Icefield, Alaska. *J. Glaciol.*, In Revision. IF: 3.261

\*Maurer J, \*Mannello M, **Campbell S** (2021) Spatial Variability in Firn Thickness Across the Juneau Icefield, Alaska. *J. Glaciol.*, In Revision. IF: 3.261

\*Kindstedt I, Schild KM, Winski D, Kreutz K, Copland L, **Campbell S**, \*McConnell E (2021) Evaluating sources of a cold bias in MODIS land surface temperatures in the St. Elias Mountains, Yukon. *The Cryosphere*, In Review. IF: 5.516

\*Clyne E, Riverman K, Anandakrishnan S, Alley RB, **Campbell S**, Alley K, Holschuh N, Schmidt BE, Washam P, Mullen A, Dichek D, Smith JA, Anker P, Nicholls K, Davis P, Basinski-Ferris A\*, Holland D, Thomas C, Wake J (2021) Geophysical Evidence of Rapid Basal Melting and Tidal Pumping beneath the Eastern Ice Shelf of Thwaites Glacier. *J. Glaciol.*, In Preparation. IF: 3.261

\*Nesbitt I, **Campbell S**, Smith S, Koffman B, Arcone SA, Schild K (2021) The sediment delivery continuum from deglaciation to the modern watershed based on lake sedimentary deposits in the Northeastern USA. *Quaternary Sciences*, In Review. IF: 2.939

### **Funded Grants & Awards (29)**

**2022-2023: UMaine Internal Grant: Aerospace Science and Technology in Secondary Schools (ASTSS)** Alex Friess (PI), **Seth Campbell**, Parians Rahimzedah, Shawn Laatsch, Yongjang Zhang, Vikas Dhiman, Michael Davis, Barbara Stewart, Dan Moore (Co-PI's) (\$37,835)

**2022-2023: NSF EAGER: Improving constraints on West Antarctic Ice Sheet history by linking glacio-chemical paleoclimate records with bedrock exposure ages.** **Seth Campbell** (PI) Robert Ackert (Co-PI) (\$98,791)

**2022-2025: Maine-Alaska Federal Priorities Proposal: Earth & Planetary Sciences Polar Proving Ground & Training Program.** Chris Gerbi, Zoe Courville (PI) Kristin Schild, Karl Kreutz, Andy Goupee, Martin Truffer, Jason Amundson, Eran Hood, **Seth Campbell** (Co-PI's) (\$2,000,000)

**2022-2025: NASA Planetary Science Through Analog Research (PSTAR): ORCAA: Ocean Worlds Reconnaissance and Characterization of Astro-biological Analogs.** Samuel Howell (PI) Miles Smart, Dale Winebrenner, Jill Mikucki, **Seth Campbell** (Co-PI's) (\$2,531,856)

**2021-2024: NSF Antarctic Glaciology #1744865:** Site Survey for Subglacial Bedrock Exposure dating at the Margin of Wilkes Basin in Northern Victoria Land. Balco G (PI), Todd C, **Seth Campbell** (Co-PI's) (\$357,348).

**2022-2025: NSF GEOPATHs #2119883:** Proposal: GP-IN: CUSP: Connecting Underserved Students to Polar STEM. **Campbell S** (PI) Shulman D (Co-PI) C Bartram, L Millay (Collaborators) (\$377,293).

**2021-2022: NSF Conference Proposal #2114395:** Polar/Mountain Geoscience Education Conference 2021: Increasing Justice, Equity, Diversity, and Inclusion of First Generation College, Low Income, and Minority Polar Science Students. **Campbell S** (PI) (\$49,805).

**2021-2022: NSF Conference Proposal #2113032:** Polar Radar Technology Conference 2021. **Campbell S** (PI), Courville Z (Co-PI) (\$39,010).

**2021-2022: UMaine Scholarly Materials & Equipment Award:** Airborne Earth Systems Lab: The Development of a New Multi-Platform and Multi-Sensor Array for UMaine Earth Science Research. **Campbell S** (PI) (\$12,152).

**2021: NSF Antarctic Glaciology NSFPLR-NERC:** Supplement to Funded Grant - Geological History Constraints on the Magnitude of Thwaites Glacier Grounding Line Retreat. Hall B (PI) **Campbell S** (Co-PI) \$24,002 (\$24,002).

**2022 – 2026: NSF OPP Proposal: Collaborative Research: Sensitivity of the West Antarctic Ice Sheet to 2° Celsius (SWAIS 2C)** Austermann J (PI) Kingslake J (Co-PI) **Campbell S** (Collaborator) (\$516,863) (\$14,000 to JIRP)

**2020-2021: NSF Antarctic Research #2041749:** Supplement to Funded Grant - Constraining WAIS elevation at Mt. Waesche during the last interglacial using AR/AR and cosmogenic exposure ages of subglacial lava flows. **Campbell S** (UMaine PI) (\$32,791).

**2020-2023: NSF P2C2 #2002483:** Evaluating North Pacific hydroclimate during the Holocene using the Denali ice core archive. Kreutz K (PI) **Campbell S**, Winski D, Kurbatov A (Co-PI's) (\$333,031)

**2020-2023: NSF OPP Proposal:** Understanding Firn Rheology through Laboratory Compaction Experiments and Radar Data. R Skarbek (PI) J Kingslake (Co-PI) **Campbell S** (Collaborator) (\$737,532) (\$14,000 to JIRP)\*

**2018-2022: NSF Antarctic Glaciology #1738989:** NSFPLR-NERC: Geological History Constraints on the Magnitude of Thwaites Glacier Grounding Line Retreat. Goehring B (PI), Johnson J, Hall B, **Campbell S**, Balco G, Stone J, Woodward J (Co-PI's) (\$1,834,792)

**2018-2022: NSF Antarctic Glaciology #1744949:** Constraining WAIS elevation at Mt. Waesche during the last interglacial using AR/AR and cosmogenic exposure ages of sub-glacial lava flows. Mitrovica J (PI) Ackert R, Zimmerer M, Dunbar N, Macintosh W (Co-PI's) **Campbell S** (UMaine PI) (\$734,190)

**2019-2022: University of Alberta:** Replacement of the Mount Logan Ice Core. Criscitiello A (PI) **Campbell S**, Kreutz K (co-PI's) (\$465,876)

**2019-2022: NSF EAGER P2C2 #1916967:** Ice Core Site Selection Attempt on the Mount Logan Summit Plateau. Winski D (PI) **Campbell S**, Kreutz K (co-PI's) (\$62,106)

**2018-2020: NSF RAPID Proposal #1842021:** Constraining kinematics of the Whillans/Mercer Ice Stream Confluence. **Campbell S** (PI) Koons P (Co-PI) (\$48,438)

**2018-2020: Purdue Prime Lab:** Reconstruction of Juneau Icefield Holocene Deglaciation and Erosion Rates in support of Understanding Broader Earth Systems Dynamics in Southeast Alaska. **Campbell S** (PI), Corbett L, Bierman P, Balco G, Koons P (Co-PI's) (\$10,900)

**2017-2020: NSF Antarctic Glaciology #1643301:** Collaborative research: Computational methods supporting joint seismic and radar inversion for ice fabric and temperature in streaming flow. Gerbi C (PI), **Campbell S**, Christianson K, Vel S (Co-PI's) (\$328,622)

**2016-2020: NSF Arctic #1503924:** Collaborative Research: Influence of natural ice microstructure on rheology in general shear: In-situ studies in the Alaska Range; Gerbi C (PI), **Campbell S**, Hawley R, Koons P, Kreutz K (Co-PIs) (\$639,818)

**2016-2018: NSF P2C2 #1502783:** Geophysical Reconnaissance to expand ice core hydro-climate reconstructions in the Northeast Pacific; Kreutz K (PI), **Campbell S** (Co-PI) (\$214,890)

**2014-2017: NSF Polar #1304905:** What role do glaciers play in terrestrial sub-arctic hydrology? Liljedahl A (PI), Hock R, **Campbell S** (co-PIs) (\$844,653)

**2015-2017: NSF Antarctic Glaciology #1443260:** Allan Hills Englacial Site ice core site selection; Spaulding N (PI), Conway H, Kurbatov A, Mayewski P (Co-PI's) **Campbell S** (Post-Doc) (\$188,845)

**2014-2017: NSF Antarctic Glaciology #1341658:** Constraining Plio-Pleistocene West Antarctic ice sheet behavior from the Ohio Range and Scott Glacier; Mukhopadhyay S (PI), Ackert R, **Campbell S** (Research Associate) (\$582,113)

**2015: National Geographic Waitt Grant:** Developing a Holocene climate record for the Southern Hemisphere Westerlies in Patagonia and South Georgia Island; Kreutz K (PI), **Campbell S** (co-PI) (\$11,952)

**2014: BSEE Research:** Testing of Oil Skimmer Equipment Components for use in Arctic Environments; Zabilansky L (PI) **Campbell S** (co-PI) (\$300,000)

**2012-2014: NSF P2C2 #1204035:** Reconstructing central Alaskan precipitation variability and atmospheric circulation during the past millennium; Osterberg E (PI), Kreutz K, Birkel S, Wake C (Co-PIs), **Campbell S** (PhD candidate) (\$891,846)

#### **Department of Defense Affiliated Proposals (15)**

**2021: NSF (Antarctic Logistics): Automated Crevasse Detection Software Package Development (ANT-21-52).** Zoe Courville (PI), Ben Walker (Postdoc), **Seth Campbell** (Collaborator) (\$58,556)

**2021: NSF (Antarctic Logistics): GPR Training for USAP Personnel.** Zoe Courville (PI) Steve Arcone, **Seth Campbell** (Collaborator) (\$35,282)

**2019-2020: NSF-AIL:** IceCube GPR Analysis. Courville Z (PI), **Campbell S** (Co-PI) (\$13,138)

**2020: NSF AIL:** Remote Sensing, GIS, and Internship Support to RSL. Deeb E (PI), Courville Z (Co-PI) **Campbell S** (Collaborator) (\$162,832)

**2019-2020: NSF AIL:** Ground-Penetrating Radar Survey of the Buried WAIS Divide Drilling Arch. Courville Z (PI), **Campbell S** (Co-PI) (\$33,163)

**2019-2020: NSF AIL:** Recurring Annual Review of Remote Sensing and Validation Data in Antarctica and Greenland. Courville Z (PI), **Campbell S** (Co-PI) (\$50,000)

**2018-2020: NSF AIL:** McMurdo Shear Zone Route Move. Courville Z (PI), **Campbell S** (Co-PI) (\$276,538)

**2019-2020: NSF AIL:** Developing Procedures for Crevasse Travel by Heavy Traverses Courville Z (PI), **Campbell S** (Co-PI) (\$45,149)

**2016-2018: NSF AIL:** Reconnaissance of a new potential route to access McMurdo Ice Shelf from McMurdo Station. **Campbell S** (PI), Lamie N (Co-PI) (\$85,357)

**2017-2018: NSF AIL:** GPR Survey, Analysis, and Interpretation of McMurdo Station. Sinclair S (PI) **Campbell S**, Arcone S (Co-PI's) (\$51,236)

**2015-2016: BSEE Research:** Quantitative Measurements of In-Situ burn efficiency and rate. Panetta P (PI), **Campbell S** (CRREL PI) Hewitt G, Zabilansky L, Rangwal A (co-PIs) (\$172,885)

**2015-2016: NSF AIL:** Geotechnical Assessment for McMurdo Station Landscape and Infrastructure Improvements; Affleck R (PI), **Campbell S** (Co-PIs) (\$197,427)

**2015-2016: NSF AIL:** Geophysical Survey of McMurdo Ice Shelf to determine current infrastructure stability and for future planning; **Campbell S** (PI), Shoop S, Courville S (Co-PIs) (\$98,500)

**2015: Engineer Research and Development Center Development:** Funding for ERDC-CRREL Ice Engineering Facility; Davis B, Courville Z, **Campbell S**, Affleck R (Co-PI's) (\$2,500,000)

**2015: NSF AIL:** Crevasse Snow Bridge Strength: Extending Current Crevasse Crossing Criteria to the Arctic; Courville Z (PI), **Campbell S**, Lever J (Co-PI's) (\$55,000)

### Planned Proposal Submissions, Resubmissions, or Pending Proposals (9)

- |      |   |                                 |
|------|---|---------------------------------|
| 2022 | <b><u>Maine-Alaska Federal Priorities Proposal:</u></b> <i>Earth &amp; Planetary Sciences Polar Proving Ground &amp; Training Program.</i> <b>Seth Campbell</b> (PI) Kristin Schild, Alex Friess, Karl Kreutz, Peter Koons, Lauren Ross (Co-PI's) (\$5,000,000/year) (75% Author) (2023 – 2027)       | Pending                         |
| 2021 | <b><u>Hotchkiss School Summer Field Program, CT:</u></b> <i>Annual 2-week Juneau Icefield Research &amp; Education Program for Hotchkiss School.</i> Mario Williams (PI) <b>Seth Campbell</b> (Co-PI) (\$142,490) (50% Author) (Delayed from 2020 due to COVID) (2022)                                | Pending                         |
| 2021 | <b><u>NASA Planetary Science Through Analog Research (PSTAR):</u></b> <i>PEGASUS: Planetary Exploration of Glacier Analog Subsurface ice and Sediments.</i> Christine Foreman (PI) Laura Eshelman (Co-I) <b>Seth Campbell</b> (Collaborator) (Total Budget: \$449,946; \$52,728 to JIRP) (2022-2025). | Pending                         |
| 2020 | <b><u>NSF-GEO/NERC:</u></b> <i>Investigating the direct influence of meltwater on Antarctic Ice Sheet dynamics.</i> J Kingslake (PI) <b>Campbell S</b> (Collaborator) (\$799,383) (\$21,000 to JIRP)  | Pending                         |
| 2021 | <b><u>NSF Antarctic Glaciology:</u></b> <i>Structural, Meteoric, and Marine Ice Controls on McMurdo Ice Shelf Stability.</i> <b>Seth Campbell</b> (PI) P. Koons, Z.Courville, S. Arcone (Co-PI's) (\$722,247) (2023 – 2026)   | In Preparation for Resubmission |
| 2022 | <b><u>NSF CAREER:</u></b> <i>Reducing Uncertainty of meltwater influence on Glacier Mass Balance and Dynamics in Alaska.</i> <b>Seth Campbell</b> (PI) (~\$650,000) (2023 – 2027)   | In Preparation for Resubmission |

### Declined Proposals (22)

- |      |   |  |
|------|---|--|
| 2022 | <b><u>NSF NRT-FW-HTF:</u></b> <i>Future Aerial Sensor Science and Technology (FASST).</i> Alex Friess (PI), <b>Seth Campbell</b> , Kristin Schild, Yifeng Zhu, Parinaz Rahimzadeh-Bajgiran (Co-PI's) (\$2,999,490) (15% Author) (2022 - 2027) |  |
|------|---|--|



- 2021 **NSF Advancing Internal STEM Learning (AISL): AIM STEM T3 Makerspace.** Monahan J (PI) Veasey P, Low A (Co-PI) **Campbell S** (Collaborator) (\$3,000,000; \$100,000 to JIRP)
- 2021 **Research Council of Norway: Ice flow, hydrology, and stability of the world's deepest alpine marine terminating glacier.** (Proposal Resubmission) Calvin Shackleton (PI) **Seth Campbell**, Jonathan Kingslake, Regina Hock, Daniel Shapero (Co-PI's) (\$431,894) (Submitted 4/10/2019) (20% Author) (Rank: 5 out of 7)
- 2020 **European Commissions Marie Curie Global Fellowship: On the brink of collapse: Ice flow dynamics, hydrology, and stability of the world's deepest alpine marine terminating glacier.** Calvin Shackleton (PI) **Seth Campbell**, Jonathan Kingslake, Andy Hodson (Co-PI's) (\$312,695) (Submitted 9/11/2019) (20% Author) (Rank: 69% out of 100%)
- 2020 **Research Council of Norway: On the brink of collapse: Ice flow dynamics, hydrology, and stability of the world's deepest alpine marine terminating glacier.** (Proposal Resubmission) Calvin Shackleton (PI) **Seth Campbell**, Jonathan Kingslake, Andy Hodson, Daniel Shapero (Co-PI's) (\$431,894) (Submitted 4/10/2019) (20% Author) (Rank: 5 out of 7)
- 2020 **NSF (Coastlines & People): Large-scale CoPe: Building resilience to landslide generated tsunamis - an emerging hazard from a changing cryosphere.** Anna Liljedahl (PI) Seth Campbell, Kristin Schild, Samuel Roy, and 31 others (Co-PI's) (\$19,825,267; \$578,967 to UMaine) (10% Author) (Rank: Highly Competitive)
- 2020 **NASA New Investigator: Reconstructing three decades of three-dimensional surface flow from the Greenland Ice Sheet.** Ryan Cassotto (PI), **Seth Campbell**, Mark Fahnestock, Sergey Samsonov (Collaborators) (\$363,075; \$22,055 to JIRP)
- 2020 **NSF EarthCube: EarthCube Data Capabilities: Assimilating radar stratigraphy and other untapped data sources into glacier flow models.** Daniel Shapero (PI) **Seth Campbell** (Co-PI) (\$502,567) (Submitted 3/10/2020) (30% Author) (Rank: Not Competitive)
- 2020 **NASA Habitable Planets: CRISTAL: Cryo-Regions in Ice Shells That Accommodate Life.** Heidi Smith (PI) Christine Foreman (Co-PI) **Seth Campbell** (Collaborator) (\$817,000) (\$47,817 to JIRP)
- 2020 **NSF NNA: Collaborative Research: NNA Track 2: Designing a multiscale physics indigenous knowledge model to predict Arctic coastal environmental change and its impact over the next century.** Peter Koons (PI) Samuel Roy, Lauren Ross, **Seth Campbell**, Chris Gerbi (Co-PI's) (\$225,433) (Submitted 2/10/2020) (15% Author) (Rank: Competitive)
- 2019 **NSF Arctic (CAREER): Reducing Uncertainty of meltwater influence on Glacier Mass Balance and Dynamics in Alaska.** **Seth Campbell** (PI) (\$1,327,774) (Submitted 7/19/2019) (100% Author) (Rank: Less Competitive)
- 2019 **NASA ICESat-2: Quantifying Mass Balance Components and Dynamic Surface Lowering Contributions across Alaska Glaciers.** **Seth Campbell** (PI) Kristin Schild, Brent Minchew, Shad O'Neel, Martin Truffer, Carrie Vuyovich (Co-PI's) (\$843,981; \$753,066 to UMaine) (Submitted 10/8/2019) (70% Author) (Rank: Good/Very Good)
- 2019 **NSF NRT (Internal UMaine Competition): Developing an Earth Engineering Graduate**

- Program Focused on Polar to Marine Environments.* **Seth Campbell** (PI) Kristin Schild, Peter Koons, Alex Friess, Lauren Ross, Sam Roy, Peter Koons, Chris Gerbi, Jean McCrae (Co-PI's) (\$2,998,499) (Submitted 10/15/2019) (80% Author)
- 2019 **NSF Antarctic Glaciology:** *An Absolute Pinning Point for Ice-Core Paleo-altimetry.* Greg Balco (PI) **Seth Campbell**, Dominic Winski, Brent Geohring (Co-PI's) (\$881,377; \$188,750 to UMaine) (Submitted 5/28/2019) (20% Author) (Rank: Less Competitive)
- 2019 **NASA EPSCoR:** *Long endurance low-level remote sensing missions using lighter than air unmanned aerial vehicles.* Alex Friess (PI) **Seth Campbell**, Andrew Goupee, Parinaz Rahimzadeh-Bajgiran, Mehdi Tajvidi (Co-PI's) (\$743,515) (Submitted 11/1/2019) (20% Author) (Rank: Very Good/Excellent)
- 2019 **Keck Foundation:** *Decadal Prediction to 2100 of Arctic Coastal Evolution and Changing Climate.* Peter Koons (PI) **Seth Campbell**, Kristin Schild, Lauren Ross, Sam Roy, Sean Birkel, Anna Liljedahl (Co-PI's) (\$1,000,000) (Submitted 10/30/2019) (20% Author)
- 2019 **Research Council of Norway:** *Constraining the influence of glacier hydrology on ice dynamics of the Juneau Icefield, Alaska.* Calvin Shackleton (PI) **Seth Campbell**, Jonathan Kingslake, Andy Hodson (Co-PI's) (\$431,894) (Submitted 4/10/2019) (25% Author) (Rank: Good/Very Good)
- 2019 **European Commissions Marie Curie Global Fellowship:** *Glacier hydrology and impacts on ice dynamics of the Juneau Icefield, Alaska.* Calvin Shackleton (PI) **Seth Campbell**, Jonathan Kingslake, Andy Hodson (Co-PI's) (\$312,695) (Submitted 9/11/2019) (25% Author) (Rank: 4 on a scale of 1 to 7 with 7 as the highest rating)
- 2018 **NSF Arctic (CAREER):** *Constraining supra-glacial, englacial, and basal water influence on Glacier Dynamics: An Alaska analog to Ice Sheet Hydrology.* **Seth Campbell** (PI) (\$999,950; \$705,716 to UMaine) (Submitted 7/19/2018) (100% Author) (Rank: Less Competitive)
- 2018 **NSF Antarctic Glaciology:** *Structural, Meteoric, and Marine Ice Controls on McMurdo Ice Shelf Dynamics.* **Seth Campbell** (PI) Kristin Schild, Peter Koons, Dom Winski, Steve Arcone, Zoe Courville (Co-PI's) (\$1,289,504; \$868,034 to UMaine) (Submitted 11/28/2018) (80% Author) (Rank: Competitive)
- 2018 **NSF P2C2:** *A high-resolution Holocene ice core record of North Pacific climate variability from the Eclipse Icefield.* Karl Kreutz (PI) **Seth Campbell**, Dom Winski, Andrei Kurbatov, Erich Osterberg, Knut Christianson (Co-PI's) (\$1,302,070; \$742,789 to UMaine) (Submitted 10/18/2018) (15% Author) (Rank: Very Good)
- 2018 **University of Maine Internal Proposal:** *Graduate STEM Training for Aerial Remote Sensing (Graduate STARS).* Alex Friess (PI) **Seth Campbell**, Andy Goupee (Co-PI's) (\$141,924) (Submitted 11/2018) (30% Author)
- 2018 **NASA Cryospheric Science:** *Assessing the Stability and predicting changes to the Northwest Greenland Icesheet.* Zoe Courville (PI) **Seth Campbell**, Kristin Schild (Co-PI's) (\$959,094) (40% Author) (Rank: Good/Very Good)

## Field Experience

Over 50 climate, geophysical, glaciological, or geological related exploration/research trips to Alaska, Greenland, Antarctica, Canada, South America, and the Continuous US

- **2009-2019:** Over 3000 km of ground collected radio-glaciology data and ~1000 km of surficial and bedrock geology geophysical data for research applications
- **2008, 2009, 2010, 2011, 2012 (2), 2013, 2014, 2016:** Denali National Park, Alaska (9 seasons)
- **2016, 2017, 2018:** Eclipse Icefield, Canada (3 seasons)
- **2017, 2022:** Mount Logan, Canada (2 seasons)
- **2012, 2015 (2), 2016 (2), 2017:** Jarvis Glacier, Alaska (6 seasons)
- **2010-2019:** Pensacola Mountains (2), McMurdo Ice Shelf (5), Ohio Range (2), Dry Valleys (1), and Allan Hills (1), Mt. Waesche (1), Mount Murphy (1), Thwaites Grounding Line (1), Antarctica (13 seasons)
- **2010, 2015:** Greenland (2 seasons)
- **2015:** Tierra Del Fuego, Argentina (1 season)
- **2011, 2013:** Mount Rainier, Washington (2 seasons)
- **2007, 2011, 2012, 2015, 2018, 2019, 2021, 2022:** Juneau Icefield, Alaska (8 seasons)
- **2009-2015:** 15+ permafrost and near-surface geology field research efforts in Alaska
- **2010:** Banff, Canada (1 season)
- **2008:** St. Elias Erosion and Tectonics Project Seismic Survey; Gulf of Alaska (1 season)

## Other Project Involvement

**2020:** *NASA Mars Surface Mission Ice Core Characterization Team:* Participating on NASA Mars Surface Mission Ice Core Characterization Team (funded by offices of the NASA Chief Scientist and Associate Administrator for Strategy and Plans) to help NASA develop a strategy to acquire the first ice cores for scientific exploration on Mars. This effort includes helping NASA translate science objectives into conducting early research, development, and testing of the ice drilling systems and other instrumentation which will be used on Mars.

**2019:** *Iceland GPR Crevasse Detection Workshop:* Supporting NSF program by attending an international meeting in Iceland to represent the United States based on my expertise in field geophysical use of ground-penetrating radar for glaciological applications. I attended this meeting in the spring of 2019 with costs covered by NSF.

**2010-Present:** Geophysical investigation of lacustrine geology using GPR in Maine, New Hampshire, and Vermont. Co-PIs: **Campbell S**, Arcone S (M.S. Student: Ian Nesbitt)

**2011-2015:** Climate change impacts on US Army Alaska determined through geophysical field work and modeling (geophysical permafrost/surficial/bedrock geology mapping in Ft Wainwright/Yukon, Alaska) PIs: Douglas T, Lewis FD, Walvoord M

**2010-2014:** Volume scattering and EM wave propagation in complex terrain, New Hampshire. PI: Arcone S.

**2011-2013:** Ice depth, ice volume, and snow accumulation radar survey. Mount Rainier National Park, WA. PI: Todd C; Co-PI: **Campbell S**

**2012, 2015:** Snow Accumulation and Ice Thickness Radar Survey, Juneau Icefield, AK. PI: **Campbell S**

**2010-2012:** Geophysical survey of the Pensacola Mountains, Antarctica. Co-PIs: Balco G, Conway H, Todd C

**2009-2011:** Geophysical 3D permafrost and geology mapping for groundwater flow modeling at a contaminated site. Fairbanks, Alaska. PI: Astley B

**2010:** Geophysical survey of the Wapta Icefield/Peyto Glacier, Canada. PI: Hawley R

**2010:** Permafrost and hydrological geophysical survey; Thule, Greenland. PI: Bjella K

**2010:** Search and recovery geophysical survey of Coast Guard Grumman WWII airplane in Greenland. PI: US Coast Guard

**2010:** EM and acoustic wave propagation in urban environments. PI: Albert D

**2010:** Climate monitoring project of Glacier Bay National Park and Preserve, AK. PI: Lawson D

**2009-2010:** Unexploded ordinance geophysical mapping, Fairbanks, Alaska. PI: Astley B

**2009-2010:** Permafrost tunnel geophysical site selection. Fox, Alaska. PI: Sturm M

**2008:** St. Elias Erosion and Tectonics project. Gulf of Alaska. Co-PIs: Koons P, Gulick S

### Academic Teaching Experience

- 2022: ERS 317 – **Introduction to Geophysics** (4 credits)
  - 26 students
  - Lead instructor and 2 teaching assistants
- **2021:** RLE 150-019 - **Maine Coast-to-Katahdin Research Learning Experience** (1 credit)
  - 10 students
  - 1 credit
  - Co-teaching with Karl Kreutz (lead instructor), Sean Smith, Alice Kelley, Aaron Putnam
- **2021:** ERS 499 Sec 870 - **Juneau Icefield Research Program** (6 credits)
  - 32 students
  - 31 students at UMaine for 6 credits
  - 1 student at UAlaska (Alaska students per agreement with UAlaska and the non-profit which owns JIRP facilities, the Foundation for Glacier and Environmental Research)
  - Led 61 people on the icefield
- **2021:** ERS 444/544 – **Introduction to Glaciology** (4 credits)
  - 15 students (7 undergraduate and 8 graduate students)
- **2020:** ERS 301 - **Problems in Earth & Climate Sciences** (4 credits)
  - 2 students
  - NOTE: ERS 499 Sec 870; Juneau Icefield Research Program, was canceled in 2020 due to COVID. I initially had 35 students enrolled in the program. The two students whom I taught the ERS 301 capstone course were originally scheduled as students in ERS 499 Sec 870.
- **2020:** ERS 499 Sec 870 – **Juneau Icefield Research Program** (6 credits)

- Canceled due to COVID (Enrollment of 35 students prior to cancelling)
  - **2019:** ERS 499 Sec 870 - *Juneau Icefield Research Program* (6 credits)
    - 31 students
    - 25 students at UMaine for 6 credits
    - 5 students at UAlaska (Alaska students per agreement with UAlaska and the non-profit which owns JIRP facilities, the Foundation for Glacier and Environmental Research)
    - First year the program was operated at UMaine
    - Leading 82 people on the icefield including science teams from around the country
  - **2019:** ERS 444/544 - *Introduction to Glaciology* (4 credits)
    - 4 undergraduate students
    - 3 graduate students
  - **2016:** ERS 499 - *Geology & Geophysics Field Camp* (6 credits)
  - **2010:** ERS 451 - *Tectonics* (Teaching Assistant - 3 credits)
  - **2008-2009:** Teaching Assistant for *Introduction to Geology* (ERS 101 – 4 credits)
  - **2008:** Teaching Assistant for *Introduction to Geophysics* (ERS 317 – 3 credits)
- University of Maine Outdoor Education/Kinesiology Department courses offered for college credit:
    - **2004-2006:** Lead Instructor for *Wilderness First Responder* (KPE 209 – 3 credits)
    - **2002-2004:** Lead Instructor for *Introduction to Rock Climbing* (KPE 284 – 1 credit)
    - **2002-2004:** Lead Instructor for *Artificial Climbing Wall Management* (KPE 285 – 1 credit)
    - **2002-2004:** Lead Instructor for *Top Rope Rock Climbing* (KPE 288 – 1 credit)
  - Dartmouth College Outdoor Education program course offered for college credit:
    - **2010:** Instructor for *Wilderness First Responder*

### Other Teaching and Mentoring Experience

**2019:** *GPR Theory and Application Workshop:* Lead Instructor at the North East Geological Society of America Workshop (12 students) March 16, 2019

**2019:** *Structure from Motion for Geological Applications Workshop:* Lead Instructor at the North East Geological Society of America Workshop (14 students) March 15, 2019

**2018:** *Juneau Icefield Research Program* (6 credits): Director/Assistant Professor

- 32 students at UAlaska
- Leading 72 people on the icefield including science teams from around the country

**2015:** *GPR Theory and Application Workshop:* Co-instructor at the North East Geological Society of America Workshop (18 students)

**2014:** *Permafrost Geophysics Course:* Co-Instructor, U.S. Geological Survey and Department of Defense Sponsored Training Program (17 students)

**2004-Present:** *SOLO Wilderness Medicine:* Lead Instructor; Instructed >1500 hours of wilderness emergency medicine courses (Wilderness First Aid, Wilderness First Responder, and Wilderness EMT) for certifications through SOLO Wilderness Medicine including courses taught at the following institutions and over 300 students:

- Maine EMS
- Trinity College
- Skidmore College

- University of Maine
- University of Alaska
- Dartmouth College
- University of New England
- Colby College

**2013: Oak Ridge National Laboratory (ORISE):** Student mentor (1 student)

**2012-2013: Dartmouth College Women in Science Program (WISP):** Student mentor (2 students)

**2011-2015: Juneau Icefield Research Program:** Geophysics Field Instructor; Alaska (82 students)

**2007-2008: University of Maine Ambulance Service:** Assistant Chief of Service (60+ students)

**2003-2008: Atlantic Climbing School:** Rock Climbing Guide; Bar Harbor, ME

**2003-2008: CLC Ambulance Service:** Emergency rescue service EMT-Intermediate; Damariscotta, ME

**2002-2006: University of Maine, Maine Bound;** Outdoor Program Supervisor (40+ student staff)

### Graduate Students

- Renee Clavette (PhD Student, UMaine, Advisor; 2022 – Current)
- Keegan Bellamy (MS Student, UMaine, Advisor; 2022 – Current)
- Erin Towns (MS Student, UMaine, Advisor; 2022 – Current)
- Emma Erwin (PhD Student, UMaine, Advisor; 2019 – Current)
- Mikaila Mannillo (MS Student, UMaine, Advisor; 2021 – Current)
- Jonathan Maurer (MS Student, UMaine, Advisor; 2021 – Current)
- Scott Braddock (PhD Student, UMaine, Co-advisor; 2018 – Current)
- Ian Nesbitt (MS Student, UMaine, Co-advisor; 2017 – Current)
- Steve Bernsen (PhD Student, UMaine, Committee; 2016 – Current)
- Annie Boucher (MS Student, UMaine, Committee; 2016 – Current)
- Max Burtis (Undergrad Honors Thesis, UMaine, Committee; Graduated, 2022; Highest Honors)
- Ann Hill (MS Student, UMaine, Committee; Graduated, 2021)
- Colby Rand (Undergrad Honors Thesis, UMaine, Advisor; Graduated, 2020; Highest Honors)
- Renee Clavette (Undergrad Honors Thesis, UMaine, Committee; Graduated, 2020; High Honors)
- Kate Hruby (MS Student, UMaine, Committee; Graduated, 2019)
- Will Kochtitzky (MS Student, UMaine, Committee; Graduated, 2018)
- Clara Deck (MS Student, UMaine, Committee; Graduated, 2018)
- Ben Partan (MS Student, UMaine, Committee; Graduated, 2017)

### Other Student or Professional Mentoring (Field Research\*)

- Josh Plourde (University of Maine)\*
- Lyndsey Monroe (University of Maine)\*
- Curtis Marston (University of Maine)\*
- Scott Braddock (University of Maine)\*
- Kevin Volkening (Montana State University)\*
- Loren Rausch (Montana State University)\*
- Hazel Shapiro (Dartmouth)\*
- Theo Fehsenfeld (Bates College)\*
- Lindsey Slavin (Wake Forest University)\*
- Blaire Slavin (The Benjamin School)\*
- Jill Horing (Dartmouth)
- Nancy Wu (Dartmouth)
- Jon Thompson (Dartmouth)\*
- Alex Lee (Dartmouth College)\*
- Dave Silverstone (University of Alaska)\*
- Chris McNeil (University of Alaska)\*
- Harry Sandler (University of Vermont)\*
- Annie Boucher (Carleton College)\*
- Adam Toolanen (Lund University)\*
- Abi Bradford (University of Maine)\*

- Joel Wilner (Middlebury College)\*
- Joseph Wolf (Minnesota State University)\*
- Tadhg Moore (Univ. College Cork, Ireland)\*
- Justin Leavitt (University of Maine)\*
- Dorota Medrzycka (University of Ottawa)\*
- Ian Lee (Dartmouth)\*
- Thomas Beutler (University of Maine)
- Jeremy McComas (New Mexico Tech)\*
- Jacob Hollander (University of Georgia)\*
- Betsy Smith (Sonoma State University)\*
- Kimberley Miner (University of Maine)\*
- Patrick Saylor (Dartmouth College)\*
- Tiffany Gatesman (University of Alaska)\*
- David Clemens-Sewell (Dartmouth)\*
- Brittany Main (University of Ottawa)\*

### Geophysical Instruments and Geological Field Methods

- GSSI SIR-3000, SIR-4000, SIR-20, and SIR-30 GPR Control Units (15-2600 MHz antennas)
- Blue Systems Ice Radar (1-20 MHz dipole antennas)
- GSSI EM-400 Profiler
- S&S. Pulse Ekko Pro and Noggin GPR (50-800 MHz antennas)
- Geometrics Ohm Mapper Resistivity Meter
- Advanced Geosciences Super Sting R8 IP Resistivity Meter
- ABEM Resistivity Terrameter and ABEM WalkTEM Time Domain EM System
- GF Instruments CMD-4 Electromagnetic Conductivity Meter
- Geometrics 856 Proton Precession Magnetometer and Geonics EM31-MK2 Magnetometer
- Worden and Lacoste-Romberg Gravimeters
- Bison 9024 24 Channel Seismograph
- GPS rapid static, RTK surveys, and various GPS hardware
- Geologic, gravity, magnetic, air photo/satellite image geologic mapping and interpretation, sediment analysis, soil mapping, sediment/ice coring, hydro-geological field and modeling studies, and topographic, boundary, construction, land/water surveys

### Technical Software

- Res2DInv and Res3DInv
- COMSOL Multiphysics (Intermediate user)
- GSSI Radan and S&S Ekko View Deluxe
- Matlab and Python (Intermediate user)
- ESRI ArcGIS
- ENVI
- Trimble Business Center/Geomatics
- Golden Software Surfer, Voxler, Grapher

### Invited State and U.S. Political Engagement

#### September 2020:

- Senator Lisa Murkowski – Alaska

#### September 2020: American Alpine Club “Climb the Hill” Alliance Lobby Event.

- Senator Angus King – Maine
- Senator Susan Collins – Maine

#### June 2020: Protect Our Winters Alliance Lobby Camp.

- Senator Susan Collins – Maine
- Representative Jared Golden – Maine
- Representative Chris Pappas – New Hampshire
- Senator Lisa Murkowski – Alaska

**September 2019:** *American Alpine Club “Climb the Hill” Alliance Lobby Event.* Invited as Climate scientist to work with professional athletes and other scientists to represent over 60,000 AAC members and affiliates presenting climate change facts and initiatives to members of congress. (declined due to time conflicts).

**April 2019:** Jacobson G, **Campbell S**, Isenhour C, Birkel S, Dixon D. Provided presentation on Arctic/Polar Research related to Maine for Representative Chellie Pingree (U.S. House of Representatives, District 1, Maine).

- Representative Chellie Pingree – Maine

**October 2018:** Provided personal presentation on Arctic/Polar Research related to Maine for Representative Jared Golden (U.S. House of Representatives, District 2, Maine).

- Representative Jared Golden – Maine

**April 2015:** AGU Sponsored Congressional Science-Policy Washington D.C. Visit

- Representative Bruce Poliquin – Maine
- Senator Angus King – Maine
- Senator Maria Cantwell – Washington State
- Senator Patty Murray – Washington State
- Representative Rick Larsen – Washington State
- Dahlia Sokolov – House Committee Science and Technology

### **Invited Academic and Community Talks or Panels**

**Campbell S**, Allen K, C Rose, Praver R, Richman L (2022). *The Warming Sea, Maine Science Festival Panelist.* March 19, 2022 (POC: Kate Dickerson)

**Campbell S** (2021) *Eyes on the Arctic: Global Connections to the Great White North.* UMaine Versant Power Astronomy Center, Science Series Invited Lecture. Scheduled for November 11, 2021 (POC: Shawn Laatsch)

**Campbell S** (2021) *A Changing Cryosphere.* UMaine Research Learning Experience (RLE) Invited Lecture. August 24, 2021. (POC: Dr. John Volin)

**Campbell S** (2020) *Panelist & Invited Talk: Climate Change Impacts on the Maine Ski Industry.* Natural Resources Council of Maine/Protect Our Winters, December 16, 2020.

**Campbell S** (2020) *Panelist & Invited Talk: Antarctica Days; Gaining Polar Research Experience as an Early Career Scientist.* Association of Polar Early Career Scientists (APECS). December 1, 2020.

**Campbell S** (2020). *JEDI and New Horizons for the Juneau Icefield Research Program.* Columbia University/Lamont Doherty Earth Observatory. November 4, 2020.

**Campbell S** (2020). *Research, Education, and Collaboration on the Juneau Icefield Research Program.* Interagency Arctic Research Policy Committee (IARPC). October 8, 2020.

**Campbell S** (2020) *New England Climate Change 101 for the New England Ski Industry: What do we expect and How can you Prepare?* New England Summit, Sunday River, Maine. September, 2020. (Cancelled due to COVID19)

**Campbell S** (2020) *The Collapse of West Antarctica: Will our coast be covered with 2 more meters of water by 2100?* UMaine; Physics Department Colloquium. September 18, 2020.



**Campbell S** (2019) *Hew Horizons for the Longest Operating Polar Research and Education Program in North America*. Harold W. Borns, Jr. Symposium, 2 May 2019.

**Campbell S** (2019) *Global and New England climate change 101*. Protect Our Winters. Freeport, Maine. September, 2019.

**Campbell S** (2018) *Studying Local and Regional Polar Earth System Processes through a Collaborative Science Research and Education Program*. UMaine; Physics Colloquium. October 26, 2018.

**Campbell S** (2017) *Application of ground-penetrating radar to interpreting near-surface geology and glacial histories*. Tulane University, New Orleans, LA. Sept 22, 2017.

**Campbell S** (2017) *Geophysical methods to improve ice core climate reconstructions from Alaska and Canada*. Indiana University-Purdue University Indianapolis; Indianapolis, MN. March 20, 2017.

**Campbell S** (2017) *Addressing quaternary glacier, climate, and geomorphology questions using GPR*. University of Washington, Seattle. May 4, 2017.

**Campbell S** (2016) *Geophysical methods to improve ice core climate reconstructions from Alaska and Canada*. University of Washington, Seattle. October 6, 2016.

**Campbell S** (2015) *Using geophysics to study global climate change: Case studies from Alaska to Antarctica*. Middlebury College; Middlebury, VT. October 9, 2015.

**Campbell S** and Williams K (2014) *Linking Maine to Alaska: K-12 Education outreach about climate change research on the highest point in North America*. Maine Rotary Club. Damariscotta, Maine, July, 2014.

**Campbell S** and Williams K (2014) *Linking Maine to Alaska: K-12 education outreach about climate change research on the highest point in North America*. Skidompha Library “Chats with Champions” Speaker Series. Damariscotta, Maine. January, 2014. <https://www.youtube.com/watch?v=Owc5sxy1tDs>

**Campbell S** (2013) *Climate Change and the cryosphere: Case studies from Antarctica and Alaska*. University of New Hampshire; Durham, NH. August 9, 2013.

**Campbell S** (2013) *Climate Change and the cryosphere: Case studies from Antarctica and Alaska*. Colby Sawyer College; New London, NH. April 10, 2013.

**Campbell S** (2012) *Operating safe and successful field research campaigns in Polar regions*. Association of early career polar scientists. November, 2012. <http://vimeo.com/53487539>

**Campbell S** (2012) *Radio waves over rough terrain: "Can you hear me now?"* Mount Washington Observatory, Science in the Mountains Series; North Conway, NH. August, 2012.

**Campbell S** (2012) *Glacier ice volume and ice core research in Denali National Park and Preserve*. Denali National Park and Preserve Park Headquarters, Alaska. May, 2012.

**Campbell S** (2012) *Changing climate and changing mountains*. American Alpine Club and Mount Washington Observatory; North Conway, NH. March, 2012.

**Campbell S** (2012) *GPR and GPS applications to modeling flow dynamics of the Kahiltna Glacier, Mount McKinley, Alaska*. University of Maine at Farmington; Farmington, ME. April, 2010.

**Campbell S** (2010) *Searching for an ice core site to study Holocene climate change in Alaska*. University of Maine at Farmington; Farmington, ME. September, 2010.

### **K-12 Outreach**

**2020:** Edward Little High School, Maine (Glaciers and the Cryosphere 101) (~25 students)

**2020:** Gorham High School (4 video presentations and one video chat) (~850 students)

**2009-2017:** Nobleboro Central School; Nobleboro, ME (9 visits) (~140 students)

**2015:** Great Salt Bay Middle School; Damariscotta, ME (1 visit) (~450 students)

**2014:** Hanover Middle School; Hanover, NH (~370 students)

**2013:** Bristol Consolidated School and South Bristol School; Bristol, ME (~180 students)

**2013:** Mount View High School and Middle School; Thorndike, ME (~420 students)

**2012:** Greely High School; ME (~600 students)

### **Community and University Involvement**

**2021-Present:** UMaine Climate Change Institute Graduate Student Coordinator

**2021-Present:** UMaine Climate Change Institute Graduate Committee (Chair)

**2021-Present:** UMaine Climate Change Institute Graduate Board Representative

**2021-Present:** UMaine Earth & Climate Sciences Recruiting & Communications Working Group

**2021-Present:** Council of Faculty Fellows – M.S. Degree in Data Science and Engineering at UMaine

**2021-Present:** University of Maine Climate Change Institute Policy Advisory Committee Member

**2021-Present:** University of Maine School of Earth & Climate Sciences Graduate Curriculum Committee

**2020-Present:** NASA Mars Surface Mission Ice Core Characterization Team (Invited)

**2020-Present:** University of Maine School of Earth & Climate Sciences Strategic Planning Committee

**2020-Present:** University of Maine NASA PI Academy

**2019-Present:** UMaine Arctic Member

**2017-Present:** UNAVCO Academic Committee Member – University of Maine Representative (Invited)

**2018-Present:** American Alpine Club, Climate Policy Task Force (Invited)

**2018-Present:** IRIS and UNAVCO Polar Networks Science Committee (Invited)

**2021:** Associate Editor, Permafrost & Periglacial Processes (IF: 4.368) (Invited)

**2019:** University of Maine Climate Change Institute Strategic Planning Committee

**2018:** Intergovernmental Panel on Climate Change, Expert Reviewer Special Report on the Ocean and Cryosphere, Chapter 2: High Mountain Areas (Invited- declined due to field season obligations)

**2018-2019** NASA Proposal Reviewer

**2017-2019:** NSF Proposal Reviewer

**2015:** PolarTREC Application Selection Committee (Invited)

**2015:** “School of Ice” IDPO/NICL/INSTAAR Sponsored Workshop Presentation (Invited)

**2015:** AGU Sponsored Congressional Science-Policy Washington D.C. Visit (Invited)

**2014-Present:** Academic Council Member, Juneau Icefield Research Program (Invited)

**2010-Present:** Peer Journal Reviewer: *Science*, *J. Glaciology*; *A. Glaciology*; *Arctic, Antarctic, and Alpine Res.*; *Hydro. Processes*; *Remote Sensing*; *Geografiska Annaler: Series A, Physical Geography*; *Sensors*; *Geophysics*; *Journal of Geophysical Research*; *Cryosphere*

**2010-2016:** AGU Near-surface Geophysics Group Executive Committee Representative

**2014-2016:** CRREL HAZMAT and Ammonia Response Team

**2012-2014:** PolarTREC Teacher-Research Outreach program

**2012-2013:** Chair, Research Advisory Committee, Juneau Icefield Research Program (Invited)

**2002-2010:** University Volunteer Ambulance Corps (UVAC); University of Maine

**2006-2010:** EMS Instructor, Maine Emergency Medical Services and UVAC

**2007-2008:** University of Maine Geological Society, President

**2007-2008:** University of Maine Student Advisory Committee

### Recent Papers and Proposal Reviews

- Permafrost & Periglacial Processes – Manuscript Review (9/2020 and 12/2020)
- Journal of Glaciology – Manuscript review (8/2020)
- Science Advances – Manuscript Review (11/2019)
- Journal of Glaciology – Manuscript Review (7/2019)
- PNAS – Manuscript Review (5/2019)
- Journal of Glaciology – Manuscript Review (12/2018)
- IPCC - Special Report on the Ocean and Cryosphere in a Changing Climate, Chapter 2: High Mountain Areas (11/1/2018-12/30/2018) (NOTE: I initially accepted as a reviewer but unfortunately needed to withdraw due to unforeseen field season schedule conflicts with review due date)
- Journal of Glaciology – Manuscript Review (10/2018)
- Geophysical Research Letters – Manuscript Review (9/2018)
- NSF Proposal External Review (9/2018)
- NSF Proposal Panel (8/2018)
- NASA Proposal Review Panel (2/1/2018-2/2/2018)

### Special Trainings and Certifications

**2020-Present:** Certified Commercial Drone Operator, Federal Aviation Administration

**2011-Present:** Approved Field Mountaineer, US Antarctic Program

**2002-2020:** Wilderness First Responder, SOLO/Wilderness Medical Associates

**2016:** Notary Public, State of Maine (Exp. 2020)

**2014:** 40 Hour HAZWOPER Certification, U.S. Occupational Safety and Health Administration

**2014:** Contracting Officer Representative Course, U.S. Dept. of Defense

**2014:** Hazardous Waste Coordinator Course, New Hampshire Dept. of Environmental Services

**2014:** AMGA Ice Instructor Course, New Hampshire

**2011:** Secret Security Clearance. U.S. Dept. of Defense (valid through 2020)

**2007:** Juneau Ice Field Research Program, Alaska

**2005:** EMT-Intermediate Course, Maine (Expired)

**2004:** NOLS Mountain Instructor Course, Wyoming

**2003:** Alpine Guide Course, Colorado

**2003:** AMGA Rock Instructor Course, Colorado

**2003:** NREMT, New Hampshire (Expired)

**2003:** Wilderness EMT-Basic, New Hampshire (Expired)

**2002:** AAIRE Avalanche Level I and II Certification, New Hampshire

### Memberships

AGU, GSA, International Glaciological Society (IGS), Association of Polar Early Career Scientists (APECS), National Geoscience Teachers Association (NAGT), American Alpine Club (AAC), U.S. Permafrost Association (USPA; Representative to make University of Maine an Institutional member of USPA)

### Prior Academic Awards

**2016-2018:** University of Washington, Future of Ice Postdoctoral Program Award (\$54,756)  
**2014:** University of Maine Climate Change Institute Service Award  
**2012:** Explorers Club Research Grant: **Campbell S** (PI) (\$2,500)  
**2012 – 2013:** NSF/PolarTREC Grant: **Campbell S** (PI) K Williams (Co-PI) (~\$28,500)  
**2008 – 2012:** Churchill Research Grant: **Campbell S** (PI and co-PI, Multiple proposals) (\$14,433)  
**2011:** Denali National Park Science & Learning Center Research Fellowship: **Campbell S** (PI) (\$4,500)  
**2011:** American Alpine Club Nikwax Alpine Bellwether Research Grant: **Campbell S** (PI) (\$1,500)  
**2011 – 2012:** American Alpine Club Research Grant: **Campbell S** (PI) (\$2,000)  
**2011:** Geometrics Geophysics Scholarship (\$1,000)  
**2010-2011:** University of Maine GSG Grant: **Campbell S** (PI) (\$1,500)  
**2008:** Trefethen Field Research Scholarship (\$1,000)  
**2008:** Nancy Morse Dysart Travel Scholarship (\$250)  
**2008:** Presidential Achievement Award and Deans List  
**2007:** NASA Space Grant Scholarship (\$2,000)

### Other Publicity and Notable Requests

**2021:** The Working Waterfront: “Why thawing permafrost matters to Maine” (Guest Columnist)

**2021:** Natural Resources Council of Maine: “*What Mainers can learn from the Arctic?*” (Invited Article focused on Arctic National Wildlife Refuge). <https://www.nrcm.org/blog/what-mainers-learn-from-arctic/>

**2021:** ABC: “*Wildlife Nation*” (Requested tour guide of Juneau Icefield working with show host, Jeff Corwin – Declined due to JIRP obligations)

**2021:** BBC: Natural History: “*Earths Greatest Rivers II*” (I provided archive Yukon material for their video production to Jemma Titheridge; Narrator: David Oyelowo)

**2021:** Saloon Media: “*World’s Most Scenic River Journeys*” (I provided archive Llewellyn Glacier video material for their production. (POC: Ari Castillo; Narrator: Bill Nighy)

**2021:** Inside Climate News: *Ice dam bursts threaten to increase sunny day floods as hotter temperatures melt glaciers.* (Reporter: Haley Dunleavy) <https://insideclimatenews.org/news/03072021/ice-dam-glaciers-sunny-day-floods-alaska/>

**2021:** Autobala: *Glaciers melt when temperatures rise, which could lead to more floods on sunny days due to an ice dam explosion.* (Reporter: Haley Dunleavy) <https://autobala.com/glaciers-melt-when-temperatures-rise-which-could-lead-to-more-floods-on-sunny-days-due-to-an-ice-dam-explosion/90583/>

**2021:** PolarTREC: *Start in the Backyard* (Author: Erin Towns).  
<https://www.polartrec.com/expeditions/greenland-subglacial-tremor-project/journals/2021-01-09>

**2021:** Golden Software: “*Scientists calculate Juneau Icefield melting with 2D and 3D glacier models*”  
Article about Juneau Icefield research published in multiple venues:

- [LiDAR Magazine](#)
- [GeoConnexion](#)
- [Scientific Computing World](#)
- [GISuser](#)
- [GIM](#)
- [GPS World](#)

**2020:** National Geographic: “*One Strange Rock*” (Requested collaborator on Juneau Icefield to work with show host, Will Smith – Cancelled due to COVID19)

**2020:** American Alpine Club, Climate Task Force: Article written by **Campbell S** titled “*A Healthy Environment means a Healthy Economy for Maine!*” in support of environmental science advocacy and literacy in making policy decisions in Maine and nationwide. June, 2020.

**2020:** PBS Newshour Report by Miles O’Brien: “*Visiting the most vulnerable place on earth: the doomsday glacier*” (estimated 2.7 million viewers)

**2019-2020:** Solicited by NY Times Journalist and book Author, Porter Fox, to provide content for a section of his recently contracted book about the Juneau Icefield Research Program. Fox visited the Juneau Icefield in the summer of 2019 to pursue this effort and the book is due for publication on November 2, 2021. This 4-part book has JIRP prominently displayed in one quarter of the book (Part II). Book Title: *The Last Winter*. Comments from Book Author Porter Fox: “*One phone call from Seth Campbell convinced me that something newsworthy was unfolding on the Juneau Icefield. That phone call morphed into a complex itinerary on which I would meet some of the most important and competent scientists and researchers working today. A single day and night at camp 18 with Seth showed me how vital the earth's cryosphere was to our collective future. The visit became an entire section in my recent book, THE LAST WINTER. The admiration that these groundbreaking researchers showed Campbell is testament alone to his confidence and ability to lead. He is one of the most approachable and competent administrators - two virtues that rarely seem to go together – I've ever had the pleasure of working with. The book will be out November 2 from Little, Brown. So far, there is a cover story slated for the New York Times Sunday Review about my travels, and JIRP, Seth and the University of Maine are featured prominently. The message that I try to get across to my readers, and honestly anyone who will hear me out, is the importance of this science to humanity. Seth's slice of this mission could not be in better hands.*”

**2019:** American Alpine Journal: Article written by D. Higgins titled “*Ice Pilgrimage: Over 70 years of studying glaciers on the Juneau Icefield*” showcasing the Juneau Icefield Research Program

**2019:** American Alpine Club, Membership Guide: Article written by **Campbell S** titled “*A Climate Scientist Reflects*”

**2019:** Scientific American: “*Warming Arctic on Thin Ice*”

**2018:** Sierra Magazine: “*On the Juneau Icefield, Women Reimagine Who Does Science*”

**2018:** Scientific American: “*Studying Climate Change in One of the Grandest Classrooms in the World*”

**2018:** Capital City Weekly: “*In Focus – Juneau Icefield Research Program*”

**2018:** “*Adventure Dispatch – Juneau Icefield Research Program*”

**2016:** National Ice Core Laboratory, News Article: “*Ice Flow and Ice Cores in the St. Elias Mountains*”

**2015:** APECS, Invited Webinar: “*Basics of Field Safety*”

**2014:** PBS News Hour: “*Just how much ice is left underneath Alaska's glaciers?*”

**2014:** NSF Science Nation: “Alaska mountain glaciers retreating due to climate change”

**2013:** PolarTREC: “Reconstructing the past climate of Central Alaska”