Seth William Campbell

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Juneau Icefield Research Program
The Foundation for Glacier & Environmental Research
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Seattle, Washington 98105
seth@juneauicefield.org

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

2018 – Present	**Juneau Icefield Research Program**, Director of Academics & Research
2016 – Present	**ERDC-CRREL**, Research Geophysicist, Intermittent Status
2015 – Present	**University of Maine**, Research Assistant Professor, Climate Change Institute and the School of Earth & Climate Sciences

Prior Employment

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

Professional Grants & Awards (PI Total: $418,878; *7 Current Affiliated Awards: $4,044,805)

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

2018-2019: NSF AIL: McMurdo Shear Zone Route Move. Z Courville (PI), **S Campbell** (Co-PI's) $145,000*

2018-2019: Purdue Prime Lab: Reconstruction of Juneau Icefield Holocene Deglaciation and Erosion Rates in support of Understanding Broader Earth Systems Dynamics in Southeast Alaska. **S Campbell** (PI), L Corbett, P Bierman, G Balco, P Koons (Co-PI's) $10,900*

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

2017-2018: NSF AIL: GPR Survey, Analysis, and Interpretation of McMurdo Station. S Sinclair (PI) **S Campbell**, S Arcone (Co-PI's) $51,236* Transferred project to co-PI Sinclair to provide early career scientist opportunity.

2017-2019: NSF Antarctic Glaciology: Collaborative research: Computational methods supporting joint seismic and radar inversion for ice fabric and temperature in streaming flow. C Gerbi (PI), **S Campbell**, K Christianson, Sentil Vel (Co-PI's) $328,622*

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

2016-2019: NSF Arctic # 1503924: Collaborative Research: Influence of natural ice microstructure on rheology in general shear: In-situ studies in the Alaska Range; C Gerbi (PI), **S Campbell**, R Hawley, P Koons, K Kreutz (Co-PIs) $639,818*

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

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

2015-2017: NSF Antarctic Glaciology: Allan Hills Englacial Site ice core site selection; N Spaulding (PI), H Conway, A Kurbatov, P Mayewski (Co-PI's) **S Campbell** (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; S Mukhopadhyay (PI), R Ackert, **S Campbell** (Research Associate) $582,113

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

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

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

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

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

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

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

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

Pending Proposals (Total Pending: $357,348)

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

First-Author Peer-Reviewed Manuscripts (Published, Accepted, or Under revision; student author*)

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.

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*. 1-11. DOI: 10.1017/aog.2017.26

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.

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.

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

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

Other Peer Reviewed Manuscripts (Published, in press, accepted, or in revision; student author*)

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

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

Winski D, Osterberg E, Kreutz K, Wake C, Ferris D, **Campbell S**, et al. 2018. A 400-year ice core melt layer record of summertime warming in the Alaska Range. Journal of Geophysical Research: Atmospheres, 123. https://doi. org/10.1002/2017JD027539

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 DOI:10.1038/s41598-017-18022-5

Sinclair S*, Licciardi J, **Campbell S**, Madore B. 2018. Origin of De Geer moraines in the Seacoast region of New Hampshire. *Journal of Quaternary Science*, 13 pp. ISSN 0267-8179. DOI: 10.1002/jqs.3017

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

Balco G, Todd C, Huybers K, **Campbell S**, M Vermeulen*, M Hegland*, B Goehring, T Hillebrand. 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

Douglas T, Jorgenson T, Brown D, **Campbell S**, Hiemstra C, Saari S, Bjella K, Liljedhal 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

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

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

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.

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, DOI: 10.1002/hyp.9348

Peer Reviewed Manuscripts (In preparation or Submitted; student author*)

Campbell S, Briggs M, Douglas T, Saari S. Ground-penetrating radar observations of permafrost distribution relative to terrain and vegetation at 12-Mile Lake, Alaska *Permafrost & Periglacial Processes*, Submitted.

Campbell S, Arcone S, Conway H, Kreutz K, McNeil C*, Schild K, Braddock S*, Slavin B*, Wilner J*, Smith B*, Koons P, Osterberg E, Hollander J*, Wolf J*. Surface-based ground-penetrating radar profiles of the Juneau Icefield, Alaska: Resolving annual accumulation in a temperate snowpack. *Journal of Glaciology*, Submitted.

Campbell S, Lamie N, Schild K. Structure, dynamics, and stability the McMurdo Transition Zone and Hut Point Peninsula, Antarctica. *Journal of Glaciology*., In preparation.

Campbell S, Liljehdal A, Douglas T, Bernsen S, Gatesman T*, Gerbi C. Water contributions from winter accumulation across Jarvis Glacier Watershed inferred from airborne and ground-penetrating radar between 2012-2017. *Journal of Geophysical Research*, In preparation.

Gädeke A, Liljedahl A, Daanen RP, Douglas TA, Schulla J, **Campbell S**, Gatesman T*. Control of glaciers and permafrost on watershed hydrology via field measurements and modeling, upper Jarvis Creek, Interior Alaska, *Hydrology Research*, Submitted.

Miner KR, Rice G, **Campbell S**, Gerbi C, Liljedahl A, Kreutz KJ A screening-level approach to quantifying risk from glacial release of organochlorine pollutants in the Alaskan Arctic, *Journal of Environmental Management*, Submitted.

Miner KR, Gerbi C, **Campbell S**, Liljedahl A, Anderson T, Perkins BL, Kreutz KJ, Organochlorine pollutants within a polythermal glacier in the Interior Eastern Alaska Range, *Scientific Reports*, Submitted.

Miner K, Gerbi C, **Campbell S**, Anderson, Perkins, Kreutz K. Release of organochlorine pollutants from a temperate glacier in the Interior Eastern Alaska Range. *Environmental Science and Technology*, Submitted.

Technical Reports and Other Publications (student author*)

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, 47 pp.

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.

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.

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.

Campbell S, Haskins K, Winn B, Stanley J, Zabilansky L. 2014. Testing of oil skimmer equipment components for use in Arctic Environments. 2014 Report to Dept. of the Interior Bureau of Safety and Environmental Enforcement, 200 pp. http://www.bsee.gov/Technology-and-Research/Oil-Spill-Response-Research/Projects/Project1026/

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.

Osterberg E, Kreutz K, Wake C, **Campbell S**. 2011. Drill site reconnaissance and snow chemistry survey in Denali National Park: 2010 report to Denali National Park and Preserve, Alaska.

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.

Field Experience

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

- **2009-2017:** Over 2500 km of ground collected radio-glaciology data and ~500 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:** Mount Logan, Canada (1 season)
- **2012, 2015 (2), 2016 (2), 2017:** Jarvis Glacier, Alaska (6 seasons)
- **2015-2017:** McMurdo Ice Shelf (5), Ohio Range (2), and Allan Hills (1), Antarctica (8 seasons)
- **2010, 2015:** Greenland (2 seasons)
- **2015:** Tierra Del Fuego, Argentina (1 season)
- **2014:** Dry Valleys, Antarctica
- **2011, 2013:** Mount Rainier, Washington (2 seasons)
- **2010-2011; 2011-2012:** Pensacola Mountains, Antarctica (2 seasons)
- **2007, 2011, 2012, 2015:** Juneau Icefield, Alaska (4 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)

Collaborations and Other Projects

Collaborators: Karl Kreutz, Peter Koons, Roger Hooke, Gordon Hamilton, Andrei Kurbatov, Nicole Spaulding, Chris Gerbi, Samuel Roy, Brenda Hall, Sean Birkel, Sean Smith, Paul Mayewski, Aaron Putnam (Maine) Steven Arcone, Beth Astley, Tom Douglas, Anna Wagner, Matthew Sturm, David

Finnegan, Donald Albert, Kevin Bjella, Dan Lawson, Leonard Zabilansky, Zoe Courville, Sally Shoop, Rosa Affleck, Benjamin Barrowes, Dan Breton, Chris Hiemstra, Nathan Lamie, Jim Lever, Samantha Sinclair (CRREL), Erich Osterberg, Robert Hawley, Laura Ray (Dartmouth), Howard Conway, John Stone, Eric Steig, Ron Sletten, Knut Christianson (Washington), Greg Balco (Berkeley Geochronology Center), Claire Todd, Kat Huybers (Pacific Lutheran), Cameron Wake, Joe Licciardi (New Hampshire) Fred Day-Lewis, Michelle Walvoord, Martin Briggs, John Lane, Jay Nolan (USGS) Sujoy Mukhopadhyay (UC Davis), Robert Ackert, Jerry Mitrovicia (Harvard), Anna Liljedahl, Regine Hock, Mark Fahnestock, Martin Truffer, Dana Brown, Alessio Gusmeroli, Torre Jorgenson (Alaska); Donald Voigt, Kiya Riverman (Penn State) Doug MacAyeal (U Chicago) Ed Brook (OSU), Michael Bender, John Higgins (Princeton), Luke Copland (Ottawa) Nelia Dunbar, William Macintosh (New Mexico), Brent Goehring (Tulane), Bryn Hubbard (Aberystwyth), Richard Katz (Oxford), Bernd Kulessa, Adrian Luckman (Swansea), Tad Pfeffer (Colorado) Dimitrios Ntarlagiannis (Rutgers)

2010-Present: Geophysical investigation of surficial, bedrock, and lacustrine geology using GPR and Resistivity in New Hampshire and Vermont. Co-PIs: S Arcone, **S Campbell**

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: T Douglas, FD Lewis, M Walvoord

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

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

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

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

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

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

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

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: D Albert

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

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

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

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

Academic Teaching Experience

- University of Maine School of Earth & Climate Sciences credit courses:
  - **2016:** Assistant Professor for ***Geology & Geophysics Field Camp*** (ERS 499 – 6 credits)
  - **2010:** Teaching Assistant for ***Tectonics*** (ERS 451 – 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

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) http://water.usgs.gov/ogw/bgas/courses/GW1829/

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:

- Maine EMS
- University of Maine
- University of New England
- Trinity College
- University of Alaska
- Colby College
- Skidmore College
- Dartmouth 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

- Scott Braddock (PhD Student, University of Maine; Co-advisor - Current)
- Steve Bernsen (PhD Student, University of Maine; Co-advisor - Current)
- Ian Nesbitt (MS Student, University of Maine; Co-advisor - Current)
- Kate Hruby (MS Student, University of Maine; Committee Member - Current)
- Erin McConnell (MS Student, University of Maine; Committee Member – Current)
- Will Kochtitzky (MS Student, University of Maine; Committee Member - Current)
- Clara Deck (MS Student, University of Maine; Committee Member – Current)
- Niki Kamp (PhD Student, University of Graz; Committee Member - Current)
- Ben Partan (MS Student, University of Maine; Committee Member - Graduated)

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)*
- 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)
- 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)*
- 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 (4-20 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 and sediment/ice coring, hydrologic, and 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 (Intermediate user)
- ESRI ArcGIS
- ENVI
- Trimble Business Center/Geomatics
- Golden Software Surfer, Voxler, Grapher

Conference Oral Presentations (Student author*)

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: North East GSA; Ground-Penetrating Radar Investigations for Geologic Formations

Campbell S, Kreutz K, Arcone S, Braddock S*, Osterberg E, Koons P. 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. 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.

Campbell S, Williams K, Marston L*, Kreutz K, Wake C, Osterberg E. 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. 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. 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. 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*. 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.

Campbell S, Saari S, Douglas T, Day-Lewis F, Walvoord M, Nolan J*, Briggs M. 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**. 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. Strain Rate Estimates on Mount Hunter, Alaska: What Causes Crevassing at an Ice Divide? Arctic Workshop; Winter Park, CO. March, 2012.

Campbell S. 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 Poster Abstracts (*Student Author)

Campbell S, Liljedahl A, Douglas T, Bernsen S*, Gatesman T, Gerbi C. Contributions to Jarvis Creek Watershed, Alaska, from winter snowpack and glacier melt inferred through airborne and ground-penetrating radar. American Geophysical Union Meeting, San Francisco, CA. December, 2017.

Campbell S, Hollander J*, Slavin B*, Wolf J*, Wilner J*, Smith B*, Moore T*. 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**. 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. 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. 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**. 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.** A Record of Rising 20th 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, Kaluzienski L, **Campbell S.** 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. 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. 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**. 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.

Campbell S, Kreutz K, Arcone S. 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. 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**. 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. 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. 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.

Braddock S*, Sandler H*, Boucher A*, McNeil C*, **Campbell S**, Kreutz K. 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**. 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. 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.

Astley B, Douglas T, **Campbell S**, Snyder C, Goggin E, Saari S. 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. 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. 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*. 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.

Academic Invited Talks

Tulane University, New Orleans, LA (2017)
Indiana University-Purdue University Indianapolis; Indianapolis, MN (2017)
University of Washington; Seattle WA (2016 and 2017)
Middlebury College; Middlebury, VT (2015)
University of New Hampshire; Durham, NH (2013)
Colby Sawyer College; New London, NH (2013)
University of Maine at Farmington; Farmington, ME (2010)

Community Outreach

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

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

Campbell S. Operating safe and successful field research campaigns in Polar Regions. Invited speaker, webinar series, Association of early career polar scientists. November, 2012. http://vimeo.com/53487539

Campbell S. Radio Waves Over Rough Terrain: "Can You Hear Me Now?" Invited speaker, Mount Washington Observatory, Science in the Mountains Series; North Conway, NH. August, 2012.

Campbell S, K Kreutz, E Osterberg, C Wake. Glacier Ice Volume and Ice Core Research in Denali National Park and Preserve. Invited speaker, Denali National Park and Preserve Park Headquarters; Alaska. May, 2012.

Campbell S. Changing Climate and Changing Mountains. Invited speaker, American Alpine Club and Mount Washington Observatory; North Conway, NH. March, 2012.

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

K-12 Outreach

2009-2017: Nobleboro Central School; Nobleboro, ME (9 visits)
2015: Great Salt Bay Middle School; Damariscotta, ME
2014: Hanover Middle School; Hanover, NH
2013: Bristol Consolidated School and South Bristol School; Bristol, ME
2013: Mount View High School; Thorndike, ME
2013: Mount View Middle School; Thorndike, ME
2013: Mount View Grade School; Thorndike, ME
2012: Greely High School; ME

Community Involvement

2018-Present: IRIS and UNAVCO Polar Networks Science Committee (Invited)
2018-Present: NASA Proposal Reviewer
2017-Present: NSF Proposal Reviewer
2017-Present: UNAVCO Academic Committee Member – University of Maine Representative (Invited)
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: *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*
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

Special Trainings and Certifications

2011-2017: Approved Field Mountaineer, US Antarctic Program
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: SOLO Wilderness First Responder, New Hampshire
2002: AAIRE Avalanche Level I and II Certification, New Hampshire

Memberships

American Geophysical Union (Near Surface Focus Group and Cryosphere Affiliations)
Geological Society of America
Society of Exploration Geophysicists (Near Surface Geophysics Section Affiliation)
International Glaciological Society
Association of Polar Early Career Scientists (APECS)
American Mountain Guides Association
American Alpine Club
National Registry of EMT's

Prior Academic Awards **(Total: $113,949)**

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: **S Campbell** (PI) ($2,500)
2012 – 2013: NSF/PolarTREC Grant: **S Campbell** (PI) K Williams (Co-PI) **(**~$28,500**)**
2008 – 2012: Churchill Research Grant: **S Campbell** (PI and co-PI, Multiple proposals) ($14,433)
2011: Denali National Park Science & Learning Center Research Fellowship: **S Campbell** (PI) ($4,500)
2011: American Alpine Club Nikwax Alpine Bellwether Research Grant: **S Campbell** (PI) ($1,500)
2011 – 2012: American Alpine Club Research Grant: **S Campbell** (PI) ($2,000)
2011: Geometrics Geophysics Scholarship ($1,000)
2010-2011: University of Maine GSG Grant: **S Campbell** (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)

Recent Publicity

2016: National Ice Core Laboratory, News Article. *"Ice Flow and Ice Cores in the St. Elias Mountains"* http://icecores.org/docs/InDepthV10i2.pdf

2015: Association of Polar Early Career Scientists, Invited Webinar. "*Basics of Field Safety"* http://www.apecs.is/research/member-research-areas/member-research-areas/field-safety/1095-basics-of-field-safety
webinar.html?highlight=WyJzZXRoIiwiY2FtcGJlbGwiLCJjYW1wYmVsbCdzIiwic2V0aCBjYW1wYmVsbCJd

2014: R Jacobson. "*Just how much ice is left underneath Alaska's glaciers? Scientists dig to find out"* http://www.pbs.org/newshour/updates/scientists-drilling-cold-hard-truth-alaskas-glaciers/

2014: M. O'Brien, K Tobin. "*Alaska mountain glaciers retreating due to climate change"* http://www.nsf.gov/news/special_reports/science_nation/denaliglaciers.jsp

2013: PolarTREC. "*Reconstructing the past climate of Central Alaska"* http://www.polartrec.com/expeditions/reconstructing-the-past-climate-of-central-alaska

2013: Association of Polar Early Career Scientists, Invited Webinar. *"Operating Safe and Successful Field Research Campaigns in the Polar Regions"* https://vimeo.com/53487539