

MATTHEW J. BEEDLE
University of Northern British Columbia – Northwest Campus
4837 Keith Avenue
Terrace, B.C., Canada V8G 1K7
250-615-3335
beedlem@unbc.ca
Websites:
GlacierChange.org

RESEARCH AND PROFESSIONAL INTERESTS

Glaciology, climatology, science communication, photography, environmental policy, science and exploration history, Alaska, British Columbia and the Arctic.

EDUCATION

-
- Ph.D.** 2013. Natural Resources and Environmental Studies. University of Northern British Columbia. Prince George, British Columbia.
- M.A.** 2005. Geography. University of Colorado - Boulder, Colorado.
- Graduate Certificate** 2005. Environment, Policy, and Society. University of Colorado – Boulder, Colorado.
- B.S.** 2000. Earth Science. Montana State University - Bozeman, Montana

ADDITIONAL PERTINENT EDUCATION

-
- Karthus** Ice sheets and glaciers in the climate system, Karthus, Italy, 2007.
- AMGA Ski Guide Course** American Mountain Guides Association Ski Guide Course, Sierras, CA, March 2004.
- AIARE Level 2** American Institute for Avalanche Research and Education, Level 2.
- W-EMT** Wilderness Emergency Medical Technician, 2004 – 2006.

THESES

-
- Ph.D.** “Glacier change in the Cariboo Mountains of British Columbia, Canada (1946-2011),” University of Northern British Columbia

M.A. “Climatic Drivers of Glacier Mass Balance in Southeast Alaska in the Second Half of the 20th Century,” University of Colorado – Boulder

ACADEMIC AND PROFESSIONAL EXPERIENCE

- 2014 – Current** *Adjunct Professor.* Geography Program, University of Northern British Columbia.
- 2011 – Current** *Website Founder and Administrator.* GlacierChange.org
- 2010 – Current** *Trustee.* Foundation for Glacier and Environmental Research (FGER): Member of Academic and Research, Fundraising and Board Development subcommittees. Former Vice President and Secretary. FGER is the non-profit parent organization of the Juneau Icefield Research Program.
- 2012 – 2014** *Research Assistant.* Columbia Basin Trust – Cryospheric Monitoring Network: Mass balance monitoring and extent change measurement of Columbia Basin glaciers.
- 2010 – 2013** *Graduate Fellow.* Pacific Institute for Climate Solutions Graduate Fellow. Research: ‘Communicating the implications of climate change through the study of glacier recession’.
- 2010 – 2011** *Instructor.* University of Northern British Columbia – Northwest Campus: Climate Change and Global Warming (ENSC 425), Introduction to GIS Lab (GEOG 300).
- 2007 – 2010** *Graduate Research Assistant.* Western Canadian Cryospheric Network, University of Northern British Columbia. Volumetric change of British Columbia glaciers and relations with climate.
- 2007** *Assistant Research Scientist.* National Snow and Ice Data Center, Boulder, Colorado. Global Land Ice Measurements from Space (GLIMS) project: Production of Southeast Alaska glacier outlines and pilot studies.
- 2004 – 2007** *Graduate Research Assistant.* Global Land Ice Measurements from Space (GLIMS) project, National Snow and Ice Data Center, Boulder, Colorado
- 2005** *Operations and Safety Manager.* Juneau Icefield Research Program.

- 2004** *Graduate Research Assistant.* Human Dimensions of the Arctic System (HARC), University of Colorado – Boulder. Studied adaptations to flooding and erosion mitigation for Barrow, Alaska.
- 2003 – 2004** *Teaching Assistant/Lab Instructor.* “Introduction to Weather and Climate”, Atmospheric Sciences Department, University of Colorado – Boulder.
- Assistant Operations and Safety Manager.* Juneau Icefield Research Program.
- 2001 – 2002** *Forestry Technician.* USFS. Alternatives to Clear-cut (ATC) group, Forestry Sciences Laboratory, Juneau, Alaska.
- 1997, 1999** *Field staff.* Juneau Icefield Research Program.

TEACHING EXPERIENCE

-
- 2014** *Guest Lecture.* Hydrology (GEOG 207). Northwest Community College. “Introduction to Glaciers and Glacier Change”.
- 2011** *Instructor.* Introduction to GIS (GEOG 300). BSc Integrated Program, University of Northern British Columbia – Northwest Campus.
- 2010** *Instructor.* Climate Change and Global Warming (ENSC 425). BSc Integrated Program, University of Northern British Columbia – Northwest Campus.
- Instructor.* Juneau Icefield Research Program. Taught glacier travel and crevasse rescue, glacier mass balance, and mass balance field methods.
- Guest Lecturer.* Environments and Society (GEOG 210). Associate of Science Program, Northwest Community College, Terrace, BC.
- 2009 – 2010** *Helped develop* BSc Integrated program at UNBC – Northwest Campus, including curriculum development, and helping lead public interest meetings.
- 2009** *Guest Lecturer.* Geography of Canada. GEOG 203. Geography Program, University of Northern British Columbia.
- 2008** *Guest Lecturer.* The Geography of Natural Hazards. GEOG 100. Geography Program, University of Northern British Columbia.

Guest Lecturer. Remote Sensing, GEOG 432/632, Geography Program, University of Northern British Columbia.

2003 - 2005 *Teaching Assistant/Lecturer.* Juneau Icefield Research Program.

Safety Instructor. Juneau Icefield Research Program.

2003 – 2004 *Teaching Assistant/Lab Instructor.* Introduction to Weather and Climate, Atmospheric Sciences Department, University of Colorado – Boulder.

1999 – 2000 *Undergraduate Teaching Assistant.* Physical Geography, Earth Sciences Department, Montana State University – Bozeman.

CONFERENCE PRESENTATIONS

Menounos, B. and **Beedle, M. J.** 2013. Glacier change in the Columbia Basin, British Columbia. Columbia Basin Trust – Cryospheric Network Meeting, Golden, BC, 26-27 Nov.

Beedle, M. J., Menounos, B., and Wheate, R. 2012. Comparing glaciological, photogrammetric, and RTK GPS measurements of annual glacier mass balance. 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.

Timm, K., Kavanaugh, J., and **Beedle, M. J.** 2012. Integrating science communication training and public outreach activities into the Juneau Icefield Research Program. 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.

Beedle, M. J. 2012. Icons of a changing climate: The story of our changing glaciers. Pacific Institute for Climate Solutions Annual Meeting, Victoria, British Columbia.

Beedle, M. J. 2011. Bringing students into nature: The Juneau Icefield Research Program and Dr. Maynard M. Miller. Geological Society of America Annual Meeting 2011, Minneapolis, Minnesota.
(*Invited speaker*)

Beedle, M. J. 2011. Mountain Glaciers: Inspiration, education, what we know, and what remains to be discovered. Classrooms for Climate Symposium, May 4 – 7, 2011, Anchorage, Alaska.

Beedle, M. J., Menounos, B., and Wheate, R. 2010. Fluctuations of small glaciers in the Cariboo Mountains, British Columbia, Canada. Canadian Meteorological and Oceanographic Society and Canadian Geophysical Union Joint Congress, May 31 – June 4, 2010, Ottawa, Canada.

- Beedle, M. J.** and Raup, B. 2008. A GLIMS inventory of the Juneau Icefield, Alaska. IGS: International Workshop on World Glacier Inventory, September 20 – 24, 2008, Lanzhou, China.
- Beedle, M. J.**, Menounos, B., and Wheate, R. 2008. An annual record of glacier terminus response to climate variability over the period 1959 – 2004 derived from annual push moraines, Castle Glacier, British Columbia. Western Division of the Canadian Association of Geographers, 2008 Annual Meeting, March 8, 2008, Bellingham, WA, USA.
(Best Doctoral Student Presentation Award)
- Beedle, M. J.** 2008. Melting Glaciers and Climate Change in Northern British Columbia. University of Northern British Columbia, Natural Resources and Environmental Studies Institute, 3rd Annual Poster Session. February 28, 2008.
- Beedle, M. J.**, Dyurgerov, M., Khalsa, S. J. S., Raup, B., Helm, C., Armstrong, R., and Barry, R. G. 2006. Bering Glacier, Alaska: Uncertainty in Estimation of Mass Turnover in Response to Climate.
- International Symposium on Cryospheric Indicators of Global Climate Change, Cambridge, England, a joint CliC/IGS/ICSI Symposium August 21 – 25, 2006.
 - American Geophysical Union Fall Meeting, San Francisco, December 11 – 1, 2006.
- Beedle, M. J.**, Pelto, M. S., and Miller, M. M. 2005. Drivers of Glacier Mass Balance in Southeast Alaska in the Second Half of the 20th Century. Climate and Cryosphere (CliC) First Science Conference, Beijing, China, April 11 – 15, 2005.
(Outstanding Presentation Award)

INVITED SPEAKER

- 2011** *Geological Society of America Annual Meeting 2011*, Special session honoring Dr. Maynard M. Miller, “Bringing students into nature: The Juneau Icefield Research Program and Dr. Maynard M. Miller”
- 2009** *UNBC Northwest Speaker Series*, March 13, 2009, “Glacier Change in BC: Receding Resources”

PUBLICATIONS

Peer reviewed journal articles

- Beedle, M. J.**, Menounos, B. and Wheate, R. 2014. An evaluation of mass balance methods applied to Castle Creek Glacier, British Columbia, Canada. *Journal of Glaciology*, 60 (220), 262-276.
- Maurer, M. K., Menounos, B., Luckman B. H., Osborn, G., Clague, J. J., **Beedle, M. J.**, Smith, R., and Atkinson, N. 2012. Late Holocene glacier expansion in the Cariboo and northern Rocky Mountains, British Columbia, Canada. *Quaternary Science Reviews*, 51, 71-80.
- Marshall, S. J., White, E. C., Demuth, M. N., Bolch, T., Wheate, R., Menounos, B., **Beedle, M. J.**, and Shea, J. M. 2011. Glacier water resources on the eastern slopes of the Canadian Rocky Mountains, *Canadian Water Resources Journal*, 36, doi: 10.4296/cwrj3602823
- Déry, S. J., Clifton, A., MacLeod, S., and **Beedle, M. J.** 2010. Blowing snow fluxes in the Cariboo Mountains of British Columbia, Canada, *Arctic, Antarctic and Alpine Research*. 42, 2, 188-197.
- Beedle, M. J.**, Menounos, B., Luckman, B. H., and Wheate, R. 2009. Annual push Moraines as climate proxy. *Geophysical Research Letters*, 36, L20501, doi:10.1029/2009GL039533.
- Pelto, M. S., Miller, M. M., Adema, G. W., **Beedle, M. J.**, McGee, S. R., Sprenke, K. F., and Lang, M. 2008. The equilibrium flow and mass balance of the Taku Glacier, Alaska 1950-2006. *The Cryosphere*, 2, 147-157.
- Arendt, A. A., Luthcke, S., Larsen, C., Abdalati, W., Krabill, W., and **Beedle, M. J.** 2008. Validation of high-resolution GRACE mascon estimates of glacier mass changes in the St. Elias Mountains, Alaska, USA, using aircraft altimetry. *Journal of Glaciology*, 54, 188, 778-787.
- Beedle, M. J.**, M. Dyurgerov, W. Tangborn, S. J. S. Khalsa, C. Helm, B. Raup, R. Armstrong, and R. G. Barry. 2008. Improving estimation of glacier volume change: a GLIMS case study of Bering Glacier System, Alaska. *The Cryosphere*, 2, 33-51.

Raup, B. H., Kääb, A., Kargel, J. S., Bishop, M. P., Hamilton, G., Lee, E., Paul, F., Rau, F., Soltész, D., Khalsa, S. J. S., **Beedle, M.**, and Helm, C. 2007. Remote sensing and GIS technology in the Global Land Ice Measurement from Space (GLIMS) project. *Computers & Geosciences*, 33, 104 – 125.

Book chapters

Kargel, J. S., **Beedle, M. J.**, Bush, A., Carreño, F., Castellanos, E., Haritashya, U. K., Leonard, G., Lillo, J., Lopez, I., Pleasants, M., Pollack, E., and Wolfe E. *in press*. Multispectral image analysis of glaciers and glacier lakes in the Chugach Mountains, Alaska, in *Global Land Ice Measurements from Space*, edited by Kargel, J. S., Leonard, G. J., Bishop, M. P., Kääb, A., and Raup, B. H., pp. 297-332, Springer-Praxis, London.

Raup, B., Khalsa, S. J. S., Armstrong, R., Sneed, W. A., Hamilton, G. S., Paul, F., Cawkwell, F., **Beedle, M. J.**, Menounos, B., Wheate, R., Rott, H., Liu, S., and Li, X. *in press*. Quality in the GLIMS Glacier Database, in *Global Land Ice Measurements from Space*, edited by Kargel, J. S., Leonard, G. J., Bishop, M. P., Kääb, A., and Raup, B. H., pp. 163-182, Springer-Praxis, London.

Plain-English summaries

Beedle, M. J., Menounos, B., and Wheate, R. 2012. Annual push moraines as climate proxy. *GlacierChange.org*

Beedle, M. J., Marshall, S., and Menounos, B. 2011. Glacier water resources on the Eastern slopes of the Canadian Rocky Mountains. *GlacierChange.org*

PUBLIC OUTREACH AND COMMUNICATION

June 2011 – present *Online*. GlacierChange.org. Telling the story of our ever-changing glaciers: Imagery, science and art.

- *Scrapbook*: A community space for all things glacier
- *Plain-English Summaries*: Concise versions of peer-reviewed work that are accurate, comprehensible, and perhaps even enjoyable.
- *Bloggng From the Field*: Real-time posts from participants of the Juneau Icefield Research Program.
- *Glacier Science Media Links*: A catalog of links for glacier-science mass media.
- *Repeat Photography Geocaching*: Public engagement in glacier science through educational geocaches.

June 2012 – present *Online*. Juneauicefield.com. Coordinator of all public outreach for Juneau Icefield Research Program, including website development, blogging and social media.

- June 2012** *Radio/Online.* KTOO Radio, Juneau, Alaska. June 21, 2012, 'Blogging on ice', by Casey Kelly
- February 2012** *Magazine.* The Tyee, February 6, 2012, 'Glaciers, BC Hydro's Melting Batteries', by Colleen Kimmett
- November 2011** *Magazine.* Alaska, November 2011, 'At Glacial Speed', by Sherry Simpson
- December 2010** *Public Forum.* Organized and presented at a UNBC Speaker Series poster session with ENSC 425 students titled 'Change in a Warming World'
- June 2009** *Magazine.* Northword, June/July 2009, 'Glacial Melt's Chilling Implications for Water Resources', by Amanda Follett
- November 2008** *Newsletter.* UNBC Newsletter Update, 'Melting Away'
- October 2008** *Television.* Global BC, News Hour, 'Glacier Receding Rapidly'
- Magazine.* Backcountry, 'Skiing for Answers. 62 Years of Glacier Research: Juneau Icefield', by Drew Pogge
- Radio.* Canada's First Nations Radio, Tribal Traxx, 'Melting BC Glaciers'
- September 2008** *Newspaper.* Prince George Citizen, 'B.C., Alberta glaciers melting quickly, UNBC research project discovers', Sept. 30, 2008
- May 2008** *Public presentations.* Aatsie Davie School, Fort Ware, BC. 'Kwadacha Glacier: Importance, Research and Change'
- April 2008** *Radio.* Canadian Broadcasting Corporation (CBC) Radio – Daybreak North. 'Glacier Change Near McBride, BC'
- Television.* Prince George, BC Television 'Bicycle Benefits Prince George'

SCHOLARSHIPS, GRANTS, AND FELLOWSHIPS

2010 - 2013	Pacific Institute for Climate Solutions Graduate Fellowship	\$18,000/year
2011	2011 ESRI Canada GIS Scholarship	\$1,000

- 2008** **Geological Society of America Graduate Student Research Grant**
\$1,070
- 2007 – 2010** **UNBC Doctoral Tuition Scholarship** \$1,325.88/semester
- 1996 – 2000** **Territorial Sportsmen Scholarship: Juneau Alaska**
\$8,000

AWARDS

- 2013** **101 Top Web Resources on Climate Change**
Awarded to GlacierChange.org by environmentalsciencedegree.com
- 2008** **Best Doctoral Student Presentation Award**
Western Division of the Canadian Association of Geographers, 2008
Annual Meeting
- 2005** **Outstanding Presentation Award**
Climate and Cryosphere (CliC) First Science Conference

SERVICE TO PROFESSIONAL COMMUNITY

Membership in scholarly societies:

- American Geophysical Union (AGU)
- Canadian Geophysical Union (CGU)
- The Geological Society of America (GSA)
- International Glaciological Society (IGS)

Reviewer:

- Journal of Glaciology (2012) (External reviewer)
- The Cryosphere (2011)

VOLUNTEER

- 2010 – Current** **Cross Country Ski Coach, Snow Valley Nordic Ski Centre**
- 2010 – Current** **Board Member, Foundation for Glacier and Environmental Research.** Vice president (current), Secretary (former), chair of Academic and Research subcommittee, member of Fundraising and Public Relations, Real Property, and Board Development subcommittees.
- 2008** **Prince George, BC Traffic Safety Committee**
Representative of Prince George Cycling Club and cyclist interests on municipal task force

2008

Organized and Initiated Bicycle Benefits Prince George

Initiated a community effort to foster bicycle commuting in Prince George, BC

2007, 2009

Telemark Ski Instructor, Troll Tele Festival, Troll Ski Resort, Quesnel, British Columbia