

Benjamin J.C. Laabs, Ph.D.
Department of Geosciences, North Dakota State University
1321 Albrecht Blvd, Fargo, ND 58105
Tel. 701-231-6197/Fax: 701-231-7149
E-mail (primary): benjamin.laabs@ndsu.edu

(a) Professional Preparation

University of Wisconsin-Madison	Geology	B.S., 1999
Northern Arizona University	Geology	M.S., 2001
University of Wisconsin-Madison	Geology	Ph.D., 2004

(b) Appointments

2016 –	Assistant Professor, Dept. of Geosciences, North Dakota State University
2013 – 2016	Chair, Dept. of Geological Sciences, SUNY Geneseo
2012 – 2016	Adjunct Associate Professor, Dept. of Geology, University at Buffalo
2011 – 2016	Associate Professor, Dept. of Geological Sciences, SUNY Geneseo
2007 – 2011	Assistant Professor, Dept. of Geological Sciences, SUNY Geneseo
2005 – 2007	Assistant Professor, Geology Dept., Gustavus Adolphus College
2002 – 2004	Teaching Assistant, University of Wisconsin-Madison
2002 – 2006	Physical Scientist, Ashley National Forest, Utah and Wyoming
2001 – 2002	Research Assistant, University of Wisconsin-Madison
2000, 2001	Research Assistant, Northern Arizona University
1999, 2000	Teaching Assistant, Northern Arizona University

(c) Courses Taught (*at NDSU)

Physical Geology, *Earth Through Time, *The Geology of Climate Change and Energy, First-Year Geology Seminar, *Eastern North Dakota Geology Field Course, *Environmental Geology, Geomorphology, *Glacial Geology, Hydrogeology, Paleoclimatology, *Structural Geology, Geology Capstone Seminar.

(d) Peer-Reviewed Publications (*student author, §invited contribution)

1. **Laabs, B.J.C.**, Licciardi, J.M., Leonard, E.L., Munroe, J.S., and Marchetti, D.W., submitted. A review of updated cosmogenic chronologies of Pleistocene moraines in the western U.S. and a reassessment of paleoclimatic implications: *Quaternary Science Reviews*.
2. *Fleming, K.C., and **Laabs, B.J.C.**, 2019. Cosmogenic ¹⁰Be exposure dating and numerical modeling of Late Pleistocene glaciers in northwestern Nevada. *Proceedings of the Lake Bonneville Conference, Utah Geological Survey Miscellaneous Publication 170*, pp. 244-265.
3. **Laabs, B.J.C.**, and Munroe, J.S., 2019. The Last Pleistocene glaciation in the Uinta Mountains: updated chronology and connections to Lake Bonneville. *Proceedings of the Lake Bonneville Conference, Utah Geological Survey Miscellaneous Publication 170*, pp. 135-158.
4. Brugger, K.A., **Laabs, B.J.C.**, *Reimers, A. and *Bensen, N., 2019. Late Pleistocene glaciation in the Mosquito Range, Colorado, USA: chronology and climate. *Journal of Quaternary Science*, 34(3), pp.187-202.
5. Munroe, J.S., and **Laabs, B.J.C.**, 2019. Multi-proxy lacustrine records of post-glacial environmental change from the Uinta Mountains, Utah, U.S.A. *Geological Society of America Bulletin*, doi: <https://doi.org/10.1130/B35056.1>.
6. **Laabs, B.J.C.**, 2018. *The Geology of Climate Change and Energy*. Electronic textbook, ISBN: 978-1-77330-250-8. <http://www.tophat.com/marketplace>.
7. *Quirk, B.J., Moore, J.R., **Laabs, B.J.**, Caffee, M.W. and Plummer, M.A., 2018. Termination II, Last Glacial Maximum, and Lateglacial chronologies and paleoclimate from Big Cottonwood Canyon, Wasatch Mountains, Utah. *Geological Society of America Bulletin*, 130, 1889-1902, 1889-1902. doi:10.1130/B31967.1.

8. Leonard, E.M., **Laabs, B.J.C.**, *Schweinsberg, A.D., Russell, C.M., Briner, J.P., and Young, N.E., 2017. Deglaciation of the Colorado Rocky Mountains following the Last Glacial Maximum. In Palacios, D. (ed.), Deglaciation of the Americas, Special Issue of Geographical Research Letters 43(2), 497-526, doi: <http://doi.org/10.18172/cig.3234>.
9. Munroe, J.S., and **Laabs, B.J.C.**, 2017. Combining radiocarbon and cosmogenic ages to constrain the timing of the last glacial-interglacial transition in the Uinta Mountains, Utah, USA. *Geology*, 45(2), 171-174, doi:10.1130/G38156.1.
10. Leonard, E.M., **Laabs, B.J.C.**, Plummer, M.A., *Kroner, R.K., Brugger, K.A., *Spiess, V.M., Refsnider, K.A., Xia, Y., and Caffee, M.W., 2017. Late Pleistocene glaciation and deglaciation in the Crestone Peaks area, Colorado Sangre de Christo Mountains, USA – chronology and paleoclimate. *Quaternary Science Reviews* 158, 127-144.
11. [§]**Laabs, B.J.C.**, and Munroe, J.S., 2016. Late Pleistocene mountain glaciation in the Lake Bonneville Basin, In Oviatt, C.G., and Schroeder, J., Lake Bonneville: A Scientific Update, Elsevier, Amsterdam, The Netherlands, p. 462-503.
12. Munroe, J.S., **Laabs, B.J.C.**, Oviatt, C.G., and Jewell, P.W., 2015. New investigations of Pleistocene pluvial and glacial records from the northeastern Great Basin, in Rosen, M.R. (ed.), Sixth International Limnogeology Congress – Field Trip Guidebook, Reno, Nevada. U.S. Geological Survey Open-File Report 2015-1108, 1-30.
13. Jicha, B.R., **Laabs, B.J.C.**, Hora, J.M., Singer, B.S., and Caffee, M.W., 2015. Resolving the age of the debris avalanche at Volcán Paríacota: implications for post-collapse volcanism and Lago Chungará evolution, *Geological Society of America Bulletin*, 127(11-12), 1681-1688, doi:10.1130/B31247.1.
14. **Laabs, B.J.C.**, 2014. The pattern and timing of the last Pleistocene glaciation in northeastern Utah: evidence of an ancient lake effect: *online vignette for Bierman, P., and Montgomery, D. (eds.), Vignettes, Key Concepts in Geomorphology*, W.H. Freeman, New York, <http://serc.carleton.edu/42709>.
15. **Laabs, B.J.C.**, Munroe, J.S., *Best, L.C., and Caffee, M.W., 2013. Timing of the last glaciation and subsequent deglaciation in the Ruby Mountains, Great Basin, U.S.A., *Earth and Planetary Science Letters* 361, 16-25.
16. Munroe, J.S. and **Laabs, B.J.C.**, 2013. Late Pleistocene history of Pluvial Lake Franklin, Northeastern Nevada, U.S.A., *Geological Society of America Bulletin* 125, 322-342.
17. Munroe, J.S. and **Laabs, B.J.C.**, 2013. Temporal correspondence between pluvial lake highstands in the southwestern U.S. and Heinrich Event 1. *Journal of Quaternary Science* 28, 49-58.
18. Applegate, P.J., Urban, N.M., Keller, K., Lowell, T.V., Kelly, M.A., **Laabs, B.J.C.**, and Alley, R.B., 2012. Improved moraine age interpretations through explicit matching of geomorphic process models and cosmogenic nuclide measurements from single landforms, *Quaternary Research* 77, 293-304.
19. **Laabs, B.J.C.**, Marchetti, D.W., Munroe, J.S., Refsnider, K.A., Gosse, J.C., Lips, E.W., Becker, R.A., Mickelson, D.M., and Singer, B.S., 2011. Chronology of latest Pleistocene mountain glaciation in the western Wasatch Mountains, Utah, U.S.A., *Quaternary Research* 76, 272-284.
20. Munroe, J.S., and **Laabs, B.J.C.**, 2011. New investigations of Pleistocene glacial and pluvial records in northeastern Nevada, in Evans, J.P., and Lee, J., eds., *Geologic Field Trips to the Basin and Range, Rocky Mountains, Snake River Plain, and Terranes of the U.S. Cordillera: Geological Society of America Field Guide 21*, 1-25.
21. *Applegate, P.J., Urban, N.M., **Laabs, B.J.C.**, Keller, K., and Alley, R. B., 2010. Modeling the statistical distributions of cosmogenic exposure dates from moraines, *Geoscientific Model Development*, 3, 293-307, doi:10.5194/gmd-3-293-2010.
22. Munroe, J.S. and **Laabs, B.J.C.**, 2009. Glacial geology of the Uinta Mountains area, Utah and Wyoming. DVD, 1 pl., scale 1:100,000, contains GIS data and text, ISBN 1-55791-825-2. *Utah Geological Survey Miscellaneous Publications*, 09-4DM.
23. **Laabs, B.J.C.**, *Refsnider, K.A., Munroe, J.S., Mickelson, D.M., *Applegate, P.A., Singer, B.S., and Caffee, M.W., 2009. Late Pleistocene glacial chronology of the Uinta Mountains: support for moisture-driven asynchrony of the last deglaciation. *Quaternary Science Reviews*, 28, 1171-1187.

24. Reheis, M.C., **Laabs, B.J.C.**, and Kaufman, D.S., 2008. Geology and geomorphology of Bear Lake Valley and upper Bear River basin. In Rosenbaum J.G., and Kaufman, D.S. (eds.), *Special Paper of the Geological Society of America*, 450: 15-48.
25. *Refsnider, K.A., **Laabs, B.J.C.**, Plummer, M.A., Mickelson, D.M., Singer, B.S., and Caffee, M.W., 2008. Last glacial maximum climate inferences from cosmogenic dating and glacier modeling of the western Uinta ice field, Uinta Mountains, Utah. *Quaternary Research* 69, 130-144.
26. **Laabs, B.J.C.**, Munroe, J.S., Rosenbaum, J.G., *Refsnider, K.A., Mickelson, D.M., Singer, B.S., and Caffee, M.W., 2007. Chronology of the Last Glacial Maximum in the upper Bear River basin, Utah. *Arctic, Antarctic and Alpine Research* 39, 537-548.
27. *Refsnider, K.A., **Laabs, B.J.C.**, and Mickelson, D.M., 2007. Glacial geology of the Provo River drainage, Uinta Mountains, U.S.A. *Arctic, Antarctic and Alpine Research*, 39, 529-536.
28. **Laabs, B.J.C.**, Plummer, M.A., and Mickelson, D.M., 2006. Climate during the Last Glacial Maximum in the Wasatch and southern Uinta Mountains inferred from glacier modeling. *Geomorphology* 75, 300-317.
29. Munroe, J.S., **Laabs, B.J.C.**, *Shakun, J.D., Singer, B.S., Mickelson, D.M., *Refsnider, K.A., and Caffee, M.W., 2006. Latest Pleistocene advance of alpine glaciers in the southwestern Uinta Mountains, Utah, USA: Evidence for the influence of local moisture sources. *Geology* 34, 841-844.
30. **Laabs, B.J.C.** and Carson, E.C., 2005. Glacial geology of the southern Uinta Mountains. In, Dehler, C.M., Pederson, J.L., Sprinkel, D.A., and Kowallis, B.J. (eds.), *Uinta Mountain Geology*. Utah Geological Association Publication 33, Salt Lake City, Utah, 235-253.
31. Munroe, J.S., **Laabs, B.J.C.**, Pederson, J.L., and Carson, E.S., 2005. From cirques to canyon cutting: new Quaternary research in the Uinta Mountains. In, Dehler, C.M. and Pederson, J.L. (eds.). *Fieldtrip Guide, 2005 Annual Meeting of the Geological Society of America, Salt Lake City, Utah*. Geological Society of America Field Guide 6, Boulder, CO, 53-78.
32. Reheis, M.C., **Laabs, B.J.C.**, Forester, R.M., McGeehin, J.P., Kaufman, D.S., and Bright, J., 2005. Surficial deposits in the Bear Lake basin. United States Geological Survey, Open File Report 2005-1088, 30 pp.
33. Winguth, C., Mickelson, D.M., Colgan, P.M. and **Laabs, B.J.C.**, 2004. Modeling the Deglaciation of the Green Bay Lobe of the Southern Laurentide Ice Sheet. *Boreas* 33, 34-47.
34. **Laabs, B.J.C.**, and Kaufman, D.S., 2003. Quaternary highstands in Bear Lake valley, Utah and Idaho. *Geological Society of America Bulletin* 115, 463-478.

(e) Edited journal volumes

1. Munroe, J.S. and **Laabs, B.J.C.**, 2007, Uinta Mountain Research, vol. 39 of *Arctic, Antarctic and Alpine Research*.
2. Munroe, J.S. and **Laabs, B.J.C.**, 2006, Quaternary Landscape Change in the Western U.S., vol. 75 of *Geomorphology*.

(f) Conference presentations/abstracts (*student/advisee author; §invited or keynote presentation)

1. §**Laabs, B.J.C.**, and Munroe, J.S., 2019. Late Quaternary glaciation of the northern Great Basin: chronology, climate and key questions. Geological Society of America, Abstracts with programs, Vol. 51, No. 5, doi:10.1130/abs/2019AM-334107.
2. **Laabs, B.J.C.**, Oviatt, C.G., and Jewell, P., 2019. Cosmogenic ¹⁰Be exposure dating of erosional landforms of the Provo shoreline, Lake Bonneville basin. Geological Society of America, Abstracts with programs, Vol. 51, No. 5, doi:10.1130/abs/2019AM-337212.
3. *Belanger, B.K., Amidon, W.H., **Laabs, B.J.C.**, and Munroe, J.S., 2019. Modeling climate constraints on the formation of Pluvial Lake Bonneville in the Great Basin, U.S.A., Geological Society of America Abstracts with Programs Vol. 51, doi: 10.1130/abs/2019NE-328050.
4. Brugger, K.A., and **Laabs, B.J.C.**, 2019. Late Pleistocene glaciation in the Mosquito Range, Colorado: chronology and climate. Geological Society of America Abstracts with Programs Vol. 51, doi: 10.1130/abs/2019SC-326688.

5. *Anderson, T.W., and **Laabs, B.J.C.**, 2018. Reconstruction of Pleistocene glaciers and climate in Baker Creek Valley, Great Basin National Park, U.S.A. Geological Society of America Abstracts with Programs. Vol. 50, No. 6, ISSN 0016-7592, doi: 10.1130/abs/2018AM-324516
6. Day, S.S., **Laabs, B.J.C.**, and Munroe, J.S., 2018. Measuring change of the Wheeler Peak rock glacier in Great Basin National Park. Geological Society of America Abstracts with Programs. Vol. 50, No. 6, ISSN 0016-7592, doi: 10.1130/abs/2018AM-324493.
7. Dee, S., and **Laabs, B.J.C.**, 2018. New insights into late-Pleistocene glaciation and range-front fault vertical separation rates using geologic mapping and terrestrial cosmogenic nuclide exposure ages in the East Humboldt Range, Nevada. Geologic Mapping Forum, Minnesota Geological Survey.
8. *Fleming, K.C., and **Laabs, B.J.C.**, 2018. Cosmogenic ¹⁰Be exposure dating and numerical modeling of Late Pleistocene glaciers in northwestern Nevada. Lake Bonneville Conference, Utah Geological Survey.
9. **Laabs, B.J.C.**, Leonard, E.M., Licciardi, J.M., and Munroe, J.S., Cosmogenic chronologies of Late Pleistocene glacial maxima along the crest of the Rocky Mountains. Abstract PP13D-1353, presented at the 2018 Fall Meeting, AGU, Washington D.C., 10-14 December.
10. ⁹**Laabs, B.J.C.**, and Munroe, J.S., 2018. The Last Pleistocene glaciation in the Uinta Mountains: updated chronology and connections to Lake Bonneville. Lake Bonneville Conference, Utah Geological Survey.
11. Leonard, E.M., **Laabs, B.J.C.**, and Plummer, M.A., 2018. Last Glacial Maximum (LGM) climate variability along the crest of the Rocky Mountains – insights from numerical modeling. Abstract PP13D-1354, presented at the 2018 Fall Meeting, AGU, Washington D.C., 10-14 December
12. *Strom, N.E., and **Laabs, B.J.C.**, 2018. Estimating rock glacier contributions to stream flow in Lehman Creek watershed, Great Basin National Park. Geological Society of America Abstracts with Programs. Vol. 50, No. 6, ISSN 0016-7592, doi: 10.1130/abs/2018AM-324560.
13. *Reimers, A.C., and **Laabs, B.J.C.**, 2018. Climate change during deglaciation inferred from numerical glacier modeling in the Ruby Mountains, Nevada. Abstracts with Programs, Geological Society of America 50(4), doi: 10.1130/abs/2018NC-31356.
14. **Laabs, B.J.C.**, Licciardi, J.M., Marchetti, D.W., Munroe, J.S., and Leonard, E.M., 2017. Cosmogenic nuclide exposure age limits on the penultimate glaciation in the conterminous western U.S. Abstracts with Programs, Geological Society of America 49(6), doi: 10.1130/abs/2017AM-305934.
15. *Ferragut, G., **Laabs, B.J.C.**, Amidon, W.A., Munroe, J.S., 2017. Constraining Late Pleistocene climate of the northeastern Great Basin using mass balance modeling of paleolakes and glaciers. Abstracts with Programs, Geological Society of America, 49(6), doi: 10.1130/abs/2017AM-306260.
16. Leonard, E.M., **Laabs, B.J.C.**, Plummer, M.A., 2017. How important is interannual variability in the climatic interpretation of moraine sequences? Abstract C23D-05, presented at the 2017 Fall Meeting, AGU, New Orleans, LA, 11-15 December.
17. *Quirk, B.J., Moore, J.R., **Laabs, B.J.C.**, Plummer, M.A., Taylor, J., 2017. Wasatch Range, UT glacier reconstructions for the Last Glacial Maximum and Lateglacial. Abstracts with Programs, Geological Society of America 49(6), doi: 10.1130/abs/2017AM-303263.
18. **Laabs, B.J.C.**, and Munroe, J.S., 2016. The relative timing of Late Pleistocene glacier and pluvial-lake maxima in the northern Great Basin, Utah and Nevada, U.S.A., Abstracts with Programs, Geological Society of America 48(7), doi: 10.1130/abs/2016AM-285344.
19. *Quirk, B.J., Moore, J.R., **Laabs, B.J.C.**, Caffee, M.W., and Plummer, M.A., 2016. Pleistocene glacial history and climate in the Wasatch Range, UT: insights from cosmogenic exposure dating and glacier modeling. Abstracts with Programs, Geological Society of America 48(7), doi: 10.1130/abs/2016AM-286164.
20. *Reimers, A.C., and **Laabs, B.J.C.**, 2016. Mountain glacier retreat rates during the last Pleistocene glaciation in the western United States. Abstracts with Programs, Geological Society of America 48(7), doi: 10.1130/abs/2016AM-286579.
21. *Johnson, M., **Laabs, B.J.C.**, *Bradley, R.A., and Munroe, J.S., 2016. Climate change during deglaciation of the Angel Lake valley, East Humboldt Mountains, Nevada, U.S.A. Geological Society of America, Abstracts with Programs, Vol. 28, No. 2, doi:10.1130/abs/2016NE-272834.
22. *Yeung, W., and **Laabs, B.J.C.**, 2016. Climatic conditions of the Western Uinta Ice Field, Uinta

- Mountains, Utah, during the Last Glacial Maximum inferred from glacier modeling. Geological Society of America, Abstracts with Programs, Vol. 48, No. 2, doi: 10.1130/abs/2016NE-272342.
23. *Sackett, H., **Laabs, B.J.C.**, Munroe, J.S., and *Eckes, S.W., 2016. Climate during deglaciation of the Overland Creek valley, Ruby Mountains, Nevada, U.S.A. Geological Society of America, Abstracts with Programs, Vol. 48, No. 2, doi: 10.1130/abs/2016NE-272821.
 24. **Laabs, B.J.C.**, Licciardi, J.M., Munroe, J.S., and Leonard, E.M., 2015. Identifying signals of Late Pleistocene climate change from cosmogenic ^{10}Be chronologies of moraines in the western U.S. Abstract PP31C-2264, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec.
 25. *Reed, M.P., **Laabs, B.J.C.**, Amidon, W.A., and Munroe, J.S., 2015. Evaluating signals of mountain glacier and paleolake response to Heinrich Event 1, northern Great Basin, Nevada. Abstracts with Programs, Geological Society of America 47 (7).
 26. *Bradley, R.A.A., and **Laabs, B.J.C.**, 2015. Climate change during the last Pleistocene glaciation in northern Nevada inferred from numerical glacial modeling, Angel Lake type locality, East Humboldt Range, Nevada, U.S.A. Abstracts with Programs, Geological Society of America 47 (3), p. 114.
 27. *Eckes, S.W., and **Laabs, B.J.C.**, 2015. Climate changes during the last Pleistocene glaciation and deglaciation inferred from numerical modeling of glacier mass balance and ice flow, eastern Ruby Mountains, northeastern Nevada. Abstracts with Programs, Geological Society of America 47 (3), p. 114.
 28. *Grogan, A.L., **Laabs, B.J.C.**, Steen, D.P., Amidon, W.H., and Munroe, J.S., 2015. Constraining modern and paleohydrology of the Lake Clover and Lake Franklin pluvial systems, northeastern Nevada, Great Basin, U.S.A. Abstracts with Programs, Geological Society of America 47 (3), p. 97.
 29. *Link-Harrington, A.M., and **Laabs, B.J.C.**, 2015. Numerical modeling of Latest Pleistocene glacier mass balance and ice flow in Baker Creek, Great Basin National Park, Nevada. Abstracts with Programs, Geological Society of America 47 (3), p. 114.
 30. *Lotito, K., and **Laabs, B.J.C.**, 2015. Numerical modeling of Pleistocene valley glaciers in the northernmost U.S. Rocky Mountains, Lewis Range, Montana. Abstracts with Programs, Geological Society of America 47 (3), p. 114.
 31. **Laabs, B.J.C.**, Licciardi, J.M., Leonard, E.M., and Munroe, J.S., 2014. Cosmogenic ^{10}Be exposure ages of terminal moraines in the western U.S.: reconsidering production rates and climate changes accompanying the last deglaciation. Abstracts with Programs, Geological Society of America 46 (6), p. 664.
 32. §Leonard, E.M., **Laabs, B.J.C.**, Plummer, M.A., 2014. Numerical modeling of Rocky Mountain paleoglaciers – insights into the climate of the Last Glacial Maximum and subsequent deglaciation. Abstract C52B-01, presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.
 33. *Steen, D.P., **Laabs, B.J.C.**, Munroe, J.S., and Amidon, W.H., 2014. Water balance modeling and paleoclimate investigation of Pleistocene Pluvial Lake Clover, Nevada, USA. Abstracts with Programs, Geological Society of America 46 (6), p. 746.
 34. *Truong, K.T., **Laabs, B.J.C.**, and Lam, J.J., 2014. Climate change during the last glaciation in the northern Great Basin inferred from numerical modeling of glaciers in the Ruby Mountains, northern Nevada. Abstracts with Programs, Geological Society of America 46 (6), p. 557.
 35. *Gall, R.D., Leonard, E.M., Plummer, M.A., **Laabs, B.J.C.**, 2013. Numerical modeling of the Middle Boulder Creek paleoglacier in the Colorado Front Range: insights into LGM paleoclimate and post-LGM rates of climate change. Abstracts with Programs, Geological Society of America, 45 (7).
 36. **Laabs, B.J.C.**, Leonard, E.M., Plummer, M.A., Quirk, B., Wistort, M.W., Caffee, M.W., 2013. A cosmogenic ^{10}Be chronology of the last Pleistocene glaciation in the northernmost U.S. Rocky Mountains and inferences of climate change. Abstracts with Programs, Geological Society of America, 45 (7).
 37. §Licciardi, J.M., **Laabs, B.J.C.**, Pierce, K.L., Munroe, J.S., and Leonard, E.M., 2013. Review of the timing, extent, and climatic significance of western U.S. mountain glaciation during the penultimate (Marine Isotope Stage 6) maximum. Abstracts with Programs, Geological Society of America, 45 (7).
 38. Munroe, J.S., and **Laabs, B.J.C.**, 2013. Lacustrine basal ages for the last glacial-interglacial

- transition in the Uinta Mountains, Utah. *Abstracts with Programs, Geological Society of America*, 45 (7).
39. Munroe, J.S., *Bigl, M.F., *Silverman, A., and **Laabs, B.J.C.**, 2013. Records of Late-Quaternary environmental change from high-elevation lakes in northeastern Nevada. *Abstracts with Programs, Geological Society of America*, 45 (7).
 40. *Spears, A.J., **Laabs, B.J.C.**, Leonard, E.M., Plummer, M.A., Caffee, M.W., 2013, Cosmogenic exposure dating and numerical modeling of the Pleistocene South Fork Deep Creek valley glacier, northern Absaroka Mountains, Montana. *Abstracts with Programs, Geological Society of America*, 45 (7).
 41. *Steen, D.P., **Laabs, B.J.C.**, Munroe, J.S., Caffee, M.W., 2013, Reconstructing the extent and timing of the last glaciation in Tensleep Canyon, Bighorn Mountains, Wyoming, U.S.A. *Abstracts with Programs, Geological Society of America*, 45 (7).
 42. *Truong, K.T., **Laabs, B.J.C.**, and *Lam, J.J., 2013, Numerical modeling of Latest Pleistocene glacier mass balance and ice flow in the western Ruby Mountains, Nevada, U.S.A. *Abstracts with Programs, Geological Society of America*, 45 (7).
 43. **Laabs, B.J.C.**, and Munroe, J.S., 2013. Cosmogenic ¹⁰Be age limits on the last two Pleistocene glaciations, Great Basin, Nevada and Utah, USA. *Abstracts with Programs, Geological Society of America* 45 (1), 86.
 44. Munroe, J.S., and **Laabs, B.J.C.**, 2013. Lacustrine Basal Ages Constrain the Last Deglaciation in the Uinta Mountains, Utah, USA. Abstract EGU2013-318, presented at the 2013 Spring Meeting, EGU, Vienna, Austria, 7-12 April.
 45. *Huss, E., **Laabs, B.J.C.**, Leonard, E.M., Licciardi, J.M., Plummer, M.A., Caffee, M.W. 2012. Pace of glacial retreat and limits on paleoclimate conditions for the Pine Creek Glacier, Montana, during the Pinedale Glaciation. Abstract C53A-0823, presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.
 46. Leonard, E.M., **Laabs, B.J.C.**, Plummer, M.A., Huss, E., Spiess, V.M., Mackall, B.T., Jacobsen, R.E., and Quirk, B., 2012. Climate along the crest of the US Rocky Mountains during the last glaciation: preliminary insights from numerical modeling of paleoglaciers. Abstract PP51A-2106, presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.
 47. *Quirk, B.J., **Laabs, B.J.C.**, Leonard, E.M., Caffee, M.W., 2012. Cosmogenic ¹⁰Be Exposure Age of the Cut Bank Creek terminal moraine, Glacier National Park, MT. Abstract C53A-0824, presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.
 48. *Carey, M.R., **Laabs, B.J.C.**, and Applegate, P.J., 2011. Testing the relationship of height and cosmogenic exposure age of moraine boulders. *Abstracts with Programs, Geological Society of America* 43 (5), 271.
 49. *Krueger, C.R., **Laabs, B.J.C.**, and *Leggett, A., 2011. Meltwater contribution of glaciers in the Uinta and Wasatch Mountains to Pluvial Lake Bonneville. *Abstracts with Programs, Geological Society of America* 43 (5), 273.
 50. **Laabs, B.J.C.**, and Munroe, J.S., 2011. Glaciology of the Last Glacial Maximum, Uinta Mountains, northeastern Utah. *Abstracts with Programs, Geological Society of America* 43 (5), 177.
 51. [§]**Laabs, B.J.C.**, and Munroe, J.S., 2011. The Pleistocene Glacial Record of Northern Utah and Nevada, U.S.A.: Support for Moisture Control of Mountain Glacier Changes during the Last Glaciation. XVIII INQUA-Congress, Abstract 2202.
 52. **Laabs, B.J.C.**, Munroe, J.S., *Best, L.C., and Caffee, M.W., 2011. Cosmogenic ¹⁰Be exposure age limits on the Angel Lake Glaciation, Ruby Mountains, northeastern Nevada. *Eos, Transactions of the American Geophysical Union* 92, Paper PP51C-1867.
 53. Leonard E.M., **Laabs, B.J.C.**, Refsnider K., Plummer, M.A., 2011. Changing precipitation regimes and patterns of LGM glaciation in the Rocky Mountains of the western United States. Invited talk and Abstract, XVIII INQUA Congress, Bern.
 54. Munroe, J.S., *Crocker, T.A., *Giesche, A.M., *Rahison, L.E., and **Laabs, B.J.C.**, 2011. Developing a Holocene Neoglacial chronology for Glacier National Park, Montana. *Abstracts with Programs, Geological Society of America* 43 (5), 177.
 55. Munroe, J.S., and **Laabs, B.J.C.**, 2011. Constraining Late Pleistocene pluvial lake chronologies in northeastern Nevada. *Eos, Transactions of the American Geophysical Union* 92, Paper PP51C-1874.

56. § **Laabs, B.J.C.**, Marchetti, D.W., Munroe, J.S., Gosse, J.C., Refsnider, K.A., Mickelson, D.M., 2010. Cosmogenic ¹⁰Be exposure-age limits on terminal moraines in the western Wasatch Mountains, Utah, U.S.A. *Abstracts with Programs, Geological Society of America* 42(5), 363.
57. Munroe, J.S., *Bigl, Matthew F., *Cavanaugh, T.J., *Corenthal, L., *Duran, L.T., *Eglite, E., and **Laabs, B.J.C.**, 2010. A lacustrine-based Mid- to Late-Holocene history of the Agassiz Glacier, Glacier National Park, Montana, U.S.A. *Abstracts with Programs, Geological Society of America* 42(5), 661.
58. *Applegate, P.J., Urban, N.M., Kelly, M.A., Lowell, T.V., **Laabs, B.J.C.**, and Alley, R.B., 2009. Unifying cosmogenic exposure dating and cosmogenic geomorphology with process modeling. *Abstracts with Programs, Geological Society of America* 41(3), 24.
59. *Badding, M.E., **Laabs, B.J.C.**, and Munroe, J.S., 2009. Paleoclimatic significance of equilibrium line altitudes in the northeastern Great Basin during the Angel Lake Glaciation: *Abstracts with Programs, Geological Society of America* 41(3), 25.
60. *Best, L.C., Plummer, M.A., and **Laabs, B.J.C.**, 2009. Modeling the 20th century retreat of the Agassiz Glacier, Glacier National Park, Montana. *Abstracts with Programs, Geological Society of America* 41(7), 503.
61. **Laabs, B.J.C.**, and Munroe, J.S., 2009. Developing the Late Quaternary record of Pluvial Lake Clover, northern Great Basin, U.S.A. *Eos, Transactions of the American Geophysical Union* 90(52), Paper PP11D-1351.
62. Munroe, J.S., and **Laabs, B.J.C.**, 2009. A 7000-year lacustrine record from Angel Lake, Nevada. *Eos, Transactions of the American Geophysical Union* 90(52), Paper PP23C-1419.
63. *Wendler, L.C., and **Laabs, B.J.C.**, 2009. Reconstructions of Latest Pleistocene glaciers and paleoclimate in the Ruby-East Humboldt Mountains, Nevada, U.S.A.: *Abstracts with Programs, Geological Society of America* 41(3), 25.
64. *Applegate, P.J., **Laabs, B.J.C.**, Alley, R.B., 2008. Interpreting cosmogenic exposure dates from moraines using geomorphic process modeling: *Abstracts with Programs, Geological Society of America* 40(2), 77.
65. **Laabs, B.J.C.**, and Munroe, J.S., 2008. Glacial and pluvial records of the Angel Lake Glaciation in northeastern Nevada and inferences of Latest Pleistocene climate. *Abstracts with Programs, Geological Society of America* 41: Paper 146-4.
66. **Laabs, B.J.C.**, *Bash, E.B., *Refsnider, K.A., *Becker, R.A., Munroe, J.M., Mickelson, D.M., and Singer, B.S., 2007. Cosmogenic surface-exposure age limits for Latest-Pleistocene glaciation and paleoclimatic inferences in the American Fork Canyon, Wasatch Mountains, Utah, U.S.A.: *Eos, Transactions of the American Geophysical Union* 88(52).
67. **Laabs, B.J.C.**, Mickelson, D.M., *Refsnider, K.A., Munroe, J.S., Singer, B.S., and Caffee, M.W., 2007. Cosmogenic chronology of latest Pleistocene glaciation in the Uinta Mountains, Utah: implications for precipitation variability in the western U.S.A. *Quaternary International*, v. 167-168 Supplement (XVII INQUA meeting), 225-226.
68. *Kohorst, T.A., and **Laabs, B.J.C.**, 2007. Till genesis and moraine deposition during Pleistocene glaciations in the Uinta Mountains, Utah: *Abstracts with Programs, Geological Society of America* 39, Paper 20-7.
69. *Bash, E.R., and **Laabs, B.J.C.**, 2006: Climate during the Last Glacial Maximum in the Wasatch Mountains Inferred from Glacier Mass-Balance and Ice-Flow Modeling: *Eos, Transactions of the American Geophysical Union* 87(52).
70. **Laabs, B.J.C.**, Munroe, J.S., Rosenbaum, J.G., and Refsnider, K.A., 2006. New Cosmogenic ¹⁰Be Exposure-Age Limits on Terminal Moraines of the Last Glaciation in the Bear River Drainage, Uinta Mountains, Utah: *Eos, Transactions of the American Geophysical Union* 87(52).
71. **Laabs, B.J.C.**, *Refsnider, K.A., and Plummer, M.A., 2006. Glacial climates in the Wasatch and Uinta Mountains inferred from glacier modeling: Program and Abstracts of the 19th Biennial Meeting, American Quaternary Association, 100-101.
72. **Laabs, B.J.C.**, Munroe, J.S., *Shakun, J.D., and Caffee, M., 2005. New evidence of synchronicity between deglaciation in the Uinta Mountains and the fall of Lake Bonneville: *Abstracts with Programs, Geological Society of America* 37(7), 335.
73. Carson, E.S., Munroe, J.S., and **Laabs, B.J.C.**, 2005. Radiocarbon constraints on timing of deglaciation and deposition of valley-fill sediments from Dry Gulch, Uinta Mountains, northeastern Utah. *Abstracts with Programs, Geological Society of America* 37(7), 424-425.

74. **Laabs, B.J.C.**, *Shakun, J.D., Munroe, J.S., Mickelson, D.M., Singer, B.S., and Caffee, M., 2003. Cosmogenic-exposure age limits on the last glacial maximum in the south-central Uinta Mountains, northeastern Utah. *Abstracts with Programs, Geological Society of America*, 35(6), 541.
75. Carson, E.S., Munroe, J.S., and **Laabs, B.J.C.**, 2003. Post-Glacial Environmental Change in the Uinta Mountains, Utah. *Proceedings of the Rocky Mountain Anthropological Conference*.
76. *Shakun, J.D., Munroe, J.S., and **Laabs, B.J.C.**, 2003. Last Glacial Maximum Equilibrium-Line Altitudes and Paleoclimate, Northeastern Utah. *Abstracts with Programs, Geological Society of America* 35(6), 541.
77. **Laabs, B.J.C.**, Winguth, C., Mickelson, D.M., Colgan, P.M., and Darter, J.R., 2002. Two-Dimensional Numerical Modeling of an Ontario Lobe Flow Line During the Last Glacial Maximum. *Abstracts with Programs, Geological Society of America* 34(6), 505.
78. **Laabs, B.J.C.**, Kaufman, D.S., and Umhoefer, P.J., 2002. Basin-and-Range Tectonics and Quaternary Lake-Level Change in Bear Lake valley, Utah and Idaho. *Abstracts with Programs, Geological Society of America* 34(4), A-10.
79. **Laabs, B.J.C.**, Mickelson, D.M., Colgan, P.M., Winguth, C., Darter, J.R., and Cutler, P.M., 2002. Regional Geologic Data and Numerical Modeling of the Southern Laurentide Ice Sheet: Problems and Promise. *Abstracts with Programs, Geological Society of America* 34(2), A-43.
80. **Laabs, B.J.C.**, Kaufman, D.S., and Umhoefer, P.J., 2001. Tectonic geomorphology and late-Quaternary uplift in Bear Lake valley, Utah and Idaho. *Abstracts with Programs, Geological Society of America* 33(5), A-70.
81. **Laabs, B.J.C.**, and Principato, S.M., 1999. Bluff stratigraphy of the Lake Michigan shoreline in northern Sheboygan County, Wisconsin. *Abstracts with Programs, Geological Society of America* 31(5), A-29.
82. **Laabs, B.J.C.**, and Principato, S.M., 1999. Comparison of Three Techniques for Measuring Fabric in Till in Northeastern Wisconsin. *Abstracts with Programs, Geological Society of America* 31(7), A-52.
83. Principato, S.M., Mickelson, D.M., Socha, B., and **Laabs, B.J.C.**, 1999. Contrasting Glacial Records Between Two Formations in Northeastern Wisconsin. *Abstracts with Programs, Geological Society of America* 31(7), A-65.

(f) Synergistic Activities

1. I teach undergraduate and graduate level courses, including Historical Geology, Environmental Geology, Energy and Climate Change, Glacial Geology, Structural Geology, and Paleoclimatology. In each course, I have implemented numerous active learning approaches such as mini-research projects, inquiry-based learning methods and field trips to the western U.S. I am currently featured as a "top contributor" the Science Education Resource Center (SERC). Some of my teaching approaches and exercises are available at <http://serc.carleton.edu/teachearth/search.html>.
2. I direct the Cosmogenic Nuclide Preparation Lab in the Department of Geosciences at NDSU. The lab is a student friendly facility that supports applications of cosmogenic nuclides in glacial geology, geomorphology, paleoclimatology, volcanology and neotectonics. The lab generates approximately 70-100 targets per year for accelerator mass spectrometer analysis of ^{10}Be and ^{26}Al .
3. Over 13 years of professional teaching experience, I have advised more than forty undergraduate theses/independent studies and have served on numerous graduate student committees. My students' research has advanced knowledge of glacial geology and paleoclimate, and nearly all of my students have presented their research at a professional conference and published their work in peer-reviewed journals.
4. I have 17 years of geological field mapping (chiefly Quaternary deposits) experience in the western U.S. (Montana, Nevada, Utah, Washington, Wyoming), and have skills in using a variety of field electronics equipment (including field geographic information systems) for geologic mapping and surveying.

(g) External funding/awards

1. 2018-2020, Ice, snow, and climate change in Great Basin National Park, The Great Basin Heritage Area Partnership, role: PI, amount: \$18,200.
2. 2018-2019, Timing of the last ice age in North Dakota and the origin of the Red River Valley. NDSU EPSCoR, role: PI, amount: \$5,554.
3. 2018-2019, Developing an inventory and chronology of glacial deposits in North Dakota, NASA ND EPSCoR, role: PI, amount: \$20,597.
4. 2017-2019, Collaborative Research: P2C2: Combining glacier and paleolake records to limit Latest Pleistocene climate change in the northern Great Basin, NSF-Paleo Perspectives on Climate Change, EAR-1702898, role: PI, amount: \$139,794.
5. 2015-2020, Geoscience Scholarships (GeoS) to improve recruitment and retention of academically talented students, NSF-Scholarships for Science, Technology, Engineering and Mathematics, EAR-1458514, role: ex-PI, amount: \$639,136.
6. 2014-2016, Acquisition of an Inductively Coupled Plasma Optical Emission Spectrometer for use in Paleoclimatology, Hydrogeology and Geochemistry Studies at SUNY Geneseo, NSF-Major Research Instrumentation, EAR-1429188 role: PI, amount: \$73,496.
7. 2014, Seed Grant, Glaciation and Climate Change in the Bighorn Mountains, Wyoming, U.S.A., Purdue University Rare Isotope Measurement Lab, role: PI, equivalent amount: \$11,900 (30 accelerator mass spectrometer measurements of ^{10}Be).
8. 2013, Seed Grant, Neotectonic Uplift of the Adirondack Mountains, New York State. Purdue University Rare Isotope Measurement Lab, role: co-PI, equivalent amount: \$3900 (11 accelerator mass spectrometer measurements of ^{10}Be).
9. 2012, Seed Grant, Resolving the Timing and Cause of the Debris Avalanche at Parícutin volcano, Chile. Purdue University Rare Isotope Measurement Lab, equivalent amount: \$3900 (11 accelerator mass spectrometer measurements of ^{10}Be).
10. 2010-14, RUI Collaborative Research, Geomorphology and Land Use Dynamics: Glaciation and Paleoclimate in the Rocky Mountains During the Latest Glacial Maximum and the Subsequent Deglaciation, NSF-Geomorphology and Land Use Dynamics, EAR-1024852, role: co-PI, amount: \$89,465.
11. 2009-13, RUI Collaborative Research, Paleo Perspectives on Climate Change: Climate and Chronology of the Last Glacial-Interglacial Transition, North-Central Great Basin, U.S.A. NSF-Paleo Perspectives on Climate Change, EAR-0902472, role: PI, amount: \$247,225.
12. 2008, Gladys W. Cole Memorial Research Award, Geological Society of America, amount: \$9250.
13. 2008, Seed Grant, Latest Pleistocene Glacial Chronology of the Northeastern Great Basin. Purdue University Rare Isotope Measurement Lab, role: PI, equivalent amount: \$14,200 (40 accelerator mass spectrometer measurements of ^{10}Be).
14. 2004-08, Collaborative Research: Glacial and Paleoclimate History of the Southern Uinta Mountains, Utah, NSF Geology and Biology, EAR-0345277, role: student (in 2004) and co-PI (2005-08), amount: \$228,216.

(h) Service to the discipline/profession

1. 2017, Invited Lecture, Department of Earth and Environmental Sciences, University of Minnesota-Duluth, "Pleistocene glaciers, lakes and climate change in the northern Great Basin, Utah and Nevada".
2. 2017, Invited Speaker, Science Café, North Dakota State University, "Glaciers and Climate Change of the Past and Present."
3. 2017, Invited Speaker, Nerd Nite, Fargo, ND, "Past and Present Climate Change: Distinguishing the Natural from the Unnatural."
4. 2016-, Leader, SERC/NAGT Early Career Workshop for Geoscience Faculty, held every summer at the University of Maryland.
5. 2011-, Associate Editor, *Geological Society of America Bulletin*.
6. 2015, Field Trip Co-Leader, International Limnogeology Congress VI, "New investigations of Pleistocene pluvial and glacial records from the northeastern Great Basin."

7. 2015, Invited Lecture, School of Earth Science and Environmental Sustainability, Northern Arizona University, "Response of mountain glaciers and lakes to climate changes of the last glacial-interglacial transition, Great Basin, U.S.A."
3. 2014, Session co-chair, Geological Society of America, Northeastern Section Meeting, Lancaster, PA, "Glacial records from northeastern North America and beyond."
4. 2013, Session co-chair, Annual Meeting of the Geological Society of America, Denver, CO, "Late Quaternary climate changes in the western U.S."
5. 2013, Invited Lecture, Department of Geological Sciences, Binghamton University, "Pleistocene glaciers, lakes and climate change in the northern Great Basin, Utah and Nevada".
6. 2013, Invited Lecture, Department of Geology, University at Buffalo, "Pleistocene glaciers, lakes and climate change in the northern Great Basin, Utah and Nevada".
7. 2012, Invited Lecture, Department of Earth Sciences, University of New Hampshire, "The last Pleistocene glaciation in northern Utah and Nevada".
8. 2011-13, Board Member, Geological Society of America, Quaternary Geology and Geomorphology Division.
9. 2011, Invited Speaker, International Quaternary Congress in Bern, Switzerland, "The glacial record of northern Utah and Nevada: support for moisture control of mountain glacier changes during the last glaciation".
10. 2011, Field Trip Co-Leader, Geological Society of America, Rocky Mountain/Cordilleran Section Meeting in Logan, UT, "New investigations of Pleistocene glacial and pluvial records in northeastern Nevada".
11. 2011, Session Co-Chair, Geological Society of America, Rocky Mountain/Cordilleran Joint Section Meeting in Logan, UT, "Lake Bonneville and Beyond: Glacial-Pluvial Records of the Great Basin".
12. 2010, Invited Speaker, Geological Society of America, Annual Meeting in Denver, CO, "Cosmogenic ¹⁰Be exposure-age limits on terminal moraines in the western Wasatch Mountains, Utah, U.S.A."
13. 2010, Invited Presenter, SERC Online Workshop, Teaching About Climate Change Using Data and Models, "Teaching Global Energy Balance Using STELLA."
14. 2010, nominee for panel of the Geological Society of America, Quaternary Geology and Geomorphology Division.
15. 2009, Invited Lecture, Department of Geology, University of Vermont, "The Last Glaciation in Northern Utah: New Findings from a Classic Record".
16. 2008-, reviewed proposals for the NSF-Geomorphology and Land Use Dynamics, Paleo Perspectives on Climate Change, Global Change, CAREER, and Sedimentary Geology programs.
17. 2008, Invited Lecture, Department of Geosciences, Pennsylvania State University, Climate Research Seminar Series, "The Last Glacial Maximum in northern Utah".
18. 2007-, reviewed manuscripts for *Quaternary Research*, *Geology*, *GSA Bulletin*, *Journal of Quaternary Science*, *Quaternary Science Reviews*, *Nature Geoscience*, *Paleo*³, *Earth and Planetary Science Letters*, *Journal of Climate*.
19. 2007, Reviewer, introductory-level textbook, *How Does Earth Work? 2nd Edition*, Smith and Pun, ISBN 0136003680.
20. 2005, Field Trip Co-Leader, Geological Society of America, Annual Meeting in Salt Lake City, UT, "From cirques to canyon cutting: new research in the Uinta Mountains, Utah".
21. 2003, Session Co-Chair, Geological Society of America, Annual Meeting in Seattle, WA, "Quaternary Landscape Change in the Western U.S."

(i) Collaborators and Affiliations

Collaborators and co-authors (partial list)

Richard Alley and **Patrick Aplegate**, Pennsylvania State University; **Will Amidon**, Middlebury College; **Richard Becker**, University of Wisconsin-Madison; **Jason Briner**, SUNY Buffalo; **Keith Brugger**, University of Minnesota-Morris; **Marc Caffee**, PRIME Lab, Purdue University; **Eric Carson**, Wisconsin Natural History and Geological Survey, Madison, WI; **Stephanie Day**, North Dakota State University; **Seth Dee**, Nevada Bureau of Mines and Geology; **Brian Jicha**, University of Wisconsin-Madison; **Darrell Kaufman**, Northern Arizona University; **Eric Leonard**, Colorado College; **Joseph Licciardi**, University of

New Hampshire; **Dave Mickelson**, University of Wisconsin-Madison; **Jeff Moore**, University of Utah; **Katrina Moser**, Western Ontario University; **Jeffrey Munroe**, Middlebury College; **Mitchell Plummer**, Idaho National Laboratory; **David Porinchu**, University of Georgia; **Kurt Refsnider**, Prescott College; **Brad Singer**, University of Wisconsin-Madison.

Graduate and Postdoctoral Advisors

Ph.D. - Dave Mickelson and Brad Singer, University of Wisconsin-Madison

M.S. - Darrell S. Kaufman, Northern Arizona University