

Curriculum Vitae for Jeffrey S. Munroe

April, 2023

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Specialty: Mountain Geomorphology and Paleoclimatology

Education and Theses:

- **Ph.D.** May 2001, University of Wisconsin-Madison: “*Late Quaternary history of the northern Uinta Mountains, northeastern Utah*” David M. Mickelson, advisor
- **M.S.** May 1996, University of Wisconsin-Madison: “*Glacial geology and soil development in the Arctic Foothills between Galbraith and Toolik Lakes, Alaska*” David M. Mickelson, advisor
- **B.A.** May 1994, Bowdoin College: “*Sedimentology and paleoenvironments of the Pleistocene Flounder Flat complex, Nushagak-Bristol Bay lowland, southwestern Alaska*” Peter D. Lea, advisor

Professional Appointments:

- **Philip Battell Stewart and Sarah Frances Cowles Stewart Professor of Geology**, Middlebury College, July 2019 to present
- **Professor**, Middlebury College, July 2013 to June 2019
- **Fulbright Guest Professor of Natural Sciences**, University of Innsbruck, summer semester 2018
- **Associate Professor**, Middlebury College, July 2008 to June 2013
- **Assistant Professor**, Middlebury College, July 2003 to June 2008
- **Visiting Assistant Professor**, Middlebury College, July 2001 to June 2003
- **Visiting Instructor of Earth Sciences**, Northland College, July 1996 to June 1997

Peer-Reviewed Publications:

1. Peterson, A.T., Berthiaume, K., Klett, M., and **Munroe, J.S.**, 2023: Linking repeat photography and remote sensing to assess treeline rise with climate warming: Mount of the Holy Cross, Colorado. *Arctic, Antarctic, and Alpine Research* (in press).
2. **Munroe, J.S.**, and Handwerker, A.L., 2023: Examining the Variability of Rock Glacier Meltwater in Space and Time in High-Elevation Environments of Utah, USA. *Frontiers in Earth Science—Hydrosphere*, <https://doi.org/10.3389/feart.2023.1129314>.

3. **Munroe, J.S.**, and Handwerger, A.L., 2023: Contribution of rock glacier discharge to late summer and fall streamflow in the Uinta Mountains, Utah, USA. *Hydrology and Earth System Science*, 27: 543-557, <https://doi.org/10.5194/hess-27-543-2023>.
4. **Munroe, J.S.**, 2022: Testing the 'Vineyard Geologic Identity' concept in Marquette-producing vineyards in the Champlain Valley, Vermont, USA. *Journal of Wine Research*, <https://doi.org/10.1080/09571264.2022.2151993>.
5. **Munroe, J.S.**, 2022: Relation between regional drought and mountain dust deposition revealed by a 10-year record from an alpine critical zone. *Science of the Total Environment*, 844: 156999, <http://dx.doi.org/10.1016/j.scitotenv.2022.156999>.
6. Belanger, G.K.*, Amidon, W.H., Laabs, B.J., **Munroe, J.S.**, and Quirk, B.J., 2021: Modelling climate constraints on the formation of pluvial Lake Bonneville in the Great Basin, United States. *Journal of Quaternary Science*, 37(3): 478-488, <https://doi.org/10.1002/jqs.3394>.
7. Brencher, G.*, Handwerger, A.L., and **Munroe, J.S.**, 2021: InSAR-based characterization of rock glacier movement in the Uinta Mountains, Utah, USA. *The Cryosphere*, 15: 4823-4844, <https://doi.org/10.5194/tc-15-4823-2021>.
8. **Munroe, J. S.**, Ryan, Peter C., and Proctor, A.*, 2021: Pedogenic clay formation from allochthonous parent materials in a periglacial alpine critical zone. *Catena*, 203: 105324, <https://doi.org/10.1016/j.catena.2021.105324>.
9. Routson, C. C., Kaufman, D. S., McKay, N. P., Erb, M. P., Arcusa, S. H., Brown, K. J., Kirby, M. E., Marsicek, J. P., Anderson, R. S., Jiménez-Moreno, G., Rodysill, J. R., Lachniet, M. S., Fritz, S. C., Bennett, J. R., Goman, M. F., Metcalfe, S. E., Galloway, J. M., Schoups, G., Wahl, D. B., Morris, J. L., Staines-Urías, F., Dawson, A., Shuman, B. N., Gavin, D. G., **Munroe, J. S.**, and Cumming, B. F., 2021: A multiproxy database of western North American Holocene paleoclimate records, *Earth System Science Data*, 13: 1613–1632, <https://doi.org/10.5194/essd-13-1613-2021>.
10. **Munroe, J.**, Kimble, K.*, Spötl, C. et al., 2021: Cryogenic cave carbonate and implications for thawing permafrost at Winter Wonderland Cave, Utah, USA. *Scientific Reports* 11, 6430, <https://doi.org/10.1038/s41598-021-85658-9>.
11. **Munroe, J. S.**, 2021: First investigation of perennial ice in Winter Wonderland Cave, Uinta Mountains, Utah, USA. *The Cryosphere*, 15, 863–881, <https://doi.org/10.5194/tc-15-863-2021>.
12. **Munroe, J.S.**, McElroy, R.*, O'Keefe, S.*, Peters, A.*, and Wasson, L.*, 2020: Holocene Records of Eolian Dust Deposition from High-Elevation Lakes in the Uinta Mountains, Utah, USA. *Journal of Quaternary Science*, 1-10, <https://doi.org/10.1002/jqs.3250>.
13. **Munroe, J.S.**, 2020: Late-Holocene Hydroclimate Inferences for the Northern Great Basin from Little Lake, Elko County, Nevada, USA. *Quaternary Science Reviews*, 244, doi.org/10.1016/j.quascirev.2020.106497.
14. **Munroe, J.S.**, Norris, E.D.*, Olson, P.M.*, Ryan, P.C., Tappa, M.J., and Beard, B.L., 2020: Quantifying the Contribution of Dust to Alpine Soils in the Periglacial Zone of the Uinta Mountains, Utah, USA. *Geoderma*, 378, doi.org/10.1016/j.geoderma.2020.114631.
15. Laabs, B.J.C., Licciardi, J.M., Leonard, E.M., **Munroe, J.S.**, and Marchetti, D.W., 2020: Updated Cosmogenic Chronologies of Pleistocene Mountain Glaciation in the Western

- United States and Associated Paleoclimate Inferences. *Quaternary Science Reviews*, 242, doi.org/10.1016/j.quascirev.2020.106427.
16. **Munroe, J.S.**; Walcott, C.K.*; Amidon, W.H.; Landis, J.D., 2020: A Top-to-Bottom Luminescence-Based Chronology for the Post-LGM Regression of a Great Basin Pluvial Lake. *Quaternary*, 3, 11, doi.org/10.3390/quat3020011.
 17. **Munroe, J.S.**, 2020; Ground Penetrating Radar Investigation of Late Pleistocene Shorelines of Pluvial Lake Clover, Elko County, Nevada, USA. *Quaternary*, 3, 9, doi.org/10.3390/quat3010009.
 18. **Munroe, J.S.** and Laabs, B.J.C., 2020: Multiproxy lacustrine records of post-glacial environmental change from the Uinta Mountains, Utah, USA. *Geological Society of America Bulletin*, 132(1-2): 48-64, doi.org/10.1130/B35056.1.
 19. Goodman, M.M., Carling, G.T., Fernandez, D.P., Rey, K.A., Hale, C.A., Bickmore, B.R., Nelson, S.T., and **Munroe, J.S.**, 2019: Trace element chemistry of atmospheric deposition along the Wasatch Front (Utah, USA) reflects regional playa dust and local urban aerosols. *Chemical Geology*, 530: 119317.
 20. **Munroe, J.S.**, Norris, E.D.* , Carling, G.T., Beard, B.L., Satkoski, A.M., and Liu, L., 2019: Isotope fingerprinting reveals western North America sources of modern dust in the Rocky Mountains. *Aeolian Research*, 38: 39-47.
 21. **Munroe, J.S.**, Brencher, Q.* , 2019: Holocene carbon burial in lakes of the Uinta Mountains, Utah, USA. *Quaternary*, 2(1), 13, doi.org/10.3390/quat2010013.
 22. **Munroe, J.S.**, 2018: Hydrogeomorphic controls on Holocene lacustrine loss-on-ignition records. *Journal of Paleolimnology*, 61; 53-68.
 23. **Munroe, J.S.**, 2018: Monitoring snowbank processes and cornice fall avalanches with time-lapse photography. *Cold Regions Science and Technology*, 154: 32-41.
 24. **Munroe, J.S.**, 2018: Distribution, evidence for internal ice, and possible hydrologic significance of rock glaciers in the Uinta Mountains, Utah, USA. *Quaternary Research*, 90: 50-65.
 25. **Munroe, J.S.**, Bigl, M.F.* , Silverman, A.E.* , and Laabs, B.J.C., 2018, Records of late Quaternary environmental change from high-elevation lakes in the Ruby Mountains and East Humboldt Range, Nevada, in Starratt, S.W., and Rosen, M.R., eds., From Saline to Freshwater: The Diversity of Western Lakes in Space and Time: *Geological Society of America Special Paper 536*, p. 33–51.
 26. **Munroe, J.S.**, O'Keefe, S.S.* , and Gorin, A.L.* , 2018: Chronology, stable isotopes, and glaciochemistry of perennial ice in Strickler Cavern, Idaho, USA. *Geological Society of America Bulletin*, 130: 175-192.
 27. **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: 171-174.
 28. **Munroe, J.S.**, Gorin, A.L.* , Stone, N.N.* , and Amidon, W.H., 2017: Properties, age, and significance of dunes near Snow Water Lake, Elko County, Nevada. *Quaternary Research*, 87: 24-36.
 29. **Munroe, J.S.**, Perzan, Z.M.* , and Amidon, W.H., 2016: Cave sediments constrain the latest Pleistocene advance of the Laurentide Ice Sheet in the Champlain Valley, Vermont, USA. *Journal of Quaternary Science*, 31(8): 893-904.

30. Laabs, B.J.C., and **Munroe, J.S.**, 2016: Late Pleistocene mountain glaciation in the Lake Bonneville Basin. *In* Oviatt, C.G. and Schroder, J.F., eds. Lake Bonneville: A Scientific Update: Elsevier, *Developments in Earth Surface Processes* 20, p. 462-503.
31. **Munroe, J.S.**, Laabs, B.J.C., Oviatt, C.G., and Jewell, P.W., 2015: Trip 1— New Investigations of Pleistocene Pluvial and Glacial Records from the Northeastern Great Basin, in Rosen, M.R., compiler, *Sixth International Limnogeology Congress—Field Trip Guidebook*, Reno, Nevada, June 15–19, 2015: U.S. Geological Survey Open-File Report 2015–1108, p. 89–100, doi.org/10.3133/ofr20151108.
32. Schide, K.H.* , and **Munroe, J.S.**, 2015: Alpine soil parent materials and pedogenesis in the Presidential Range of New Hampshire, U.S.A. *Arctic, Antarctic, and Alpine Research*, 47: 481-494.
33. **Munroe, J.S.**, Attwood, E.C.* , O’Keefe, S.S.* , and Quackenbush, P.J.M.* , 2015: Eolian deposition in the alpine zone of the Uinta Mountains, Utah, USA. *Catena*, 124: 119-129.
34. Bockheim, J.G., and **Munroe, J.S.**, 2014: Organic carbon pools and genesis of alpine soils with permafrost: a review. *Arctic, Antarctic, and Alpine Research*, 46: 987-1006.
35. **Munroe, J.S.**, 2014: Properties of modern dust accumulating in the Uinta Mountains, Utah, USA, and implications for the regional dust system of the Rocky Mountains. *Earth Surface Processes and Landforms*, 39: 1979-1988.
36. Capers, R.S., Kimball, K.D., McFarland, K.P., Jones, M.T., Lloyd, A.H., **Munroe, J.S.**, Fortin, F., Mattrick, C., Goren, J., Sperduto, D.D., and Paradis, R., 2013: Establishing alpine research priorities in northeastern North America. *Northeastern Naturalist*, 20(4): 559-577.
37. **Munroe, J.S.**, and Laabs, B.J.C., 2013: Latest Pleistocene history of pluvial Lake Franklin, northeastern Nevada, USA. *Geological Society of America Bulletin*, 125: 322-342.
38. **Munroe, J.S.**, Klem, C.M.* , and Bigl, M.F.* , 2013: A lacustrine sedimentary record of Holocene periglacial activity from the Uinta Mountains, Utah, U.S.A. *Quaternary Research*, 79: 101-109.
39. 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, USA. *Earth and Planetary Science Letters*, 361: 16-25.
40. **Munroe, J.S.**, and Laabs, B.J.C., 2013: Temporal correspondence between pluvial lake highstands in the southwestern US and Heinrich Event 1. *Journal of Quaternary Science*, 28: 49-58.
41. **Munroe, J.S.**, Crocker, T.A.* , Giesche, A.M.* , Rahlson, L.E.* , Duran, L.T.* , Bigl, M.F.* , and Laabs, B.J.C., 2012: A lacustrine-based Neoglacial record for Glacier National Park, Montana, USA. *Quaternary Science Reviews*, 53: 39-54.
42. **Munroe, J.S.**, 2012: Lacustrine records of post-glacial environmental change from the Nulhegan Basin, Vermont, USA. *Journal of Quaternary Science*, 27: 639-648.
43. **Munroe, J.S.**, 2012: Physical, Chemical and Thermal Properties of Soils Across a Forest-Meadow Ecotone in the Uinta Mountains, Northeastern Utah, U.S.A. *Arctic, Antarctic, and Alpine Research*, 44: 95-106.
44. 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.
45. Carlson, B.Z.*, **Munroe, J.S.**, and Hegman, B., 2011: Distribution of alpine tundra in the Adirondack Mountains of New York, USA. *Arctic, Antarctic, and Alpine Research*, 43(3): 331-342.
 46. **Munroe, J.S.**, and Laabs, B.J.C., 2011: New investigations of Pleistocene glacial and pluvial records in northeastern Nevada, in Lee, J., and Evans, J.P., eds., Geologic Field Trips to the Basin and Range, Rocky Mountains, Snake River Plan, and Terranes of the U.S. Cordillera: Geological Society of America Field Guide 21, p. 1-25.
 47. Tingstad, A.H., Moser, K.A., MacDonald, G.M., and **Munroe, J.S.**, 2011: A ~13,000-year paleolimnological record from the Uinta Mountains, Utah, inferred from diatoms and loss-on-ignition analysis. *Quaternary International*, 235: 48-56.
 48. Corbett, L.B.*, and **Munroe, J.S.**, 2010: Investigating the influence of hydrogeomorphic setting on the response of lake sedimentation to climatic changes in the Uinta Mountains, Utah, USA. *Journal of Paleolimnology*, 44(1): 311-325.
 49. **Munroe, J.S.** and Laabs, B.J.C., 2009: Glacial Geologic Map of the Uinta Mountains Area, Utah and Wyoming. Utah Geological Survey, Miscellaneous Publication 09-4DM.
 50. Laabs, B.J.C., Refsnider, K.A., **Munroe, J.S.**, Mickelson, D.M., Applegate, P.J., Singer, B.S., and Caffee, M.W., 2009: Latest Pleistocene glacial chronology of the Uinta Mountains: Support for Moisture-Driven Asynchrony of the Last Deglaciation. *Quaternary Science Reviews*, 28: 1171-1187.
 51. **Munroe, J.S.**, 2008: Alpine Soils on Mt. Mansfield, Vermont, USA: Pedology, History, and Intraregional Comparison. *Soil Science Society of America Journal*, 72(2): 524-533.
 52. **Munroe, J.S.**, Doolittle, J.A., Kanevskiy, M.Z., Hinkel, K.M., Jones, B.M., Shur, Y., Nelson, F.E., Kimble, J.M., 2007: Application of Ground-Penetrating Radar Imagery for Three-Dimensional Visualization of Near-Surface Structures in Ice-Rich Permafrost, Barrow, Alaska. *Permafrost and Periglacial Processes*, 18(4): 309-321.
 53. **Munroe, J.S.**, Ryan, P.C., Carlson, H.A.*, and Miller, E.K., 2007: Testing Latest Wisconsinan Ice Flow Directions in Vermont through Quantitative X-ray Diffraction Analysis of Soil Mineralogy. *Northeastern Geology and Environmental Sciences*, 29(4): 263-275.
 54. **Munroe, J.S.**, 2007: Properties of Alpine Soils Associated with Well-Developed Sorted Polygons in the Uinta Mountains, Utah, U.S.A. *Arctic, Antarctic, and Alpine Research*, 39(4): 578-591.
 55. **Munroe, J.S.**, 2007: Exploring Relationships Between Watershed Properties and Holocene Loss-On-Ignition Records in High-Elevation Lakes, Southern Uinta Mountains, Utah, U.S.A. *Arctic, Antarctic, and Alpine Research*, 39(4): 556-565.
 56. Porinchu, D.F., Moser, K.M., and **Munroe, J.S.**, 2007: Development of a Midge-Based Summer Surface Water Temperature Inference Model for the Great Basin of the Western United States. *Arctic, Antarctic, and Alpine Research*, 39(4): 566-567.
 57. 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(4): 537-548.

58. **Munroe, J.S.**, Laabs, B.J.C., Moser, K.A., and Gurrieri, J.T., 2007: UINTAS 2006: the Uinta Interdisciplinary Assessment Symposium, Snowbird, Utah, May 2006—Introduction. *Arctic, Antarctic, and Alpine Research*, 39(4): 517-520.
59. Wang, J., Zhou, S., Tang, S., Colgan, P.M., and **Munroe, J.S.**, 2007: The Sequence of Quaternary Glaciations Around Tanggula Pass. *Journal of Glaciology and Geocryology*, 29(1): 149-155 (in Chinese).
60. **Munroe, J.S.**, 2007: In the Footsteps of Timothy O’Sullivan: Rephotographing the 1869 King Survey in the Headwaters of the Bear River, Uinta Mountains. *Utah Historical Quarterly*, 75: 238-257.
61. Roush, W.* , **Munroe, J.S.**, and Fagre, D.B., 2007: Development of a Spatial Analysis Method Using Ground-Based Repeat Photography to Detect Changes in the Alpine Treeline Ecotone, Glacier National Park, Montana, U.S.A. *Arctic, Antarctic, and Alpine Research*, 39: 297-308.
62. **Munroe, J.S.**, Farrugia, G.* , and Ryan, P.C., 2007: Parent Material and Chemical Weathering in Alpine Soils on Mt. Mansfield, Vermont, USA. *Catena* 70:39-48.
63. **Munroe, J.S.**, Laabs, B.J.C., Shakun, J.D.* , Singer, B.S., Mickelson, D.M., Refsnider, K., and Caffee, M. 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.
64. Colgan, P.M., **Munroe, J.S.**, and Zhou, S., 2006: Cosmogenic Nuclide Evidence for the Limited Extent of Late Glacial Maximum Glaciers in the Tanggula Shan of the Central Tibetan Plateau. *Quaternary Research*, 65: 336-339.
65. **Munroe, J.S.**, 2006: Investigating the Spatial Distribution of Summit Flats in the Uinta Mountains of Northeastern Utah, USA. *Geomorphology*, 75: 437-449.
66. **Munroe, J.S.**, 2005: Glacial Geology of the Northern Uinta Mountains. in Dehler et al., eds., Uinta Mountain Geology: Salt Lake City, Utah, Utah Geological Association Publication 33.
67. **Munroe, J.S.**, Laabs, B.J.C., Pederson, J.L., and Carson, E.C., 2005: From Cirques to Canyon Cutting: New Quaternary Research in the Uinta Mountains. in Pederson, J. L., and Dehler, C. M., eds., Interior Western United States: Geological Society of America Field Guide 6, p. 53-78.
68. Carson, E.C. and **Munroe, J.S.**, 2005: Tree-ring Based Reconstruction of Streamflow for Ashley Creek, Northeastern Utah: Implications for Paleohydrology of the Southern Uinta Mountains. *The Holocene*, 14(4): 602-611.
69. **Munroe, J.S.**, 2003: Estimates of Little Ice Age Climate Inferred Through Historical Rephotography, Northern Uinta Mountains, U.S.A. *Arctic, Antarctic and Alpine Research*, 35(4): 489-498.
70. Bockheim, J.G., O’Brien, J.D., **Munroe, J.S.**, and Hinkel, K.M., 2003: Factors Affecting the Distribution of *Populus balsamifera* on the North Slope of Alaska, U.S.A. *Arctic, Antarctic and Alpine Research*, 35(3): 331-340.
71. **Munroe, J.S.**, 2003: Holocene Timberline and Palaeoclimate of the Northern Uinta Mountains, Northeastern Utah, U.S.A. *The Holocene*, 13(2): 175-185.

72. **Munroe, J.S.** and Mickelson, D.M., 2002: Last Glacial Maximum Equilibrium-Line Altitudes and Paleoclimate, Northern Uinta Mountains, Northeastern Utah, U.S.A. *Journal of Glaciology*, 48(161): 257-266.
73. **Munroe, J.S.**, 2002: Timing of Post-Glacial Cirque Reoccupation in the Northern Uinta Mountains, Northeastern Utah, U.S.A. *Arctic, Antarctic and Alpine Research*, 34(1): 38-48.
74. **Munroe, J.S.** and Bockheim, J.G., 2001: Soil Development in Low-Arctic Tundra of the Northern Brooks Range, Alaska. *Arctic, Antarctic and Alpine Research*, 33(1): 78-87.
75. Bockheim, J.G., **Munroe, J.S.**, Douglass, D.C., and Koerner, D., 2000: Soil Development along an Elevational Gradient in the Southeastern Uinta Mountains, Utah, USA. *Catena*, 39: 169-185.

*Middlebury student co-author

Projects Supported by Grants from the US National Science Foundation (total \$2,218,457):

- **September, 2020:** “RUI: Collaborative Research: Network Cluster: Dust in the Critical Zone from the Great Basin to the Rocky Mountains” \$777,495 from the NSF Critical Zone program
- **March, 2020:** “RUI: Water from Stone -- Investigating the Hydrologic Role of Rock Glaciers” \$337,639 from the NSF Hydrology program
- **August, 2019:** “MRI: Acquisition of a Cavity Ring-Down Spectrometer for Analyzing Stable Isotopes in Water Samples at Middlebury College” \$103,295 from the NSF Major Research Instrumentation program
- **July, 2017:** “Collaborative Research-P2C2-RUI: Combining Glacier and Paleolake Records to Limit Latest Pleistocene Climate Change in the Northern Great Basin” \$74,014 from the NSF Paleo-Perspectives on Climate Change program
- **August, 2015:** “RUI: Alpine Loess, Periglacial Uplands, and Exotic Additions: Investigating Past and Present Dust Deposition in the Alpine Zone of the Uinta Mountains, Utah” \$202,952 from the NSF Geomorphology program
- **March, 2010:** “MRI-R2: Acquisition of an XRD, FTIR, and WDS for Integrated Mineralogical and Geochemical Studies at Middlebury College” \$299,584 from the NSF Major Research Instrumentation program
- **August, 2009:** “RUI Collaborative Proposal: Climate and Chronology of the Last Glacial-Interglacial Transition, North-Central Great Basin, U.S.A.” \$151,459 from the NSF Paleo-Perspectives on Climate Change program
- **August, 2009:** “MRI: Acquisition of a Pycnometer, C:N Analyzer, and Freeze Dryer for use in Lake and Paleoclimate Studies at Middlebury College” \$127,108 from the NSF Major Research Instrumentation program
- **January, 2008:** “SGER: Developing a chronology for Neoglaciation in Glacier National Park, Montana” \$7,000 from the NSF Small Grants for Exploratory Research program
- **January, 2006:** “Workshop: UINTAS 2006—the Uinta Interdisciplinary Assessment Symposium” \$7,000 from NSF Geomorphology and Land-Use Dynamics Program

- **September, 2005:** Supplement to *“Collaborative/RUI: Late-Quaternary Glacial and Paleoclimate History of the Uinta Mountains, Northeastern Utah”* \$12,878 from the NSF Earth Science Program
- **August, 2004:** *“Collaborative/RUI: Late-Quaternary Glacial and Paleoclimate History of the Uinta Mountains, Northeastern Utah”* \$88,439 from the NSF Earth Science Program
- **May, 2004:** *“Collaborative: High-Resolution Records of Holocene Climate Change, Drought Variability, and Monsoon Behavior from the Uinta Mountains of Utah”* \$18,002 from the NSF Earth Systems History Program
- **May 2002:** *“Final research planning visit for collaborative study of the extent of Late Pleistocene glaciation on the Eastern Qinghai-Xizang Plateau”* \$11,592 from NSF International Program

Other Research Projects Supported by External Funding (total: \$116,650):

- **March, 2017:** *“Linking Glacial Geology and Glaciology: Field Observations of Modern Glaciers in the Alps”* \$6,400 from the Marion and Jasper Whiting Foundation
- **March, 2015:** *“Developing a Record of Holocene Environmental Change from an Idaho Ice Cave”* \$6000 from the American Philosophical Society, \$2600 match from Middlebury College
- **June, 2013:** *“Past and Present Dust Deposition in the Alpine Zone of the Uinta Mountains, Utah”* \$10,000 from Middlebury College, Gladstone Excellence in Teaching Award
- **August, 2009:** *“Uinta Mountains Paleoclimate: Research and Significance”* \$5500 from the Ashley National Forest
- **July, 2009:** *“Developing a chronology of Holocene glacier fluctuations in Glacier National Park, Montana, USA”* \$18,000 from the National Geographic Society
- **January, 2008:** *“Developing a chronology for Neoglaciation in Glacier National Park, Montana”* \$7,000 from the American Philosophical Society
- **September, 2007:** *“Glacial mapping of the Uinta Mountains”* \$5,000 from the Ashley National Forest
- **June, 2006:** *“Glacial mapping of the northern Uinta Mountains”* \$7,350 from the Utah Geological Survey
- **January, 2006:** *“Workshop: UINTAS 2006—the Uinta Interdisciplinary Assessment Symposium”* \$7,000 from the USDA Forest Service
- **May, 2005:** *“Investigating soil development in alpine zones of the Green Mountains”* \$5,000 from the Lintilhac Foundation
- **December, 2003:** *“Acquisition of a Modern Thermogravimetric Analyzer for Use in Making Percent Loss-On-Ignition Measurements of Sediment Organic Content at Middlebury College”* \$30,000 from Vermont EPSCoR
- **February 2003:** \$500 from the American Alpine Club for *“Detecting Latest Holocene climate change in the northern Uinta Mountains through repeat photography”*
- **May 2002:** *“Geologic mapping of the southern Lake Fork Mtn. quadrangle, Uinta Mountains, northeastern Utah”* \$13,704 from USGS EDMAP Program

- **June 2000:** *“Investigation of latest Holocene climate change in the Uinta Mountains through repeat photography: retracing the route of the Hayden survey 130 years later”* \$300 from American Alpine Club
- **May 2000:** *“Timing and origin of the Manor Lands moraine complex in the Uinta Mountains with reference to the Pinedale/Bull Lake type locality in the Wind River Mountains, Wyoming”* \$2000 from Geological Society of America
- **June 1999:** *“Investigation of a Holocene paleoclimate record from the subalpine zone of the Uinta Mountains, northeastern Utah”* \$520 from Sigma Xi
- **May 1999:** *“Field investigations of the Neoglacial sequence in the Deadhorse Lake area, northern Uinta Mountains, northeastern Utah”* \$626 from American Alpine Club
- **May 1998:** *“Holocene spatial and temporal variations of the loess system in the eastern Uinta Mountains, northeastern Utah”* \$1750 from Geological Society of America

Awards and Recognition:

- Elected Fellow of the Geological Society of America, 2019
- Fulbright Visiting Professor of Natural Sciences, University of Innsbruck-Austria, 2018
- Inaugural Gladstone Excellence in Teaching Award, Middlebury College, June 2013
- Perkins Teaching Award nomination, Middlebury College, December 2002; February, 2007
- University of Wisconsin-Madison Distinguished Research Paper Award, 2003
- University of Wisconsin-Madison Vilas Fellowship, 2000-2001 academic year
- GSA Quaternary Geology and Geomorphology Division Mackin Award, Honorable Mention, October 1999
- Stanley Tyler Excellence in Teaching award, UW-Madison Department of Geology & Geophysics, May 1996

Middlebury College Appointments

- 2016 – 2020 Member of Reappointments Committee
- 2012 – 2016 Chair of Geology Department
- 2009 – 2010 Co-head of Atwater Commons

Professional Service

Conference Contributions

- Numerous invited lectures at universities across the US and in Europe
- Over 100 abstracts and conference presentations
- Frequent convener of theme-sessions at meetings of the Geological Society of America and at the International Dust Conference
- Co-leader of fieldtrips at GSA meetings and the International Paleolimnology Congress
- Coordinated *UINTAS 2006: the Uinta Interdisciplinary Assessment Symposium*, a 3-day conference that brought together academic researchers, U.S. Forest Service land managers, and state and federal scientists with an interest in the Uinta Mountains.

Reviewer Contributions

- Frequent reviewer for journals including *Arctic, Antarctic, and Alpine Research, Catena, Geology, Geological Society of America Bulletin, Geomorphology, Geoscience, The Holocene, Quaternary, Quaternary Research, Quaternary Science Reviews, and Permafrost and Periglacial Processes*
- Reviewer of proposals to the National Science Foundation, the DAAD, the Geological Society of America, and the National Geographic Society

Elected Positions

- Panelist for the Quaternary Geology & Geomorphology Division of the GSA

Professional Memberships:

- American Geophysical Union
- American Quaternary Association
- European Geosciences Union
- Geological Society of America