

CURRICULUM VITAE

Melissa L. Chipman

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Education

Ph.D. Ecology, Evolution, and Conservation Biology	University of Illinois at Urbana-Champaign	2017
M.S. Geology	University of Illinois at Urbana-Champaign	2007
B.S. Environmental Geosciences, <i>Summa cum laude</i>	Concord University	2004
B.A. Geography, <i>Summa cum laude</i>	Concord University	2004

Professional Appointments

Assistant Professor, Dept. of Earth Sciences	Syracuse University	2019-present
Postdoctoral Scholar, Dept. Earth and Planetary Sci.	Northwestern University	2017-2018
Postdoctoral Researcher, Dept. of Plant Biology	University of Illinois at Urbana-Champaign	2017
Educational Research Manager, Dept. Integrative Bio.	University of Illinois at Urbana-Champaign	2016
Visiting Research Specialist in Life Sciences	University of Illinois at Urbana-Champaign	2007-2011

Fellowships and Grants

2019	National Science Foundation Environmental Engineering Grant (\$348,682)
2019	National Science Foundation Instrumentation and Facilities Grant (\$291,825)
2018-2019	National Geographic Society, Grant # NGS-393R-18 (\$43,000)
2016-2017	University of Illinois Graduate College Dissertation Completion Fellowship
2012-2015	EPA Science to Achieve Results (STAR) Fellowship
2012	Ford Foundation Fellowship [declined to accept EPA STAR Fellowship]
2011	Program in Ecology, Evolution, and Conservation Biology Research Fellowship
2004-2006	University of Illinois Graduate College Fellowship

Honors and Awards

2016	Robert Emerson Memorial Award; School of Integrative Biology, UIUC
2014	Edward S. Deevey Award; Ecological Society of America
2014	Outstanding Fellow; Program in Ecology, Evolution, and Conservation Biology, UIUC
2014	Outstanding Teaching Assistant; top 10% of UIUC teachers as ranked by students
2007	Excellent Teaching Assistant; top 30% of UIUC teachers as ranked by students
2002-2004	Ronald E. McNair Scholar; U.S. Department of Education

Publications

1. **Chipman, M.L.** and F.S. Hu (2019) Resilience of lake biogeochemistry to boreal-forest wildfires during the late Holocene. *Biology Letters* 15: [doi:10.1098/rsbl.2019.0390](https://doi.org/10.1098/rsbl.2019.0390)
2. Lara, M.J., **M.L. Chipman**, and F.S. Hu (2018) Automated detection of thermoerosion in permafrost ecosystems using temporally dense Landsat image stacks. *Remote Sensing of the Environment* 221, [doi:10.1016/j.rse.2018.11.034](https://doi.org/10.1016/j.rse.2018.11.034).
3. **Chipman, M.L.** and F.S. Hu (2017) Linkages among climate, fire, and thermoerosion in Alaskan tundra over the past three millennia. *Journal of Geophysical Research: Biogeosciences* 122, [doi:10.1002/2017JG00402](https://doi.org/10.1002/2017JG00402).
4. Vachula, R.S., **M.L. Chipman**, and F.S. Hu (2017) Holocene climatic changes in the Alaskan Arctic as inferred from carbonate oxygen isotopes at Wahoo Lake. *Holocene* [doi:10.1177/0959683617702230](https://doi.org/10.1177/0959683617702230).
5. **Chipman, M.L.**, G.W. Kling, C.C. Lundstrom, and F.S. Hu (2016) Multiple thermo-erosional episodes during the past six millennia: Implications for the response of Arctic permafrost to climate change. *Geology* 44:439-442.
6. **Chipman, M.L.**, V. Hudspeth, P.E. Higuera, P.A. Duffy, R. Kelly, W.W. Oswald and F.S. Hu (2015) Spatiotemporal patterns of tundra fires: Late-Quaternary charcoal records from Alaska. *Biogeosciences* 12: 4017-4027.
7. Hu, F.S., P.E. Higuera, P.D. Duffy, **M.L. Chipman**, A. Young, A. Rocha, R.K. Kelly and M. Dietze (2015) Tundra fires in the Arctic: Natural variability and responses to climate change. *Frontiers in Ecology and the Environment* 13: 369-377.

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8. Kelly, R., **M.L. Chipman**, P.E. Higuera, V. Stephanova, L. Brubaker, and F.S. Hu (2013) Recent burning of boreal forests exceeds fire regime limits of the past 10,000 years. *Proceedings of the National Academy of Sciences USA* 110: 13055-13060.
9. **Chipman, M.L.**, B.F. Clegg, and F.S. Hu (2012) Variation in the moisture regime of northeastern interior Alaska and possible linkages to the Aleutian Low: inferences from a late-Holocene $\delta^{18}\text{O}$ record. *Journal of Paleolimnology* 48: 69-81.
10. Higuera, P.E., **M.L. Chipman**, J.L. Barnes, M.A. Urban, and F.S. Hu (2011) Variability of tundra fire regimes in Arctic Alaska: millennial-scale patterns and ecological implications. *Ecological Applications* 21: 3211-3226.
11. Higuera, P.E., J.L. Barnes, **M.L. Chipman**, M.A. Urban, and F.S. Hu (2011) The Burning Tundra: A Look Back at the Last 6,000 Years of Fire in the Noatak National Preserve, Northwestern Alaska. *Alaska Park Science* 10: 36-41.
12. Hu, F.S., P.E. Higuera, J.E. Walsh, W.I. Chapman, P.A. Duffy, L.B. Brubaker, and **M.L. Chipman** (2010) Tundra burning in Alaska: Linkages to climatic change and sea ice retreat. *Journal of Geophysical Research* 115: G04002, doi:10.1029/2009JG001270, 2010.
13. Clegg, B.F., G.H. Clarke, **M.L. Chipman**, M. Chou, I.R. Walker, W. Tinner, and F.S. Hu (2010) Six millennia of summer temperature variation based in midge analysis of lake sediments from Alaska. *Quaternary Science Reviews* 29: 3308-3316.
14. Kaufman, D.S. et al. including **M.L. Chipman** (2009) Recent warming reverses long-term Arctic cooling. *Science* 325: 236-1239.
15. **Chipman, M.L.**, G.H. Clarke, B.F. Clegg, I. Gregory-Eaves, and F.S. Hu (2009) A 2000-year record of climatic change at Ongoke Lake, southwest Alaska. *Journal of Paleolimnology* 41: 57-75.

Teaching

Current Courses Offered at Syracuse University

EAR 400/600	Paleoenvironmental Reconstructions (3 credit hours)	Fall 2019
EAR 400/600	Paleoecological Analysis (3 credit hours)	Spring 2019

Previous Teaching Experience at University of Illinois

IB 105	Environmental Biology (online)	Graduate Teaching Assistant	2016
IB 299	Foundations in Scientific Research Skills	Course Coordinator and Instructor	2014-2015
IB 203	Ecology	Graduate Teaching Assistant	2014
IB 452	Ecosystem Ecology	Graduate Teaching Assistant	2013
GEOL 107	Physical Geology	Graduate Teaching Assistant	2007
GEOL 101	Introductory Physical Geology	Graduate Teaching Assistant	2007

Student Advising

- 2019 Thesis Advisor. M.S. Student: Briana Edgerton, Affiliation: Department of Earth Sciences, Syracuse University, Topic: *Holocene climate reconstructions from SW Greenland inferred from oxygen isotopes of chironomid larvae.*
- 2019 Thesis Advisor. M.S. Student: Eric Deutsch, Affiliation: Department of Earth Sciences, Syracuse University, Topic: *The ecological impacts of recent burning in Alaskan tundra and boreal forests using Landsat imagery.*
- 2019 Committee Member. M.S. Student: Jessie McCraw, Affiliation: Department of Earth Sciences, Syracuse University, Topic: *Holocene coral paleoceanographic reconstruction during the LIA, emphasis on environmental effects on growth rate as shown in geochemical data, particularly El Niño*
- 2019 Committee Member. M.S. Student: Joshua Owens, Affiliation: Department of Earth Sciences, Syracuse University, Topic: *TBD*
- 2018 Mentor for an undergraduate summer project. Student: Christine Wisdom Lee, Affiliation: Department of Earth and Planetary Sciences, Northwestern University, Topic: *Impact of species and tropic level on the oxygen isotope values of Chironomidae head capsules.*
- 2014 Mentor for an undergraduate honors/thesis project. Student: Richard Vachula, Affiliation: Department of Geology, University of Illinois, Thesis title: *Holocene climatic changes in the Alaskan Arctic as inferred from oxygen-isotopic analysis.*

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- 2012 Mentor for IB 199 Biological Inspiration, Student: Mackenzie Marti, Affiliation: School of Integrative Biology and Department of Geology, University of Illinois, Project: *GIS analysis of successional and fire-disturbance dynamics in boreal forest of Alaska.*
- 2011 Mentor for the Summer Research Opportunities Program, UIUC, Student: Tahir Ibrahim, Affiliation: School of Integrative Biology, University of Illinois, Project: *Where the Grass Grows: C4 grass pollen in lake sediments from Mt. Kenya along an altitudinal gradient.*
- 2007 Mentor for undergraduate students to learn paleoecological techniques and assist in lab:
to Triet Vuong (Biochemistry, UIUC), Christy Walsh (Integrative Biology, UIUC), Emily Hopkins (Natural
2018 Resources and Environmental Sciences, UIUC), Olivia Gregario (Integrative Biology, UIUC), Cassandra Stephens (Integrative Biology, UIUC), Shelby Ruettiger (Natural Resources and Environmental Sciences, UIUC), Richard Vachula (Geology, UIUC), Annika Hansen (Earth Sciences, Northwestern U.)

Outreach

- 2019 Participant in outreach activities for visiting high school students from Winsor School, Boston MA
Created a module for students to learn about lake sediments and macrofossil analyses
- 2019 Invited speaker for Syracuse University Project Advance for New York high school teachers
- 2017 Co-organizer of the Arctic Paleoecology Workshop for Illinois science teachers (Grades 6-12):
Developing education modules based on genetics, modelling, and paleoecology.
Website: <http://publish.illinois.edu/arctic-workshop/>
- 2012 Co-organizer of the Ecosystem Ecology Workshop for Illinois science teachers (Grades 6-12):
Developing and dispersing education modules based on paleoecological data.
Website: <http://publish.illinois.edu/eew/2012-ecosystem-ecology/>
- 2010 Co-organizer of the Ecosystem Ecology Workshop for Illinois science teachers (Grades 6-12):
Developing and dispersing education modules based on paleoecological data.
Website: <http://publish.illinois.edu/eew/2010-eew/>

University and Professional Service

University Service

- 2019 Graduate Advisory Committee Member, Department of Earth Sciences, Syracuse University
- 2019 Committee Chair for Justin Hartnett, Ph.D. Dissertation Defense (Dept. of Geography, Syracuse U.) *The contribution of upper-level flow regimes to seasonal snowfall totals in upstate New York and the potential forcings behind seasonal snowfall variability*
- 2019 Committee Chair for Nicholas Zarembo, Ph.D. Qualifying Exam (Dept. of Earth Sciences, Syracuse U.), *Late-Pleistocene evolution of Oneida Lake in relation to North American hosing events, Atlantic Meridional Overturning Circulation, and abrupt climate change.*
- 2019 Committee Chair for Crystal Burgess, M.S. Thesis Defense (Dept. of Earth Sciences, Syracuse U.), *Characterizing air and soil temperatures along an urban gradient.*
- 2018 Organizer of the Geoclub Seminar Series for graduate students and postdoctoral researchers in the Dept. of Earth and Planetary Sciences, Northwestern University
- 2014 Member of the FAFU-UIUC Plant Biology Study Abroad Program advisory board: Developing an academic program for visiting students from Fujian Agricultural and Forestry University, Fuzhou, China

Professional Organizations

- Section Chair, 2017-2018, Paleoecology Section, and Ecological Society of America
Section Officer, 2013-2017, Paleoecology Section, and Ecological Society of America
- 2016 - Present Member, Geological Society of America
2008 - Present Member, Ecological Society of America
2006 - Present Member, American Geophysical Union

Professional Engagements

- 2019 Invited Speaker, School of Biology and Ecology, University of Maine, Talk title - *A tale of ice and fire: using lake sediments to understand fire regimes and permafrost thaw in the Arctic*

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- 2019 Invited Speaker, Climate Change Institute, University of Maine, Talk title - *Holocene climate change in southern Greenland from chironomid assemblages and oxygen isotopes in lake sediments*
- 2018 Session Convener, Inspire Session - The Future of Studying the Past: New Directions, Themes, and Techniques in Paleoecology, Ecological Society of America Annual Meeting
- 2017 Invited Participant, Future of Fire Workshop, organizer Dr. Kendra McLaughlan

Ad hoc Peer Reviewer

National Grant Agencies: National Science Foundation, Ecological Society of America

Journals: Arctic Antarctic and Alpine Research, Biogeosciences, Earth Surface Processes and Landforms, Forests, Geology, Geophysical Research Letters, Holocene, PeerJ, Quaternary Research, Quaternary Science Reviews, Journal of Paleolimnology

Conference Presentations

1. **Chipman, M.L.**, C. Reents, J. Greenburg, and F.S. Hu (2018) Timing of the Holocene Thermal Maximum in South Greenland inferred from insect (Diptera: Chironomidae) assemblages and oxygen isotopes. American Geophysical Union Fall Meeting, PP41B-03
2. **Chipman, M.L.**, G.E. Lasher, A. Medeiros, and Y. Axford (2018) 6500 years of climate change in South Greenland inferred from insect (Diptera: Chironomidae) assemblages. Geological Society of America Annual Meeting, Indianapolis, IN, 105-1 [Poster]
3. **Chipman, M.L.** and F.S. Hu (2016) Novel disturbance regimes in the Arctic: Paleoecological records of fire and permafrost thaw from the Alaska tundra. Geological Society of America Annual Meeting, Denver, CO, 291-6.
4. **Chipman, M.L.** and B.F. Clegg (2016) Comparison of peer- versus instructor-driven activities on undergraduate student engagement in a large introductory biology class. *in* Proceedings of the 101th Annual Meeting of the Ecological Society of America, Fort Lauderdale, FL [Poster]
5. **Chipman, M.L.**, C. Reents, J. Greenburg, and F.S. Hu (2015) Impact of climate and fires on abrupt permafrost thaw in Alaskan tundra. American Geophysical Union Fall Meeting, B34B-05
6. **Chipman, M.L.** and F.S. Hu (2015) Impacts of climate and fire on thermo-erosion in the Alaskan tundra over the late Holocene. *in* Proceedings of the 100th Annual Meeting of the Ecological Society of America, Baltimore, MD
7. **Chipman, M.L.**, V. Hudspith, P.E. Higuera, P.A. Duffy, W. Oswald, and F.S. Hu (2014) Spatiotemporal trends in Alaska tundra fires over the Late Quaternary. *in* Proceedings of the 99th Annual Meeting of the Ecological Society of America, Sacramento, CA
8. **Chipman, M.L.**, Hudspith, V., and F.S. Hu (2013) To Burn or not to Burn: Late Quaternary Fire-History Reconstructions from Alaskan Tundra. American Geophysical Union Fall Meeting, PP11A-1805 [Poster]
9. **Chipman, M.L.**, and F.S. Hu (2013) A 6000-year record of permafrost melt events from the Alaskan North Slope Alaska. *in* Proceedings of the 98th Annual Meeting of the Ecological Society of America, Minneapolis, MN
10. **Chipman, M.L.**, P.E. Higuera, J.L. Barnes, T.S. Rupp, P.A. Duffy, M. Urban, and F.S. Hu (2013) Tundra fire regimes in the Alaskan Arctic: Perspectives from the Holocene. ARC LTER Winter Meeting, March 2013, Woods Hole MA [Poster]
11. **Chipman, M.L.**, G.W. Kling, and F.S. Hu (2013) A 6000-year record of permafrost melt events from Lake NE14, North Slope Alaska. ARC LTER Winter Meeting, March 2013, Woods Hole MA [Poster]
12. **Chipman, M.L.**, F.S. Hu (2013) A 6000-year record of permafrost melt events in the Alaskan Arctic. 15th Annual Graduate Student Symposium, University of Illinois Urbana-Champaign Feb 9th 2013
13. **Chipman, M.L.**, Clegg, B.F., and F.S. Hu (2011) A carbonate- $\delta^{18}\text{O}$ record of late-Holocene moisture change in the southern Brooks Range, Alaska. American Geophysical Union Fall Meeting, PP31A-1829 [Poster]
14. **Chipman, M.L.**, P.E. Higuera, J. Allen, T.S. Rupp, M. Urban, and F.S. Hu (2009) Tundra fire-regimes in the Alaskan Arctic and the link to Holocene vegetation change. American Geophysical Union Fall Meeting, PP41B-1517 [Poster]
15. **Chipman, M.L.**, P.E. Higuera, J. Allen, T.S. Rupp, M. Urban, and F.S. Hu (2009) Tundra fire regimes and interactions with late-Holocene climate and vegetation change in the Alaskan Arctic. *in* Proceedings of the 94th Annual Meeting of the Ecological Society of America, Albuquerque, NM
16. **Chipman, M.L.**, P.E. Higuera, J. Allen, T.S. Rupp, and F.S. Hu (2008) Tundra fire regimes in the Noatak National Preserve, northwestern Alaska, since 6000 yr BP. *in* Proceedings of the 93rd Annual Meeting of the Ecological Society of America, Milwaukee, WI [Poster]
17. **Chipman, M.L.**, G. Clarke, and F.S. Hu (2006) Climatic change over the past 2000 years in southwestern Alaska. American Geophysical Union Fall Meeting, OS11A-1476 [Poster]