

## CURRICULUM VITAE

### Melissa L. Chipman

Program in Ecology, Evolution, and Conservation Biology  
University of Illinois at Urbana-Champaign

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#### EDUCATION

|  |                        |                    |
|--|------------------------|--------------------|
| Ph.D. Ecology, Evolution, and Conservation Biology     | University of Illinois | Expected Aug. 2016 |
| M.S. Geology   | University of Illinois | 2007               |
| B.S. Environmental Geosciences, <i>Summa cum laude</i> | Concord University     | 2004               |
| B.A. Geography, <i>Summa cum laude</i>                 | Concord University     | 2004               |

#### FELLOWSHIPS AND AWARDS

##### Fellowships

|           |   |
|-----------|---|
| 2012-2015 | EPA STAR Fellowship   |
| 2012-2015 | Ford Foundation Fellowship [declined]                                       |
| 2011      | Program in Ecology, Evolution, and Conservation Biology Research Fellowship |
| 2004-2006 | University of Illinois Graduate College Minority Fellowship                 |

##### Awards

|           |   |
|-----------|---|
| 2014      | Edward S. Deevey Award; Ecological Society of America                       |
| 2014      | Outstanding Fellow; Program in Ecology, Evolution, and Conservation Biology |
| 2002-2004 | Ronald E. McNair Scholar; U.S. Department of Education                      |

#### PUBLICATIONS

**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.

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.

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.

**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.

Higuera, P.E., **Chipman, M.L.**, Barnes, J.L., Urban, M.A., and Hu, F.S. (2011) Variability of tundra fire regimes in Arctic Alaska: millennial-scale patterns and ecological implications. *Ecological Applications* 21: 3211-3226.

Higuera, P.E., J.L. Barnes, **M.L. Chipman**, M. 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.

## CURRICULUM VITAE

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.

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.

Kaufman, D.S. et al. including **Chipman, M.L.** (2009) Recent warming reverses long-term Arctic cooling. *Science* 325: 236-1239.

**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.

## PUBLICATIONS IN PREPARATION

**Chipman, M.L.**, G.W. Kling, C.C. Lundstrom, and F.S. Hu (2015) Multiple thermo-erosional episodes during the past six millennia: Implications for the response of Arctic permafrost to climate change. Target journal: *Geology*

**Chipman, M.L.**, J. Stone, E. Berg, R.S. Anderson, I. Gregory-Eaves, and F.S. Hu (2015) A 13,500-year record of climate and vegetation change from Rainbow Lake, south-central Alaska. Target journal: *Quaternary Science Reviews*

Vachula, R.S., **M.L. Chipman**, and F.S. Hu (2015) Holocene climatic changes in the Alaskan Arctic as inferred from carbonate oxygen isotopes. Target journal: *Holocene*

## PROFESSIONAL AND TEACHING EXPERIENCE

2014 **Course Coordinator and Instructor:** Foundations in Scientific Research Skills (IB 299) – to University of Illinois, Dept. of Plant Biology.

2015 **Course Objectives:** Students developed a working knowledge of reading and discussing primary literature, practiced skills in the analysis and discussion of research data, achieved greater proficiency in technical speaking and writing in English, and reviewed ethical practices in academia.

**Duties:** Co-developed course materials for incoming international students. Developed modules focused on reading and understanding primary scientific literature, practices in scientific writing, and oral presentations. Lectured and created both in-class activities and take-home assignments.

2014 **Graduate Teaching Assistant:** Ecology (IB 203) - University of Illinois, Dept. of Integrative Biology. *\*Ranked as Outstanding (top 10% of all teachers) by students*

**Course Objectives:** Students generated new scientific knowledge by conducting field-based ecological research and actively engaging in all steps of the scientific process, including formulating hypotheses, study design, field collection, data analyses, writing a research paper, and presenting results.

**Duties:** Led two sections (32 students) through three distinct field-based ecology projects, two of which were largely student driven, Lectured on the scientific method, introductory statistics, and scientific writing. Worked closely with students on research projects, which included intensive field collection and multiple iterations of the writing component.

2013 **Graduate Teaching Assistant:** Ecosystem Ecology (IB 452) - University of Illinois, Department of Integrative Biology.

**Duties:** Graded exams and provided critical feedback on research papers.

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- 2007 **Visiting Research Specialist in Life Sciences** - University of Illinois, Dept. of Plant Biology to **Duties:** Lab management responsibilities including waste disposal, ordering supplies, coordinating lab meetings, and supervising undergraduate lab technicians. Assisted research by doing paleoecological analyses, handling logistics for extensive field excursions to Alaska, and collaborating with PI's, graduate students, and undergraduates on several interdisciplinary projects.
- 2007 **Graduate Teaching Assistant:** Physical Geology (GEOL 107) - University of Illinois, Dept. of Geology. **Duties:** Laboratory instruction and coordination of field excursions.
- 2007 **Graduate Teaching Assistant:** Introductory Physical Geology (GEOL 101) - University of Illinois, Dept. of Geology. **Duties:** Laboratory instruction.

## OUTREACH AND MENTORING

- 2015 **Co-organizer** of the Impacts of Climate Change Workshop for Illinois science teachers (Grades 6-12): Developing education modules based on genetics, modelling, and "big data".
- 2014 **Mentor** for an undergraduate honors/thesis project. Student: Richard Vachula, Affiliation: Department of Geology, UIUC, Thesis title: *Holocene climatic changes in the Alaskan Arctic as inferred from oxygen-isotopic analysis*.
- 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
- 2012 **Participant/Co-organizer** of the Ecosystem Ecology Workshop for Illinois science teachers (Grades 6-12): Developing and dispersing education modules based on paleoecological data.
- 2012 **Mentor** for IB 199 Biological Inspiration, Student: Mackenzie Marti, Affiliation: School of Integrative Biology and Department of Geology, UIUC, 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, UIUC, Project: *Where the Grass Grows: C4 grass pollen in lake sediments from Mt. Kenya along an altitudinal gradient*.

## PRESENTATIONS

- 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 [Presentation]
- 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 [Presentation]
- 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]
- 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 [Presentation]
- 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]

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**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]

**Chipman, M.L.,** F.S. Hu (2013) A 6000-year record of permafrost melt events in the Alaskan Arctic. 15<sup>th</sup> Annual Graduate Student Symposium, University of Illinois Urbana-Champaign Feb 9<sup>th</sup> 2013 [Presentation]

**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]

**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]

**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 [Presentation]

**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]

**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, San Francisco, CA OS11A-1476 [Poster]

## GRANTS

- 2015 Program in Ecology, Evolution, and Conservation Biology Travel Grant
- 2015 University of Illinois Graduate College Travel Grant
- 2013 Program in Ecology, Evolution, and Conservation Biology Travel Grant
- 2012 Program in Ecology, Evolution, and Conservation Biology Summer Research Grant
- 2011 Program in Ecology, Evolution, and Conservation Biology Travel Grant
- 2011 University of Illinois Graduate College Travel Grant

## INVITED REFEREE

### Funding Agencies

National Science Foundation

### Journals

Holocene

Quaternary Research

Quaternary Science Reviews

Biogeosciences

## PROFESSIONAL AFFILIATIONS

- 2015 - Present Deevey Award Chair, Paleoecology Section of the Ecological Society of America
- 2006 - Present Member, American Geophysical Union
- 2008 - Present Member, Ecological Society of America
- 2013 - 2014 Student Liaison, Paleoecology Section of the Ecological Society of America
- 2014 - 2015 Secretary, Paleoecology Section of the Ecological Society of America