

# LIZZ ULTEE, PHD

## EDUCATION

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2018	<b>Ph.D., Climate Science</b> University of Michigan	Ann Arbor, Michigan
2013	<b>B.Sc.H., Specialist in Mathematical Physics</b> Queen's University	Kingston, Ontario

## ACADEMIC WORK

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2018–	<b>Massachusetts Institute of Technology</b> Postdoctoral Associate, Dept. of Earth, Atmospheric, & Planetary Sciences. <i>Advisor:</i> Brent Minchew.
2014–2018	<b>University of Michigan</b> Graduate Research Assistant, Dept. of Climate & Space Sciences. <i>Supervisor:</i> Jeremy Bassis. Instructor, Residential College. Course Consultant, Office of Community-Engaged Academic Learning.
2010–2013	<b>Queen's University</b> Honours thesis research, Dept. of Physics, Engineering Physics & Astronomy. Tutor, Dept. of Mathematics & Statistics.
2011	<b>University of Toronto</b> Summer intern, Centre for Global Change Science. <i>Supervisor:</i> W. Richard Peltier.

## PUBLISHED & SUBMITTED MANUSCRIPTS

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**Ultee, L.** and Coats, S. 'Glacial runoff modulates 21st century basin aridity, but models disagree on the details.' Manuscript in revision for *Geophysical Research Letters*. Preprint available on ESSOAr: doi: 10.1002/essoar.10502321.1

**Ultee, L.**, Meyer, C.R., and Minchew, B. M. 'Tensile strength of glacial ice deduced from observations of 2015 collapse of Eastern Skaftá Cauldron, Vatnajökull Ice Cap, Iceland.' Revised manuscript under review for *Journal of Glaciology*.

**Ultee, L.** and Bassis, J. N. 'SERMeQ model produces realistic retreat of 155 Greenland outlet glaciers.' Revised manuscript under review for *Geophysical Research Letters*. Preprint available on ESSOAr: doi: 10.1002/essoar.10502537.1

Bassis, J. N. and **Ultee, L.** (2019). 'A thin film viscoplastic model for calving glaciers: an upper bound on calving retreat.' *Journal of Geophysical Research: Earth Surface*. 124: 2036–2055. doi: 10.1029/2019JF005160

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- Ultee, L.**, Arnott, J. C., Bassis, J. N., and Lemos, M. C. (2018). 'From ice sheets to main streets: Intermediaries connect climate scientists to coastal adaptation.' *Earth's Future* 6(3): 299–304. doi: 10.1002/2018EF000827
- Boone, L., **Ultee, L.**, Waisanen, E., Newell, J., Thorne, J. A., and Hardin, R. (2018). 'Collaborative creation and implementation of a Michigan Sustainability Case on urban farming in Detroit.' *Case Studies in the Environment* 2(1): 1–13. doi: 10.1525/cse.2017.000703
- Ultee, L.** and Bassis, J. N. (2017). 'A plastic network approach to model calving glacier advance and retreat.' *Frontiers in Earth Sciences* 5(24). doi:10.3389/feart.2017.00024.
- Ultee, L.** and Bassis, J. N. (2016). 'The future is Nye: an extension of the perfect plastic approximation to tidewater glaciers.' *Journal of Glaciology* 62(236): 1143–1152. doi:10.1017/jog.2016.108.

#### SELECT PRESENTATIONS

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- Ultee, L., Riel, B. and Minchew, B. (2020). 'Seasonal to multi-annual speedup and slowdown of Greenland outlet glaciers inferred from time-dependent remote sensing observations.' Abstract accepted for *European Geosciences Union General Assembly 2020*, Vienna, Austria.
- Ultee, L., Maussion, F., Schirmeister, Z. L., Frisinghelli, D., and León Rojas, T. (2019). 'Multi-lingual Jupyter notebooks for learning the Open Global Glacier Model.' *American Geophysical Union Fall Meeting 2019*, San Francisco, CA, USA. Archived poster on ESSOAr.
- Ultee, L., Meyer, C.R., Minchew, B. M., Jóhannesson, T., and Robel, A. (2019). 'Fracture thresholds of glacier ice during cauldron collapse and surface loading.' *American Geophysical Union Fall Meeting 2019*, San Francisco, CA, USA.
- Ultee, L. (2019). 'Simulating 21st century iceberg calving from the Greenland Ice Sheet with SERMeQ.' Invited presentation for the October meeting of the Interagency Arctic Research Policy Committee's Glaciers and Sea Level Team.
- Ultee, L. (2019). 'Fractura del hielo glaciar y su contribución al nivel del mar (*Fracture of glacier ice and how it contributes to global sea level*).' Public lecture given in Spanish at Universidad Nacional de Ingeniería, Lima, Peru.
- Ultee, L. (2019). 'The solid-ice contribution to sea level rise from Greenland outlet glaciers, large and small.' Seminar given at Woods Hole Oceanographic Institution, Woods Hole, MA.
- Ultee, L., Minchew, B. M., Meyer, C. R., and Jóhannesson, T. (2018). 'Cauldron collapse provides natural laboratory to constrain ice-fracture thresholds.' *American Geophysical Union Fall Meeting 2018*, Washington, DC, USA.
- Ultee, L. (2018). 'Resilience to glacier change.' Special seminar at the University of Edinburgh, Edinburgh, UK.
- Ultee, L. and Bassis, J. N. (2018). 'Modelling the calving contribution to sea level from Alaska and Greenland.' *POLAR2018*, Davos, Switzerland.
- Ultee, L. (2018). 'Glacial geoengineering.' Workshop session for *Michigan University-wide Sustainability & Environment (MUSE)*, Ann Arbor, MI, USA.
- Ultee, L. and Bassis, J. N. (2017). 'Explicit simulation of networks of outlet glaciers to constrain Greenland's sea level contribution.' *American Geophysical Union Fall Meeting 2017*, New Orleans, LA, USA.
- Ultee, L., Arnott, J. C., Bassis, J. N. and Lemos, M. C. (2017). 'Shaping glaciology for sea-level adaptation.' *Graduate Climate Conference*, Woods Hole, MA, USA.

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Ultee, L. (2017). ‘Calving glacier networks simulated with a simple approximation.’ Research visit to Open Global Glacier Model development group, Bremen, Germany.

Ultee, L. and Bassis, J. N. (2016). ‘A model to constrain 21st-Century sea level rise from tidewater glaciers.’ *American Geophysical Union Fall Meeting 2016*, San Francisco, CA, USA.

Ultee, L. (2016). ‘Sea level rise: Alaska’s global contribution and local effects.’ *Aleutian Life Forum*, Unalaska, AK, USA (delivered in absentia).

Ultee, L. (2016). ‘What is community-engaged glaciology?’ Workshop session for *International Summer School in Glaciology*, McCarthy, AK, USA.

Ultee, L. and Bassis, J. N. (2016). ‘Plastic tidewater glacier networks.’ Presentation for working group meeting of the NOAA Climate Process Team on Iceberg Calving, Princeton, NJ, USA.

Ultee, L. and Bassis, J. N. (2015). ‘Perfect plastic approximation revisited: a flowline network model for calving glaciers.’ *American Geophysical Union Fall Meeting 2015*, San Francisco, CA, USA.

Ultee, L. and Bassis, J. N. (2015). ‘Simplified glacier dynamics.’ *Society for Industrial and Applied Mathematics Student Conference*, Ann Arbor, MI, USA.

## AWARDS & HONOURS

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<b>Research awards</b>	Michigan Sustainability Cases IMPACT Award (2018) APECS - National Science Foundation Early Career Travel Grant (2018) Rackham Graduate Travel Grant (2015, 2016, 2018) Graduate Climate Conference travel grant (2017)
<b>Service awards</b>	MIT School of Science SPOT Award (2020)
<b>Fellowships</b>	NSF Graduate Research Fellowship – Honorable Mention (2015 & 2016) Engaged Pedagogy Initiative Fellowship (2015) Michigan Regents’ Fellowship (2014)
<b>Organising grants</b>	MUSE Conference–U-M School for Environment & Sustainability (2016, 2017) MUSE Conference–U-M College of Engineering (2017) MUSE Conference–U-M Dept. of Climate & Space Sciences (2017) MUSE Conference–U-M Dept. of Political Science (2017) MUSE Conference–U-M School of Nursing (2016)

## TEACHING EXPERIENCE & INTERESTS

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<b>Course instructor</b>	<b><i>CLIMATE 405 - Knowing Climate Change</i></b> Community-based learning for climate literacy. Partner org: EDGL. <b><i>Clubes de Ciencia - Glaciología y recursos hídricos</i></b> Spanish-language glaciology research workshop (40 hr) in Lima, Peru.
<b>Course consultant</b>	<b><i>ENVIRON 391 - Sustainability &amp; the Campus</i></b> Project/team-based learning studying on-campus sustainability
<b>Curriculum support</b>	<b><i>NAT RES 537 - Urban Sustainability</i></b> Developed case study and accompanying podcast about Detroit urban farming
<b>Guest lecturer</b>	<b><i>CLIMATE 474 - Ice and Climate</i></b> <b><i>CLIMATE 105 - Our Changing Atmosphere</i></b> <b><i>CLIMATE 140 - Climate and the Media</i></b> <b><i>International Summer School in Glaciology</i></b>

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**Marker**

*CLIMATE 410 - Earth System Modelling*  
*CLIMATE 323 - Data Analysis for Geosciences*  
*CLIMATE 474 - Ice and Climate*

**+ Willing to teach**

*Glaciology*  
*Sea level change*  
*Our changing climate*  
*Earth system modelling*  
*Mathematical methods of geoscience*  
*Directed reading: Intergovernmental Panel on Climate Change reports*  
*Supervised BSc/MSc/PhD research*

**LEADING, ORGANISING & MENTORING WORK**

2017–2018	<b>Chair, Conference Organizing Committee</b> MUSE Initiative Recruited and led multi-disciplinary organizing committee for the 2018 Michigan University-wide Sustainability & Environment (MUSE) Conference. MUSE is a student-organized initiative to encourage cross-disciplinary conversation and collaboration on environmental problems; see: T. Logan & J. Arnott (2017). You've got the power. <i>Nature</i> <b>551</b> : 531. doi: 10.1038/d41586-017-07261-1	Ann Arbor, MI
2016–2017	<b>Community-Based Learning Consultant</b> U-M Office of Community-Engaged Academic Learning Assisted professor Sara Soderstrom to bring more community-engaged pedagogies to ENVIRON391: Sustainability & the Campus. Presented good case practices, gave input on syllabus design, and identified and coordinated partner organisations to offer student projects.	Ann Arbor, MI
2009–2017	<b>Exchange Student Liaison/Mentor</b> AFS Intercultural Programs Conducted monthly 1:1 check-ins to support personal growth of high school exchange students and their host families in Canada and the United States. Served as a cultural resource and mentor for American students preparing to depart on year-long exchange programmes to the Netherlands.	Canada & USA
2015–2016	<b>COP21 Delegate &amp; Volunteer Coordinator</b> Climate Blue Attended 2015 Paris climate negotiations with the U-M Official UNFCCC Observer delegation. Recruited and coordinated 20 student volunteers who supported the delegation and our outreach work (radio broadcasts, blog posts, newspaper articles, and a public symposium).	Paris, France & Ann Arbor, MI
2013–2014	<b>Vice President for Organisational Development</b> AIESEC UK Served on the UK executive of the world's largest youth-run organisation. Created national strategy for leadership development and volunteer engagement. Directly managed a team of seven, coached 25 local-level executives, and delivered >200 hours of workshops.	London, England

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## PUBLIC ENGAGEMENT

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- 2019**
  - International instructor, Clubes de Ciencia Peru
  - “Women in STEM” Zoom calls with Becky Shuman’s 7th grade science class, Saranac Middle School, Saranac, NY
  - Invited speaker, Advanced Placement Awards Ceremony, Plattsburgh High School, Plattsburgh, NY
- 2018**
  - “Web Monitoring in the Classroom Builds Information Literacy, Civic Engagement.” Environmental Data & Governance Initiative blog post
  - “Knowing Climate Change: A Student Panel on Accountability and Accessibility.” Student radio broadcast (archived)
  - Panelist, Michigan Institute for Social Change
- 2017**
  - Skype a Scientist - paired with 6th grade science class at Dinwiddie Middle School, Dinwiddie, VA
  - Participant, APECS Polar Science Communication workshop
  - Participant, Interagency Arctic Research Policy Committee
- 2016**
  - Participant, Great Lakes Adaptation Forum
  - “What is Community-Engaged Glaciology?” Guest workshop facilitated at International Summer School in Glaciology
  - Developed instructional case study and podcast about Detroit urban farming (related radio broadcast)
  - “Good COP, Bad COP: Bringing the Paris Climate Talks Back to Ann Arbor.” Event organizer and presenter
- 2015**
  - “City Limits To Climate Change: Climate Justice from Neighborhoods to Negotiations.” *It’s Hot in Here* podcast.
  - Fellow, Michigan Engaged Pedagogy Initiative
  - “Who are natural scientists?” Discussion leader, *Justice Issues in Sustainability & Conservation* seminar.
  - Civil society observer, UNFCCC 21st Conference of Parties
- 2014**
  - Presenter, Chelsea Elementary School Science Night

## PROFESSIONAL ENGAGEMENT

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- 2020**
  - Reviewer, NASA Cryosphere section
  - Reviewer, *Frontiers in Earth Sciences*
- 2019**
  - Judge, AGU Fall Meeting Outstanding Student Paper Award
  - Reviewer, *Geoscientific Model Development*
  - Reviewer, *Journal of Advances in Modeling of the Earth System*
- 2018**
  - Expert reviewer, Second Order Draft, Intergovernmental Panel on Climate Change Special Report on Oceans and Cryosphere in a Changing Climate
  - Environmental Data & Governance Initiative
  - Enriching Scholarship—Teaching & Technology conference
- 2017**
  - Skype a Scientist
  - APECS Polar Science Communication workshop
- 2016**
  - Great Lakes Adaptation Forum
  - Michigan Sustainability Cases curriculum initiative
- 2015**
  - NOAA Climate Process Team: Iceberg Calving

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## PROFESSIONAL AFFILIATIONS

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American Geophysical Union, Society for Industrial and Applied Mathematics,  
International Association for Cryospheric Sciences, International Glaciological Society

## FURTHER SKILLS

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<b>Computing</b>	Python, Jupyter notebooks, L <sup>A</sup> T <sub>E</sub> X, GitHub version control, Mathematica
<b>Languages</b>	English ( <i>native</i> ), Dutch ( <i>fluent</i> ), Spanish ( <i>good</i> ), German ( <i>fair</i> ), French ( <i>fair</i> )
<b>Interpersonal</b>	Facilitation, Coaching, Intercultural education, Nonprofit management

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