

LIZZ ULTEE, PHD

ACADEMIC ROLES

2021–	Middlebury College Assistant Professor, Department of Earth & Climate Sciences.
2021	Georgia Tech Postdoctoral Fellow, School of Earth & Atmospheric Sciences.
2018–2021	Massachusetts Institute of Technology Postdoctoral Associate, Dept. of Earth, Atmospheric, & Planetary Sciences.
2014–2018	University of Michigan Ph.D., Climate & Space Sciences. <i>Dissertation:</i> Constraints on the dynamic contribution to 21st-century sea level rise from Greenland outlet glaciers
2009–2013	Queen's University B.Sc.Hons., Specialist in Mathematical Physics. <i>Thesis:</i> Energy conditions with nonzero cosmological constant λ
2011	University of Toronto Summer researcher, Centre for Global Change Science.

PEER-REVIEWED CONTRIBUTIONS

- Verjans, V., Robel, A., Seroussi, H., **Ultee, L.**, and Thompson, A. (*in press*). ‘The Stochastic Ice-Sheet and Sea-Level System Model v1.0 (StISSM v1.0).’ Manuscript accepted for publication *Geoscientific Model Development*. Preprint online: doi:10.5194/egusphere-2022-699
- Ultee, L.**, Felikson, D., Minchew, B., Stearns, L. A., and Riel, B. (2022). ‘Helheim Glacier ice velocity variability responds to runoff and terminus position change at different timescales.’ *Nature Communications* 13: 6022. doi: 10.1038/s41467-022-33292-y
- Ultee, L.**, Coats, S., and Mackay, J. (2022) ‘Glacial runoff buffers drought through the 21st century.’ *Earth System Dynamics* 13: 935-959. doi: 10.5194/esd-13-935-2022
- Ultee, L.** and Bassis, J. N. (2020). ‘SERMeQ model produces a realistic upper bound on calving retreat for 155 Greenland outlet glaciers.’ *Geophysical Research Letters* 47(21). doi: 10.1029/2020GL090213
- Ultee, L.**, Meyer, C.R., and Minchew, B. M (2020). ‘Tensile strength of glacial ice deduced from observations of 2015 collapse of Eastern Skaftá Cauldron, Vatnajökull Ice Cap, Iceland.’ *Journal of Glaciology* 66(260): 1024–1033. doi: 10.1017/jog.2020.65
- 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

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.

Maussion, F. and **Ultee, L.** (2022). 'OGGM-Edu Glaciology Lab 1: What Makes a Glacier?' In: *On the Cutting Edge Exemplary Teaching Activities* collection, Science Education Resource Center, Carleton, MN. <https://serc.carleton.edu/teachearth/activities/250452.html>

IN REVIEW

Malles, J.-H., Maussion, F., **Ultee, L.**, Kochtitzky, W., Copland, L., and Marzeion, B. (*sub.*). 'Exploring the impact of a frontal ablation parameterization on projected 21st-century mass change for Northern Hemisphere glaciers.' Manuscript in review for *Journal of Glaciology*.

AWARDS & HONOURS

Research awards	International Glaciological Society - Early Career Scientist Medal (2021) Michigan Sustainability Cases IMPACT Award (2018) APECS - National Science Foundation Early Career Travel Grant (2018)
Service awards	MIT School of Science Spot Award (2020)
Fellowships	NSF Graduate Research Fellowship – Honorable Mention (2015 & 2016) Engaged Pedagogy Initiative Fellowship (2015) Michigan Regents' Fellowship (2014)

INVITED PRESENTATIONS

'A global analysis of glacial drought buffering through the 21st century.' Earth & Atmospheric Sciences Seminar at Georgia Tech, Atlanta, GA. Coauthors Coats., S. and Mackay, J. (2022)

'Mathematical avenues to climate science.' Mathematics Colloquium at Queen's University, Kingston, ON, Canada. (2022)

'Glaciers buffer drought through the 21st century.' Ice & Climate Seminar at Dartmouth College, Hanover, NH. (2021)

'A stochastic approach to ice sheet surface mass balance for sea-level forecasting.' *American Geophysical Union Fall Meeting 2021*, New Orleans, LA, USA. Coauthors Robel, A., Seroussi, H., Thompson, A., Verjans, V. and Ambelorum, A. (2021).

" " Utrecht University IMAU Colloquium, Utrecht, Netherlands. (2021)

" " NASA GISS Sea Level Seminar (virtual). (2021)

‘An upper bound on 21st century outlet glacier retreat.’ IceFlow Seminar at University of Copenhagen. (2020)

‘Modelling ice fracture from process to projection.’ Geosciences special seminar at University of Wisconsin–Madison, Madison, WI. (2020)

‘Glaciers in the global water cycle.’ Geosciences seminar at Virginia Tech, Blacksburg, VA. (2020)

‘Simulating 21st century iceberg calving from the Greenland Ice Sheet with SERMeQ.’ Interagency Arctic Research Policy Committee’s Glaciers and Sea Level Team meeting. (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. (2019)

‘The solid-ice contribution to sea level rise from Greenland outlet glaciers, large and small.’ Climate Seminar at Woods Hole Oceanographic Institution, Woods Hole, MA. (2019)

‘Resilience to glacier change.’ GeoSciences special seminar at the University of Edinburgh, Edinburgh, UK. (2018)

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

TEACHING & SUPERVISION EXPERIENCE

Research advising	6 Middlebury College undergraduate students (2 thesis + 4 assistant) 2 MIT undergraduate students (summer + semester) 1 Universidad Nacional Federico Villarreal undergraduate (external thesis advising)
Thesis examiner	1 Simon Fraser University M.Sc.
Course instructor	<p><i>CLIMATE 405 - Knowing Climate Change</i> Community-engaged course for climate literacy. Partner org: EDGI. UMich Residential College, 3 hr weekly seminar.</p> <p><i>GEOL 392 - Modern Climate Seminar</i> Undergrad seminar focused on current climate lit., esp. National Climate Assessment. Middlebury, 3 hr weekly seminar.</p> <p><i>GEOL 362 - Glaciology</i> Upper-level undergrad elective in ice dynamics & consequences of glacier change. Middlebury, 3 hr lecture + 3 hr lab weekly.</p> <p><i>GEOL 202 - Climate Dynamics</i> Undergrad course on energy balance, circulation, and quant. methods of Earth Science. Middlebury, 3 hr lecture + 3 hr lab weekly.</p> <p><i>GEOL 111 - Natural Hazards</i> Introductory course on mechanisms & social considerations behind hazard phenomena. Middlebury, 3 hr weekly lecture.</p> <p><i>Clubes de Ciencia - Glaciología y recursos hídricos</i> Spanish-language glaciology research workshop (40 hr) in Lima, Peru.</p>
Course consultant	<i>ENVIRON 391 - Sustainability & the Campus</i> Project/team-based course analysing on-campus sustainability
Curriculum support	<i>NAT RES 537 - Urban Sustainability</i> Developed case study and accompanying podcast about Detroit urban farming

Guest lecturer	<i>CLIMATE 474 - Ice and Climate</i> <i>CLIMATE 105 - Our Changing Atmosphere</i> <i>CLIMATE 140 - Climate and the Media</i> <i>International Summer School in Glaciology</i>
Tutor	<i>MATH 120 - Differential and Integral Calculus</i> <i>MATH 110 - Linear Algebra</i> <i>MATH 225 - Ordinary Differential Equations</i>
Also willing to teach:	<i>Our changing climate</i> <i>Scientific programming</i> <i>Mathematical methods of geoscience</i> <i>Earth system modelling</i> <i>International climate policy: Observing the UNFCCC</i> <i>Directed reading: Intergovernmental Panel on Climate Change reports</i> <i>Supervised BSc/MSc/PhD research</i>

LEADING, ORGANISING & MENTORING WORK

2017–2018	Chair, Conference Organizing Committee MUSE Initiative Ann Arbor, MI 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> 551 : 531. doi: 10.1038/d41586-017-07261-1
2016–2017	Community-Based Learning Consultant U-M Office of Community-Engaged Academic Learning Ann Arbor, MI Worked with 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.
2009–2017	International Student Liaison AFS Intercultural Programs Canada & USA 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.
2015–2016	COP21 Delegate & Volunteer Coordinator Climate Blue Paris, France & Ann Arbor, MI 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).

PUBLIC ENGAGEMENT

- 2022** • Academic partner, National Weather Service Burlington office
- 2021** • “Defining climate leadership” workshop leader for AIESEC UK
- 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
- 2016** • “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.
- 2014** • Presenter, Chelsea Elementary School Science Night

PROFESSIONAL ENGAGEMENT & SERVICE

- UNFCCC Civil Society Observer** COP21 Paris climate negotiations (2015)
- NOAA Climate Process Team** Iceberg calving in climate models (2014-2016)
- Reviewer** IPCC Special Report on Oceans & Cryosphere in a Changing Climate; NASA Cryosphere & Physical Oceanography sections; NSF Office of Polar Programs; UK Natural Environment Research Council; Journals inc. *Nature*, *Geophysical Research Letters*, *Global Environmental Change*, *The Cryosphere*, *Frontiers in Earth Sciences*, *Geoscientific Model Development*, *Journal of Advances in Modeling of the Earth System*, *Water Resources Research*
- Committee service** Diversity, Equity & Inclusion Committee (MIT EAPS)
Unlearning Racism in the Geosciences group (Middlebury)
Publications Committee (International Glaciological Society)
- Open Science support** Hackathon advisor, GeoLatinas ‘GeoHacked’ (2020)
Session convener, ‘Community tools and products for cryosphere discovery and application’, AGU Fall Meeting (2021 & 2022)

FIELD EXPERIENCE & RELEVANT TRAINING

SEPT. 2022	Project COEBELI Swiss National Science Foundation Recovered instruments from the Greenland Ice Sheet by helicopter. Serviced ice-adjacent instruments including tide gauge and broadband seismometer. Maintained, inventoried, and packed instruments for shipping to Switzerland. Received training in Greenland field logistics. <i>PI: Martin Lüthi (U. Zurich).</i>	Ilulissat, Greenland
Wilderness First Aid	SOLO (certified through 2024)	
Mental Health First Aid	MHFA USA (certified through 2025)	
Crevasse rescue	Ice Journey, Sólheimajökull, Iceland (2022)	
Polar risk management	US National Science Foundation (<i>workshop co-organizer</i> , 2021)	

PROFESSIONAL AFFILIATIONS

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

FURTHER SKILLS

Languages English (*fluent*), Dutch (*fluent*), Spanish (*good*), German (*fair*), French (*fair*)