

L I Z Z U L T E E , P H D

PROFESSIONAL APPOINTMENTS

2024 –	NASA Goddard Space Flight Center Associate Research Scientist, Cryospheric Sciences Lab. GESTAR-II Cooperative Agreement with Morgan State University.
2021–2024	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 RESEARCH

Student and undergraduate student[†] coauthors indicated.*

16. Wimberly, F.[†], **Ultee, L.**, Schuster, L.*, Huss, M., Rounce, D. R., Maussion, F., Coats, S., Mackay, J., and Holmgren, E.* (accepted). 'Inter-model differences in 21st Century glacier runoff for the world's major river basins.' *The Cryosphere*. *EGUsphere* preprint doi: 10.5194/egusphere-2024-1778

15. Aguayo, R.*, Maussion, F., Schuster, L.*, Schaefer, M., Caro, A., Schmitt, P.*, Mackay, J., **Ultee, L.**, Leon-Muñoz, J., and Aguayo, M. (2024). 'Unravelling the sources of uncertainty in glacier runoff projections in the Patagonian Andes (40–56° S)'. *The Cryosphere* 18: 5383–5406. doi: 10.5194/tc-18-5383-2024

14. Robel, A., **Ultee, L.**, Ranganathan, M., and Nash, M. (2024). 'For whom and by whom is glaciology?' *Journal of Glaciology*. doi: 10.1017/jog.2024.29

13. Hanna, E., Topál, D., ..., and **Ultee, L.** (2024). 'Short- and long-term variability of the Antarctic and Greenland ice sheets.' *Nature Reviews Earth & Environment*. doi:

10.1038/s43017-023-00509-7

12. **Ultee, L.**, Robel, A., and Castruccio, S. (2024). 'A stochastic parameterization of ice sheet surface mass balance for the Stochastic Ice-Sheet and Sea-Level System Model (StISSM v1.0).' *Geoscientific Model Development* 17: 1041-1057. doi: 10.5194/gmd-17-1041-2024
11. Malles, J.-H.* , Maussion, F., **Ultee, L.**, Kochtitzky, W.* , Copland, L., and Marzeion, B. (2023). 'Exploring the impact of a frontal ablation parameterization on projected 21st-century mass change for Northern Hemisphere glaciers.' *Journal of Glaciology* 69(277): 1317-1332. doi: 10.1017/jog.2023.19.
10. Verjans, V., Robel, A., Seroussi, H., **Ultee, L.**, and Thompson, A. (2022). 'The Stochastic Ice-Sheet and Sea-Level System Model v1.0 (StISSM v1.0).' *Geoscientific Model Development* 15: 8269–8293. doi: 10.5194/egusphere-2022-699
9. **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
8. **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
7. **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
6. **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
5. 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
4. **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
3. 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
2. **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.
1. **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.

IN REVIEW

Schuster, L.* , Maussion, F., Rounce, D., **Ultee, L.**, Schmitt, P.* , Lacroix, P., Frölicher, T., and Schleussner, C.-F. (*in revision*). 'Irreversible glacier change and trough water for centuries after overshooting 1.5° C.' *Research Square* preprint doi: 10.21203/rs.3.rs-5045894/v1

Ultee, L., Wimberly, F.[†], Coats, S., Mackay, J. and Holmgren, E.* (*submitted*). 'Technical note: Climate model uncertainty outweighs glacier model uncertainty in 21st-century drought buffering projections.'

Robel, A.A., Verjans, V., **Ultee, L.**, Seroussi, H., Thompson, A., Ackerman, L., Choi, Y., and Krebs-Kanzow, U. (*in review*). ‘The Greenland Ice Sheet Large Ensemble (GrISLENS): Simulating the future of Greenland under climate variability.’ *EGUsphere* preprint doi: 10.5194/egusphere-2024-4067

PEER-REVIEWED TEACHING MATERIALS

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

Ultee, L. and Maussion, F. (2022). ‘OGGM-Edu Glaciology Lab 2: Exploring glacier data.’ SERC, Carleton, MN. serc.carleton.edu/teachearth/activities/250446.html

Ultee, L. and Maussion, F. (2024). ‘OGGM-Edu Glaciology Lab 3: Simulating glacier flow.’ SERC, Carleton, MN. serc.carleton.edu/teachearth/activities/281855.html

AWARDS & HONOURS

Research awards International Glaciological Society - Early Career Scientist Award (2021)
Michigan Sustainability Cases IMPACT Award (2018)

Service awards MIT School of Science Spot Award (2020)

FUNDING

Funded, Lead PI ‘Collaborative Research: Disentangling runoff- and terminus-driven velocity variations of fast flowing outlet glaciers’, NSF OPP, \$944,000 (\$227,000 to Middlebury/Morgan State).
Inst. PIs: Martin Truffer (UAF) & Jason Amundson (U Alaska Southeast).

Funded Collaborator ‘Global glacier modeling: Do non-linear feedbacks matter for century-scale projections?’, Research Council of Norway.
PI: Regine Hock (U. Oslo).

Submitted, Inst. PI ‘Collaborative Research: Constraining Greenland Glacier Dynamics using 1940s Historical Aerial Photography’, NSF OPP, \$745,000 (\$188,500 to Morgan State).
Lead PI: Sarah Child (CU Boulder).

Internal support Middlebury student research grants (Total \$24,000)
UMich conference organizing funds (Total \$20,000)

RECENT INVITED PRESENTATIONS

‘Glacier effects on future water resources at local to global scale.’ Geosciences Seminar at University of Arizona, Tucson, AZ. (planned 2025)

‘Global glacier models agree on 21st century runoff and drought metrics at river basin scale.’ *American Geophysical Union Fall Meeting 2024*, Washington, DC, USA. (2024)

‘Evidence-based practices for community-oriented cryospheric science.’ *American Geophysical Union Fall Meeting 2024*, Washington, DC, USA. (2024)

'21st century glacier change: from dynamics to downstream impacts.' Research Seminar at Atmospheric & Environmental Research, Inc., Lexington, MA, USA. (2024)

'Can we count on glacial runoff through the 21st century?' *International Union of Geodesy and Geophysics*, Berlin, Germany. (2023)

'A global analysis of glacial drought buffering through the 21st century.' Geoscience Seminar at Williams College, Williamstown, MA. (2023)

" " CryoHydro Seminar at University of Oslo, Oslo, Norway. (2023)

" " Earth & Atmospheric Sciences Seminar at Georgia Tech, Atlanta, GA. (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. (2021).

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

" " NASA GISS Sea Level Seminar. (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)

FIELD EXPERIENCE & RELEVANT TRAINING

APR. 2024	Sermeq Kujalleq dynamic drivers US National Science Foundation Planned helicopter deployment of GNSS and meteorological instruments on the surface of the Greenland Ice Sheet. Revised field plans due to inclement weather. Installed time-lapse cameras to observe glacier calving front and ice melange in fjord. <i>PI: Lizz Ultee.</i>	Ilulissat, Greenland
AUG. 2023	Sholes Glacier mass balance North Cascade Glacier Climate Project Surveyed snowpack with hand-held probe, installed ablation stakes using hand-powered Kovacs ice auger, measured proglacial streamflow with dye tracing and depth cross-sections. Self-supported camp in a wilderness area — backpacked in all supplies for 6 days. <i>PI: Mauri Pelto (Nichols College).</i>	Mt. Baker, WA

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 Lütthi (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, 2021</i>)	

PROFESSIONAL ENGAGEMENT & SERVICE

Model intercomparison	Ice Sheet Model Intercomparison Project phase 7 (2024 -)
UNFCCC Observer	Civil society delegate, COP21 Paris climate negotiations (2015)
NOAA Climate Process Team	Iceberg calving in climate models (2014-2016)
Open Science support	AGU session convener, 'Community tools and products for cryosphere discovery and application' (2021-2023) Hackathon advisor, GeoLatinas 'GeoHackeo' (2020)
Reviewer	IPCC Special Report on Oceans & Cryosphere in a Changing Climate; NASA Cryosphere & Physical Oceanography sections; NSF Office of Polar Programs; Natural Sciences and Engineering Research Council (Canada); Natural Environment Research Council (UK); Journals inc. <i>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, Journal of Hydrology</i>
Committee service	Publications Committee (International Glaciological Society) Unlearning Racism in the Geosciences (Middlebury) Diversity, Equity & Inclusion Committee (MIT EAPS)

TEACHING & SUPERVISION EXPERIENCE

Research advising	1 University of Oslo postdoctoral scholar 1 University of Alaska Fairbanks Ph.D. student 10 Middlebury College undergraduate students (2 thesis + 8 assistant) 2 MIT undergraduate students
Thesis examiner	1 Universidad Nacional Federico Villarreal undergraduate (bachillerato) 1 Simon Fraser University M.Sc.

Course instructor	<i>ECSC 392 - Modern Climate Seminar</i> Undergrad seminar focused on current climate lit., esp. National Climate Assessment. Middlebury, 3 hr weekly seminar.
	<i>ECSC 362 - Glaciology</i> Upper-level undergrad elective in ice dynamics & consequences of glacier change. Middlebury, 3 hr lecture + 3 hr lab weekly.
	<i>ECSC 202 - Climate Dynamics</i> Undergrad course on energy balance, circulation, and quant. methods of Earth Science. Middlebury, 3 hr lecture + 3 hr lab weekly.
	<i>ECSC 111 - Natural Hazards</i> Introductory course on mechanisms & social considerations behind hazard phenomena. Middlebury, 3 hr weekly lecture.
	<i>CLIMATE 405 - Knowing Climate Change</i> Community-engaged course for climate literacy. Partner org: EDGI. UMich Residential College, 3 hr weekly seminar.
	<i>Clubes de Ciencia - Glaciología y recursos hídricos</i> Spanish-language glaciology research workshop (40 hr) in Lima, Peru.

PUBLIC ENGAGEMENT & MEDIA

2024	<ul style="list-style-type: none"> • “The world’s glaciers are melting faster than we thought.” <i>National Geographic</i> article • “Antarctic ice loss is significant, contrary to claims.” FactCheck article
2023-	<ul style="list-style-type: none"> • Lead investigator, Museum of the North special exhibit development
2022	<ul style="list-style-type: none"> • Academic partner, National Weather Service Burlington office
2021	<ul style="list-style-type: none"> • “Defining climate leadership” workshop leader for AIESEC UK
2019	<ul style="list-style-type: none"> • International instructor, Clubes de Ciencia Peru
2018	<ul style="list-style-type: none"> • “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	<ul style="list-style-type: none"> • Participant, APECS Polar Science Communication workshop
2016	<ul style="list-style-type: none"> • “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	<ul style="list-style-type: none"> • “City Limits To Climate Change: Climate Justice from Neighborhoods to Negotiations.” <i>It’s Hot in Here</i> podcast. • Fellow, Michigan Engaged Pedagogy Initiative

FURTHER SKILLS

Languages	English (<i>fluent</i>), Dutch (<i>fluent</i>), Spanish (<i>good</i>), German (<i>fair</i>), French (<i>fair</i>)
------------------	---