

Evan J. Wilcox, PhD — Curriculum Vitae

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Updated August 2023.

EDUCATION AND EMPLOYMENT

Wissenschaftlicher Mitarbeiter (Research Fellow)

2023 – present

Institut für Bodenkunde, Universität Hamburg, Hamburg, Germany

Topics: Hydrology of glacial valley streams, Disko Island, Greenland.

Research Group: Prof. Dr. Lars Kutzbach

Doctor of Philosophy, Geography

2018 – 2023

Wilfrid Laurier University, Waterloo, Ontario, Canada

Thesis: Controls on thermokarst lake water balances in the Inuvik – Tuktoyaktuk Region

Supervisors: Dr. Philip Marsh, Dr. Brent B. Wolfe; *Committee Members:* Dr. Oliver Sonnentag, Dr. Julia Boike

Research Visits:

- Biogeochemistry Research Group, University of Eastern Finland, Kuopio, Finland. October 2021 – May 2023
- Alfred Wegener Institute for Polar and Marine Science, Potsdam, Germany. January – June 2020

Grade: Award for Outstanding Graduate Work

Master of Science, Geography (incomplete, fast-tracked to PhD)

2016-2018

Wilfrid Laurier University, Waterloo, Ontario, Canada

Thesis: Small Tundra Lakes: Past Changes, Current Status

Supervisor: Dr. Philip Marsh

Honours Bachelor of Science, Geography, with Honours Thesis

2012-2016

Wilfrid Laurier University, Waterloo, Ontario, Canada

Thesis: Observations of Active Layer Thawing and Soil Properties in a Mineral-Earth Hummock Dominated Landscape

Supervisor: Dr. Philip Marsh

PUBLICATIONS

First Author

1. Hydrological, meteorological and watershed controls on the water balance of thermokarst lakes between Inuvik and Tuktoyaktuk, Northwest Territories, Canada. **Wilcox, E. J.**, Wolfe, B. B. & Marsh, P. (2023). *Hydrology and Earth System Sciences*. <https://doi.org/10.5194/hess-27-2173-2023>
2. Assessing the influence of lake and watershed attributes on snowmelt bypass at thermokarst lakes. **Wilcox, E.J.**, Wolfe, B. B. & Marsh, P. (2022). *Hydrology and Earth System Sciences*, 26(23), 6185-6205. <https://doi.org/10.5194/hess-26-6185-2022>

3. Tundra shrub expansion may amplify permafrost thaw by advancing snowmelt timing. **Wilcox, E. J.**, Keim, D., de Jong, T., Walker, B., Sonnentag, O., Sniderhan, A. E., Mann, P. & Marsh, P. (2019). *Arctic Science*, 5(4), 202–217. <https://doi.org/10.1139/as-2018-0028>

Co-author

4. Characterizing Tundra snow sub-pixel variability to improve brightness temperature estimation in satellite SWE retrievals. Meloche, J., Langlois, A., Rutter, N., Royer, A., King, J., Walker, B., Marsh, P. & **Wilcox, E. J.** (2022). *The Cryosphere*, 16, 87-101. <https://doi.org/10.5194/tc-16-87-2022>
5. Standardized monitoring of permafrost thaw: a user-friendly, multi-parameter protocol. Boike, J., Chadburn, S., Martin, J., Zwieback, S., Althuizen, I. H. J., Anselm, N., Cai, L., Coulombe, S., Lee, H., Liljedahl, A. K., Schneebeli, M., Streletskiy, D. A., Stuenzi, S. M., Westermann, S. & **Wilcox, E. J.** (2022). *Arctic Science*, 8(1), 1–30. <https://doi.org/10.1139/AS-2021-0007>
6. Accuracy assessment of late winter snow depth mapping for tundra environments using Structure-from-Motion photogrammetry. Walker, B. **Wilcox, E. J.**, & Marsh, P. (2021). *Arctic Science*, 7(3), 588-604. <https://doi.org/10.1139/as-2020-0006>
7. Advancing Field-Based GNSS Surveying for Validation of Remotely Sensed Water Surface Elevation Products Pitcher, L. H., Smith, L. C., Cooley, S. W., Zaino, A., Carlson, R., Pettit, J., Gleason, C. J., Minear, J. T., Fayne, J. V., Willis, M. J., Hansen, J. S., Easterday, K. J., Harlan, M. E., Langhorst, T., Topp, S. N., Dolan, W., Kyzivat, E. D., Pietroniro, A., Marsh, P., Yang, D., Carter, T., Onclin, C., Hosseini, N. **Wilcox, E. J.**, Moreira, D., Berge-Nguyen, M., Cretaux, J.-F. & Pavelsky, T. M. (2020). *Frontiers in Earth Science: Hydrosphere*, 8(November), 1–20, <https://doi.org/10.3389/feart.2020.00278>
8. Linking tundra vegetation, snow, soil temperature, and permafrost. Grünberg, I. **Wilcox, E. J.**, Zwieback, S., Marsh, P., & Boike, J. (2020). *Biogeosciences*, 17(16), 4261–4279. <https://doi.org/10.5194/bg-17-4261-2020>
9. Multitemporal terrestrial laser scanning point clouds for thaw subsidence observation at Arctic permafrost monitoring sites. Anders, K., Marx, S., Boike, J., Herfort, B. **Wilcox, E. J.**, Langer, M., Marsh, P., & Höfle, B. (2020). *Earth Surface Processes and Landforms*, 45(7), 1589–1600. <https://doi.org/10.1002/esp.4833>
10. Feasibility of tundra vegetation height retrieval from Sentinel-1 and Sentinel-2 data. Bartsch, A., Widhalm, B., Leibman, M., Ermokhina, K., Kumpula, T., Skarin, A. **Wilcox, E. J.**, Jones, B. M., Frost, G. V., Höfler, A., & Pointner, G. (2020). *Remote Sensing of Environment*, 237, 111515. <https://doi.org/10.1016/j.rse.2019.111515>

SCHOLARSHIPS & AWARDS

W. Garfield Weston Award for Northern Research (PhD), ~34 000 € 2019-2021

A two-year award given annually to ten natural sciences PhD candidates across Canada “who demonstrate exceptional promise, academic excellence, leadership, and a strong commitment to northern research.”

Ontario Graduate Scholarship (awarded x4), ~10 000 € 2019, 2020, 2021, 2022

A competitive one-year provincial merit-based scholarship awarded to those with excellent academic and research achievement.

W. Garfield Weston Award for Northern Research (Master’s), ~10 000 € 2017-2018

A one-year award given annually to fifteen natural sciences Master’s Students across Canada “who demonstrate exceptional promise, academic excellence, leadership, and a strong commitment to northern research.”

Jack Middlemass Memorial Award in Northern Graduate Research, ~1400 € 2020-2021

Awarded yearly to a graduate student associated with the Centre for Cold Regions and Water Science at Wilfrid Laurier University who is conducting field work in the Northwest Territories.

NSERC Undergraduate Student Research Award , ~3900 €	2016
Federal award that helps Undergraduate students gain research experience.	
Northern Scientific Training Program (awarded x6), ~1900 €	2015, 2016, 2017, 2018, 2019, 2020
Supplementary award to assist Canadian university students in conducting thesis research in Canada's Northern regions.	

PROFESSIONAL ACTIVITIES

Group Member, <u>T-MOSAIc Permafrost Thaw Action Group</u>	2020-present
Worked with other T-MOSAIc Permafrost Thaw AG members to develop a standardized and accessible permafrost thaw monitoring protocol (see Publications, #4).	
Council Member, <u>Permafrost Young Researchers Network (PYRN)</u>	2020-2022
Assisted the Executive Committee of PYRN in any decisions for which they required further input.	
Executive Committee Member, <u>Permafrost Young Researchers Network (PYRN)</u>	2018-2020
- Coordinated social media posts, including sharing new permafrost articles daily along with conference, job, and funding opportunities. - Helped organize workshops and social events for young researchers at various conferences and meetings.	
Project Contributor, <u>NASA Arctic Boreal Vulnerability Experiment (ABOVE)</u>	2017
Coordinated and completed a portion of a field data collection campaign (see Publications, #6).	

TEACHING EXPERIENCE

Teaching Assistant, Wilfrid Laurier University, Waterloo, Ontario, Canada.	2016-2020
Duties as a teaching assistant included instructing laboratory sessions that teach relevant laboratory or computer skills, providing guidance to students in completing their laboratory assignments, grading assignments, and providing feedback on assignments.	
<i>Teaching Assistant for the following courses:</i>	
- Geographic Information and Analysis (GESC254) - Geographical Research Methods (GESC258) - Geomorphology and Soils (GG282) - Cartography (GESC251)	

CONFERENCE PRESENTATIONS

2023
Improving our understanding of shrub-permafrost interactions (oral, invited talk). American Geophysical Union Annual Science Meeting. San Francisco, USA.
2022
Exploring the influence of lake and watershed properties on lake water balances with water isotopes in the Canadian Arctic. (oral, refereed conference). Joint European Stable Isotope Users Group Meeting. Kuopio, Finland.

- Exploring Variability in Thermokarst Lake Water Balances in the Inuvik-Tuktoyaktuk Region using Water Isotope Tracers. (oral, online, refereed conference). Global Water Futures 2022, Saskatoon, Canada.
- Exploring Variability in Thermokarst Lake Water Balances in the Inuvik-Tuktoyaktuk Region using Water Isotope Tracers. (oral, online, refereed conference), Canadian Geophysical Union Annual General Meeting.

2021

- Exploring Springtime Recharge of Thermokarst Lake Waters between Inuvik and Tuktoyaktuk, NT, Using Stable Water Isotopes. (oral, online, refereed conference), Canadian Geophysical Union Annual General Meeting.

2020

- Lake depth, but not watershed size, affects snowmelt runoff retention in thermokarst lakes: implications for northern lake studies (poster, online, refereed conference), ArcticNet 2020, Québec City, Canada.

2019

- Combining Direct and Isotopic Measurements of Lake Water Balance to Understand the Hydrological Variability of Thermokarst Lakes (oral, refereed conference), AGU Annual Science Meeting, San Francisco, USA.
- Combining Direct and Isotopic Measurements of Lake Water Balance to Understand the Hydrological Variability of Thermokarst Lakes (oral, refereed conference), 22nd Northern Research Basins Symposia/Workshop, Yellowknife, Canada.
- Assessing Controls on Lake Hydrology in a Remote Arctic Environment (oral, refereed conference), 27th International Union of Geodesy and Geophysics General Assembly, Montréal, Canada.
- Controls on Lake Water Fluxes between Inuvik and Tuktoyaktuk, Northwest Territories (oral, science project meeting), Global Water Futures 2nd Annual Science Meeting, Saskatoon, Canada.

2018

- Assessing the Hydrological Variability of Lakes between Inuvik and Tuktoyaktuk (oral, refereed conference), ArcticNet Annual Scientific Meeting, Ottawa, Canada.
- Interactions between Snow and Vegetation, and their Influence on Frost Table Depth (oral, refereed conference), 5th European Conference on Permafrost, Chamonix – Mont Blanc, France.
- AirSWOT, Direct and Isotope Hydrological Measurements for Mackenzie Tundra Lake Assessment (poster, science project meeting), 4th NASA ABoVE Science Team Meeting, Seattle, USA.

2017

- High-resolution Water Balance of two Tundra Lakes with Different Catchment/Lake Area Ratios (poster, refereed conference). ArcticChange 2017, Québec City, Canada.
- Combining Direct and Isotope Hydrological Measurements for Landscape Scale Assessment of Mackenzie Upland Lakes (oral, non-refereed conference), Cold Regions Research Centre Day, Waterloo, Canada.
- Past Changes, Current Processes, Future Trajectories: Mackenzie Region Tundra Lakes (oral, community outreach seminar). Aurora Research Institute Summer Speaker Series, Inuvik, Canada.
- Observations of Frost Table Depth in Hummocky Tundra (webinar). Association of Polar Early Career Scientists (APECS) Arctic Snapshots, Inuvik, Canada.
- Hydrological Monitoring of a Small Tundra Lakes to Determine Vulnerability to Climate Change (poster, refereed conference). 47th Annual International Arctic Workshop, Buffalo, USA.

2016

- Hydrological Monitoring of a Small Tundra Lake to Determine Vulnerability to Climate Change (poster, refereed conference). ArcticNet 12th Annual Scientific Meeting, Winnipeg, Canada.
- The hydrological importance of a spatio-temporally variable frost table in the western Canadian Arctic (poster, refereed conference). CAGONT, Waterloo, Canada.

- Western Arctic Lakes: Vulnerable to Climate Change? (oral). Cold Regions Research Centre Day, Waterloo, Canada.

OPEN-SOURCE DATASETS

- **Wilcox, E. J.**, Wolfe, Brent B., Marsh, P. (2022). Isotope data and associated attributes for 25 thermokarst lakes along the Inuvik – Tuktoyaktuk Highway, 2018. *Borealis*. <https://doi.org/10.5683/SP3/AZE4ER>
- **Wilcox, E. J.**, Keim, D., De Jong, T., Walker, B., Mann, P., & Marsh, P. (2020). Frost table depth with associated snow and landscape variables at Trail Valley Creek, NT, 2015. *Borealis*. <https://doi.org/10.5683/SP2/9ZGR5U>

RESEARCH-RELATED MEDIA

- Marsh, P., **Wilcox, E. J.**, Weiss, N. Collapsing permafrost is transforming Arctic lakes, ponds and streams. January 22, 2020. *The Conversation*. <https://theconversation.com/collapsing-permafrost-is-transforming-arctic-lakes-ponds-and-streams-128519>
- Kyle, K. Shrubbiest Arctic tundra likely accelerates permafrost thawing, study finds. November 15, 2019. *CBC News North*. <https://www.cbc.ca/news/canada/north/arctic-tundra-permafrost-thaw-shrub-1.5359354>
- Gutiérrez, R. B. Understanding the snowmelt. September 2017. *Leica Reporter 80*. <https://leicageosystems.com/about-us/news-room/customer-magazine/reporter-80/understanding-the-snowmelt>

OTHER REFERENCE MATERIAL

Google Scholar	https://scholar.google.com/citations?user=oWbewccAAAAJ
ResearchGate	https://www.researchgate.net/profile/Evan_Wilcox
ORCID	https://orcid.org/0000-0002-4172-7623
Personal website	https://www.evanjwilcox.com