

Adam R. Tjoelker

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Columbus, Ohio 43210

(Updated: October 2025)

EDUCATION

- 2024 – Present **The Ohio State University** – Columbus, OH, USA
Ph.D., Geography; Advisor: Dr. Bryan Mark
Degree start: August 2024
Anticipated Graduation: May 2028
- 2022 – 2024 **The Ohio State University** – Columbus, OH, USA
Master of Arts, Geography; Advisor: Dr. Bryan Mark
August 2022 - May 2024, GPA: 4.00 (4.0 Scale)
- 2018 – 2022 **Calvin University** - Grand Rapids, MI, USA
Bachelor of Science in Engineering, Mechanical Concentration
Geography Minor, GIS Certificate
August 2018 - April 2022, GPA: 3.852 (4.0 Scale)
- 2019 **Technische Universität Berlin** – Berlin, Germany
Calvin Engineering: Statics & Dynamics — *T.U. Berlin*: German Language & Culture
Intensive Study Program: July – August 2019
- 2018 **University of Technology Sydney** – Sydney, Australia
Mathematical Modelling 1; Mathematics Extension 1 Bridging Course
March – July 2018

PUBLICATIONS

- 2024 **Tjoelker, Adam R.**; Baraer, Michel; Valence, Eole; Charonnat, Bastien; Masse-Dufresne, Janie; Mark, Bryan G.; McKenzie, Jeffrey M. “Drone-Based Ground-Penetrating Radar with Manual Transects for Improved Field Surveys of Buried Ice.” *Remote Sens.*, 16, 2461. <https://doi.org/10.3390/rs16132461>
- 2022 **Tjoelker, Adam R.**; Van Kanegan, Neil; Sparks, C. Renee; and Detmer, Simon. “Bathymetry Based Modeling of Subaxial Magma Flows Under the Mid-Atlantic Ridge, 0 to 30° N,” *The Compass: Earth Science Journal of Sigma Gamma Epsilon*: Vol. 92: Iss. 1, Article 2. Available At: <https://digitalcommons.csbsju.edu/compass/vol92/iss1/2>
- 2020 Pfautsch, Sebastian; **Tjoelker, Adam R.** “The impact of surface cover and tree canopy on air temperature in Western Sydney.” *Western Sydney University*. DOI: <https://doi.org/10.26183/bk6d-1466>
- 2023 Detmer, Simon E.; **Tjoelker, Adam R.**; Sparks, C. Renee. “Topography-Based Tectonic Analysis for Interpretation of Magma Migration Under the Southern Mid-Atlantic Ridge.” *Journal of Undergraduate Research. Volume 12*.
- 2025 Haq, Fazlul; Afreen, Munazza; Mark, Bryan G.; Rahman, Ghani; Shum, C.K.; Shutkin, Tal Y.; **Tjoelker, Adam R.** “Localized Environmental Variability within the Hindukush-Himalayan Region of Pakistan.” *Environmental Earth Sciences* 84, no 4.: 105. <https://doi.org/10.1007/s12665-025-12112-8>

HONORS AND AWARDS

- 2025 **E. Willard and Ruby S. Miller Award** – \$4,500 awarded in recognition of potential to make a major contribution to geography or its subfield(s), through scholarship and scholarly writing
- 2023 **ENGIE-Axiom Graduate Fellowship** – \$5,000 awarded to a nominated graduate student seeking to work in sustainability as part of their graduate curriculum
- 2024 **Geological Society of America Graduate Student Research Grant** – \$2,500 awarded to graduate student researcher in the geosciences to support master's and doctoral research
- 2024 **Ray Travel Award for Service and Scholarship** – \$1,000 awarded to an OSU graduate student for service to their department to support travel to professional conferences
- 2024 **Fenburr Travel Scholarship for Outstanding Graduate Students** – \$1,000 awarded to support professional development activities
- 2021 **Vermeer Summer Research Fellowship** – \$5,000 awarded to a top student pursuing advanced geographical sciences research at Calvin University
- 2024 **Career Development Grant** – \$350 awarded to an OSU graduate student in support of professionalization activities
- 2025 **1st Place Oral Presentation** – Mathematical and Physical Sciences, Edward F. Hayes Advanced Research Forum, The Ohio State University, February 2025
- 2024 **2nd Place Best Oral Presentation** (Student/Early Career Section) – 12th International Conference on Permafrost, Whitehorse, Yukon, Canada
- 2024 **1st Place Best Student Poster Award** – American Association of Geographers East Lakes Division Conference, Kalamazoo, MI, USA
- 2020 **Collegiate Scholar Honors Program** – Qualified with GPA > 3.65 and completion of four advanced academic or community engagements, including an honors class (2020 – 2022)
- 2019 **Deans' List** – Qualified with an overall GPA of above 3.5 (2019 – 2022)
- 2021 **Member of Gamma Theta Upsilon International Geography Honor Society**
- 2021 **Brian L. De Wall Memorial Scholarship** – \$3,500 awarded to a senior engineering student who demonstrates good character and an intent to make a difference in the world
- 2020 **Holtvluwer Family Scholarship** – \$2,500 awarded to a junior engineering or education major

RESEARCH EXPERIENCE

- 2022 **Byrd Polar and Climate Research Center**– Columbus, OH, USA.
Graduate Student, Glacier Environmental Change Group. Advisor: Dr. Bryan Mark
 - Led the rock glacier differential GPS and photogrammetry survey for the Great Basin Research Experience (GBEX) in 2023, 2024 and 2025, comprising a team of undergraduate, graduate students and faculty from OSU and Sinclair Community College in Dayton, OH.
 - Conducted drone-based ground penetrating radar (GPR) and thermal infrared surveys of debris-covered glaciers in Shár Shaw Tagà (Grizzly Creek) in Yukon, Canada in 2023, 2024 and 2025 with the HC3 research group from ÉTS in Montreal, Canada (led by Dr. Michel Baraër).
- 2024 **Ohio Department of Natural Resources, Division of Geological Survey** – Columbus, OH USA.
Mapping Group Intern. Supervisor: T. Andrew Nash, July 2024 – April 2025
 - Assist the mapping group with the special project on quaternary geologic mapping of the post-glacial landscape and sediments of Licking County.
 - Prepare and assist with fieldwork operations involving drilling and passive seismic analysis.
 - Analyze LiDAR data and create maps of glacial topography.
- 2021 **Calvin University, Department of Geology, Geography and Environment** – Grand Rapids, MI, USA.
Vermeer Research Fellow, Advisor: Dr. Renee Sparks, May – August 2021
 - Was lead investigator for the Calvin Tectonics Summer Research Team, 2021
 - Applied GIS analysis to model bathymetric depths and develop lithostatic load gradients
 - Developed a new magma migration model of flows below the Mid-Atlantic Ridge
- 2021 **Calvin University, Department of Geology, Geography and Environment** – Grand Rapids, MI USA.

Weather Technician, Supervisor: Dr. Deanna van Dijk, September – December 2021

- Managed and prepared department meteorological equipment for lab and research use
- Designed and constructed a new weather station at the Perseverance Dune research site
- Assisted field team with research weather station setup

2019 **Western Sydney University**, Parramatta South Campus - Parramatta, New South Wales, Australia
Spatial Analysis Research Assistant, Supervisor: Dr. Sebastian Pfautsch, June 2019 – August 2020

- Conducted spatial environmental analysis of urban heat islands using aerial imagery
- Co-authored published technical report on urban heat

2016 **Western Sydney University**, Hawkesbury Institute for the Environment - Richmond, New South Wales, Australia. *Contracted Field Work and Research Assistant*, January 2016 – June 2019

- Maintained environmental monitoring instruments, tended to plants, and collected data
- Herded wild kangaroos out of forest and pasture research experiments
- Cooperated with field work teams of 2-10 and self-managed tasks as a contracted employee

PRESENTATIONS

- 2025 **Tjoelker, Adam R.**; Baraer, Michel; Valence, Eole; Charonnat, Bastien; Mougeot, Emma; Masse-Dufresne, Janie; McKenzie, Jeffrey M.; Mark, Bryan G. “Integrating Drone-based Ground Penetrating Radar and Thermal Infrared Imaging to Study Debris-Covered Glaciers” International Mountain Conference, Innsbruck, Austria. September 14-28, 2025 (oral presentation).
- 2025 **Tjoelker, Adam R.**; Baraer, Michel; Valence, Eole; Charonnat, Bastien; Mougeot, Emma; Masse-Dufresne, Janie; McKenzie, Jeffrey M.; Mark, Bryan G. “Mapping Glacier Debris Thickness Using Drone-Based Ground-Penetrating Radar and Thermal Infrared Imager” American Association of Geographers Conference, Detroit, Michigan, USA. March 24-28, 2025 (oral presentation).
- 2024 **Tjoelker, Adam R.**; Reinemann, Scott; Gómez, Demián; Frenken, Harrison; Schoessow, Forrest; Soni, Nischay; Wigmore, Oliver; Mark, Bryan G. “Assessing Surface Flow and Volume Change of the Lehman Rock Glacier via Repeat High-Resolution Drone Surveys” Annual Meeting East Lakes Division of the American Association of Geographers, Kalamazoo, Michigan, USA. October 18th, 2024 (poster presentation).
- 2024 **Tjoelker, Adam R.**; Baraer, Michel; Valence, Eole; Charonnat, Bastien; Masse-Dufresne, Janie; Mark, Bryan G.; McKenzie, Jeffrey M. “Detecting Massive Buried Ice Using Drone-based Ground Penetrating Radar” 12th International Conference on Permafrost, Whitehorse, Yukon, Canada. June 16-20, 2024 (oral presentation).
- 2023 **Tjoelker, Adam R.**; Baraer, Michel; Valence, Eole; Charonnat, Bastien; Mark, Bryan G.; and McKenzie, Jeffrey M. “A Novel Approach for Detecting Buried Ice in Steep Mountainous Terrain Using Low-Frequency Drone-Based GPR.” American Geophysical Union, Fall Meeting, December, 2023 (eLightning talk).
- 2023 **Tjoelker, Adam R.**; Baraer, Michel; Valence, Eole; Charonnat, Bastien; Mark, Bryan G.; and McKenzie, Jeffrey M. “Mapping debris covered glacier ice using drone-based ground penetrating radar.” 2023 Annual Meeting East Lakes Division of the American Association of Geographers, November 17th, 2023 (talk).
- 2023 **Tjoelker, Adam R.**; Baraer, Michel; Valence, Eole; Charonnat, Bastien; Mark, Bryan G.; and McKenzie, Jeffrey M. “Using Drone-based GPR to Detect Buried Ice in a Deglaciating Valley.” 2023 Byrd Center Symposium on Climate Change Research, October 20th, 2023 (poster).
- 2021 **Tjoelker, Adam R.**; Van Kanegan, Neil; and Sparks, C. Renee. “Bathymetry Based Modeling of Subaxial Magma Flows Under the Mid-Atlantic Ridge, 0 to 30° N.” American Geophysical Union, Fall Meeting, 13-17 December, 2021. New Orleans, Louisiana, USA. (abstract & poster).
- 2024 **Tjoelker, Adam R.**; “Is the Lehman Rock Glacier a real glacier and is it moving?” Public Talk at Great Basin National Park. August 8th, 2024. Baker, Nevada, USA.

- 2023 **Tjoelker, Adam R.**; Mazan, Emily; Ball, Sydney. “Decoding climate change amidst rocks and trees at Great Basin National Park.” Public Talk at Great Basin National Park. Aug 8th, 2023. Baker, Nevada, USA.
- 2021 Van Kanegan, Neil; **Tjoelker, Adam R.** and Sparks, C. Renee. “Bathymetry Based Modeling of Subaxial Magma Flows Under the Mid-Atlantic Ridge, 0 to 30° N.” Calvin University STEM Division Poster Fair, October 22, 2021. Grand Rapids, Michigan, USA. (poster).
- 2021 Detmer, Simon; **Tjoelker, Adam R.**; and Sparks, C. Renee. “Mid-Ocean Ridge Tectonics.” Calvin University Department of Geology, Geography and Environment Department Seminar Series, February 26, 2021. Grand Rapids, Michigan, USA. (presentation).

TEACHING EXPERIENCE

- 2024 **The Ohio State University Department of Geography** – Columbus, OH, USA
Graduate Teaching Assistant, GEOG 5200 Cartography and Map Design
 Supervisor: Dr. Tammy Parece, Spring 2024
- Assist with bi-weekly lab sessions of up to 30 students each
 - Conduct office hours to assist students with GIS
 - Grade lab assignments
- 2022 *Graduate Teaching Assistant, GEOG 1900 Extreme Weather and Climate*
 Supervisor: Dr. Alvaro Montenegro, Fall 2022 & Fall 2023
- Led two weekly lab sessions with a total of 64 students
 - Guest lectured the main course lecture of 160 students
 - Taught principals of meteorological data collection
 - Graded lab assignments and provided feedback to students
- 2023 *Graduate Teaching Assistant, GEOG 5212 Geospatial Databases for GIS*
 Supervisor: Dr. Chayanika Singh, Spring 2023
- Led weekly lab sessions of 26 students
 - Assisted students with spatial database creation and design
 - Graded lab assignments and provided feedback to students
- 2022 **Calvin University Department of Geology, Geography and Environment**– Grand Rapids, MI, USA
Teaching Assistant, GEO-361 Advanced GIS
 Supervisor: Dr. Jason VanHorn, Spring 2022
- Assisted class of 21 students in lab learning ArcGIS Pro
 - Answered student questions on course content and lab assignments
 - Graded lab assignments
- 2021 *Teaching Assistant, GEO-390 Remote Sensing of Earth*
 Supervisor: Dr. Jason VanHorn, Fall 2021
- Led weekly lab sessions for the class of 11 students
 - Assisted students with questions on course content and labs
 - Constructed a new online drone flight submission form for student drone flights
 - Graded drone homework assignments and labs

LEADERSHIP AND PROJECT WORK

- 2024 **Department of Geography** – The Ohio State University, Columbus, OH, USA
Sharpe Field Library Manager, May 2024 - Present
- Manage a \$200,000 budget for equipment purchases to support experiential learning and research activities in the department
 - Secured the donation of a LiDAR and drone from American Electric Power (\$78,000 value)

- Contact equipment vendors and manage corporate partnerships for donations and discounts
 - Assist with equipment demonstrations and training for the department
 - Manage the library equipment inventory and reservations
- 2025 **Council of Graduate Students (CGS)** – The Ohio State University, Columbus, OH, USA
Treasurer and Ray Travel Award Committee Chair, Spring 2025 – Present.
- Elected to serve a one-year term as treasurer of the Council of Graduate Students
 - Manage the CGS \$230,000 annual budget
 - Manage the Ray Travel Award committee and oversee the distribution of over \$40,000 in travel grants to graduate students across Ohio State University
 - Serve as a representative on Dean Mary Stromberger’s Graduate Council
- 2024 *Delegate for Geography and Atmospheric Sciences*, Autumn 2024 – Spring 2025.
- Elected to a one-year term representing the Geography and Atmospheric Science programs
 - Served on the Academic Affairs internal CGS committee
 - Served as a representative on Dean Mary Stromberger’s Graduate Council
 - Attended regular meetings to represent my constituents at CGS and represent CGS in my committee roles
- 2024 **American Geophysical Union (AGU) Cryosphere Sciences Section**
Student Representative and Canvassing Committee Member, Jan 2025 – Present
- Attend monthly executive meetings
 - Represent student perspective in planning and facilitating annual AGU meetings
 - Recruit nominators to nominate eligible candidates for Nye and Early Career Awards, AGU Fellows, and Union Awards and Prizes
 - Reviewed applicants for the 2025 Cryosphere Annual Travel Grant Award program
- 2025 **American Geophysical Union (AGU)** – Washington, DC, USA.
Geosciences Congressional Visit Days (Geo-CVD) Participant, September 9-10, 2025
- Selected as a participant to represent the state of Ohio in the national 2025 Geo-CVD event
 - Received training on science policy legislation and the federal legislative process
 - Crafted policy asks tailored to the interests of my Ohio Senators and Representative
 - Met with Ohio and Michigan Senators and Representatives to advocate for federal funding to support the geosciences
- 2021 **Engineering Senior Design Project – Rocket Lab Wind Tunnel Project Team Executive** – Calvin University September 2021 - April 2022
- Led a team of 4 engineering students to design and build a model rocket test system designed to measure thrust and drag to develop a simulation of model rocket performance in flight for academic research and fluid dynamics class laboratory applications
 - Planned meetings, coordinated communication, and contacted faculty clients and project consultants
 - Assisted with the design and construction of the drag force measurement wind tunnel test section and the fixed rocket engine thrust measurement systems built for the project
- 2021 **Habitat for Humanity Kent County – Low-Carbon Build Onsite Team Executive** – Calvin University September 2021 - December 2021
- Led a team of 4 engineering students to quantify the carbon footprint of the new low-carbon Habitat house, focusing on the construction and transportation carbon emissions
 - Collaborated with the 4 other teams of Calvin students who were covering other aspects of the build to prepare a report covering the total overall carbon footprint of the home, including carbon emissions associated with the embodied carbon, onsite construction and transportation, heating, and electricity

- Presented findings to Habitat for Humanity Kent County leadership and other community stakeholders at poster session and seminar presentation

Calvin Model Railroad Project - Lead Table Design - Calvin University, January 2020 – April 2022

Residence Hall Executive Team Member - Calvin University, August 2019 – March 2020

Youth Council Member - Blue Mountains City Council, NSW Australia, March 2016 - July 2018

School Captain - Springwood High School, NSW Australia, September 2016 – September 2017

RELEVANT COURSEWORK

Fluids and Thermodynamics:	ENGR-333 Thermal Systems Design, ENGR-328 Inter, Thermal/Fluids Sci. Des, ENGR-319 Intro to Thermal Sci, ENGR-209 Intro Laws of Conser & Fluids, ATMOSSC 5950 Atmos Thermodynamics
Mathematics and Statistics:	MATH-172 Calculus II, MATH-271 Multivariable Calculus, MATH-231 Diff Equ With Linear Algebra, STAT-241 Engr Stats, GEOG 8102 Adv Spatial Data, GEOSCI 5652 Adjustment Computations
Geographic Information Science:	GEO-260 Geog Info Sys & Cartography, GEO-361 Adv Geog Information Systems, GEO-362 Remote Sensing of Earth, GEOSCI 5636 Geovisualization
Other Courses:	ERTHSC 5650 Glaciology, ENGR-204 Circuit Analysis & Electronics, CS-104 Applied Computing, ENGR-305 Mechanics of Materials, ENGR-314 Vibration Analysis

SKILLS

Technical Skills: Part 107 Commercial Drone Pilot, MATLAB, Python, RStudio, ArcGIS Pro, Agisoft Metashape, Generic Mapping Tools (GMT), Bash scripting, Drone2Map, ERDAS Imagine, AutoCAD, Inventor FEA, EES, Microsoft Office Suite.

Languages: Basic German, Basic French

OTHER EXPERIENCE

2019 **Calvin University Observatory** - Grand Rapids, MI USA

Observatory Assistant, September 2018 – May 2019

- Operated 16-inch telescope equipment and custom software
- Used remote access software to operate off-campus 16-inch telescope in Rehoboth, New Mexico
- Welcomed and assisted up to 40 guests per night to the observatory

2020 **Calvin University Grounds Department** - Grand Rapids, MI USA

Snow Shoveler, December 2020 – March 2021

- Salted and shoveled walkways and doorsteps around campus
- Maintained safe walkways and stairs during snowy and icy weather

2017 **La Bello Pizzeria** – Faulconbridge, New South Wales, Australia

Delivery Driver, October 2017 – July 2018

- Optimized work methods and route planning to increase efficiency and reduce delivery wait time
- Delivered up to 6 orders per hour to customers promptly and safely
- Assisted staff with food preparation and inventory management