Mikhail Schee

(he/him)

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Education

2019–2024 **PhD**, *Department of Physics*, University of Toronto, Canada
Supervisor: Professor Nicolas Grisouard

2018–2019 **MSc**, *Department of Physics*, University of Toronto, Canada
Supervisor: Professor Nicolas Grisouard

2014–2018 **BSc**, *Department of Physics*, University of Minnesota, USA

Publications

In preparation **17 years of thermohaline staircase evolution in the Arctic Ocean's Canada Basin**
Schee, M.G., E. Rosenblum, J.M. Lilly, and N. Grisouard

2024 **Thermohaline staircases in the Arctic Ocean: Detection, evolution, and interaction**
Schee, M.G., *University of Toronto Doctoral Thesis*, URI:hdl.handle.net/1807/140974

2024 **Unsupervised clustering identifies thermohaline staircases in the Canada Basin of the Arctic Ocean**
Schee, M.G., E. Rosenblum, J.M. Lilly, and N. Grisouard, *Environmental Data Science*, 3:e13, 1–19, DOI:10.1017/eds.2024.13

2024 **Two-dimensional Numerical Simulations of Mixing under Ice Keels**
De Abreu, S., R.M. Cormier, **M.G. Schee**, V.E. Zemskova, E. Rosenblum, and N. Grisouard, *The Cryosphere*, 18(7), 3159–3176 DOI:10.5194/tc-18-3159-2024

Impact Products

2024 **Replication Code**
Published code and documentation to replicate the results of "Unsupervised clustering identifies thermohaline staircases in the Canada Basin of the Arctic Ocean." Found at DOI:10.5281/zenodo.8029947

2018 **Project Video**
Edited and narrated a project video for the NASA DEVELOP National Program to give an overview of the Grand Canyon Water Resources Project.

Experience

Vocational

2025–present **Postdoctoral Fellow**, *Department of Physics*, University of Toronto, Canada
Working with Professor Dylan Jones on developing a deep learning model to evaluate NO_x emissions over North America.

2018–2023 **Teaching Assistant**, *Department of Physics*, University of Toronto, Canada
Facilitated weekly laboratory practicals and study groups for undergraduate students for a variety of courses, both in person and online. In particular, assisted with the 4th-year Computational Physics course for 4 years. Provided feedback and guidance through hands on applications and written assessments.

2018 **Team Member**, *NASA DEVELOP National Program*, Fort Colins, USA

Worked with a team on the Grand Canyon Water Resources Project to create remote sensing products with LandTrendr in Google Earth Engine to inform the National Park Service on land management decisions in Grand Canyon National Park.

2018 **Undergraduate Researcher**, *Land and Atmospheric Science Department*, University of Minnesota, USA

As part of the Undergraduate Research Opportunities Program (UROP), conducted a research project using the GEOS-Chem transport model and High Performance Computing resources to establish background levels of formaldehyde (HCHO) over the remote Pacific from 2005 to 2015.

Miscellaneous

2020–2024 **Director**, *University of Toronto Outing Club*, Canada

Served on the Board of Directors for the University of Toronto Outing Club, a not-for-profit, non university-affiliated organization founded in 1957 by students of the University of Toronto with the goal of making healthful outdoor recreation as accessible and welcoming as possible. Worked with a team to organize and run outdoor activities such as hiking, camping, and canoeing as well as overseeing finances, insurance, and property management.

Skills

Programming	Python, Bash, LaTeX, Git, MATLAB
Essential Traits	Leadership, Communication, Writing, Critical Thinking, Public Speaking
Languages	English (Native Speaker), French (Intermediate)

Academic Activities

April 2025 **Scalable and Computationally Reproducible Approaches to Arctic Research**
Arctic Data Center at University of California, Santa Barbara

October 2024 **Cyber2A Workshop - Artificial Intelligence and Arctic Science**
Arctic Data Center at University of California, Santa Barbara

March 2022 **Oral Presentation at Ocean Sciences Meeting 2022**, *(Online)*
American Geophysical Union

April 2021 **Poster Presentation at EGU General Assembly**, *(Online)*
European Geophysical Union

Jan-Mar 2021 **Staircases Program: Layering in Atmospheres, Oceans and Plasmas**, *(Online)*
Kavli Institute for Theoretical Physics - UC Santa Barbara

December 2020 **Poster Presentation at Arctic Change 2020**, *(Online)*
ArcticNet

February 2020 **Poster Presentation at Ocean Sciences Meeting 2020**
American Geophysical Union

June 2019 **Ontario Summer School Central - High Performance Computing**
University of Toronto - SciNet

Honours and Awards

March 2024 **Winner of the Climate Impacts Hackathon**
Department of Physics, University of Toronto, Canada

June 2021 **Certificate in Scientific Computing**
SciNet High Performance Computing Consortium, University of Toronto, Canada

2014–2018 **Lee S. Whitson Academic Scholarship**
College of Science and Engineering, University of Minnesota, USA