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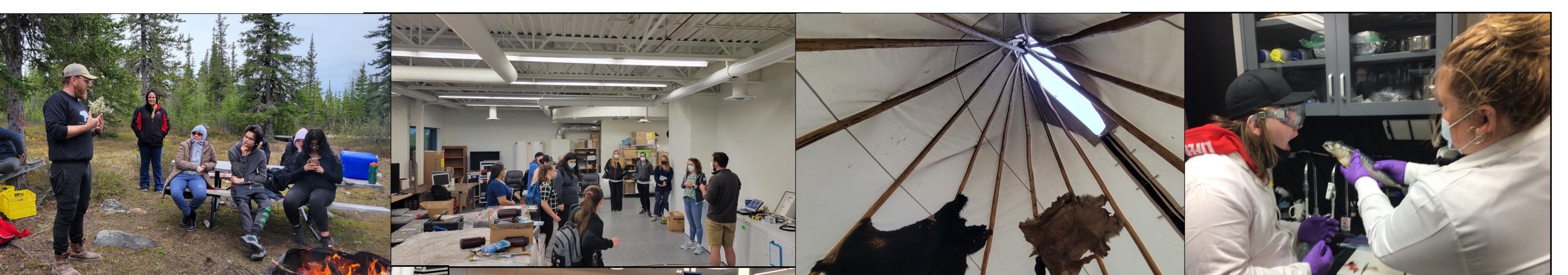
2 University of Toronto

3 University of Auckland

4 Frontier School Division



In June 2022 and 2023, a collaboration between Duke of Marlborough School in Churchill MB, University of Manitoba's Centre for Earth Observation Science (CEOS), Frontier School Division, and the Universities of Toronto, Auckland and Brown generated an immersive summer school for five high school students from Churchill in a university setting on the University of Manitoba campus. In the 2<sup>nd</sup> year, two weeks were first spent in Churchill, meeting the students in their own town. The focus was multidisciplinary; built around a science base to support the high school curriculum's 4+1 Program, but bringing in other fields of knowledge to provide as rich an experience for the youth as possible. Collaboration with other faculties, Indigenous educators, and Winnipeg's rich art and culture scene grounded the students in many aspects. During both years, this was a valuable learning experience for all involved and offered an opportunity for reflection on our roles as researchers working in northern lands.



CEOS Julienne Stroeve, Erica Rosenblum, Elizabeth Worden, Patricia Montalvo-Rodriguez

> Frontier School Division Jacqueline Monteith and members of the Envirothon

> > Duke of Marlborough School

Five high school students,

three chaperones



Over the course of two weeks in 2022, and four weeks in 2023, five students from grades 8 to 12 from the Duke of Marlborough School in Churchill traveled and stayed at the University of Manitoba in Winnipeg. In 2023, the teachers traveled north and spent the first week in Churchill. In Winnipeg, the students attended lectures and lessons from CEOS researchers and conducted their own experiments. They created hand-made thermocouples in year 1 and explored salt-freshwater interactions in year 2, both at the Sea-ice Environmental Research Facility at UofM. Through the My Climate Risk initiative and the Envirothon, we flipped the tables and asked students to become the teachers, with enriching results for all. Trips off campus offered opportunities for further scientific and cultural experiences. At the end of the course, students impressed us by presenting what they learnt in a final project. It was a rewarding first step into university!

Our future goals The hope is to formulate an ongoing and meaningful relationship with northern partners to create a relevant and mutually beneficial opportunity for helping educate their youth. We recognize the positive impact that immersive programs such as this can have on northern youth. With humility, we also reflect on how much we, from our position as southern university staff, learnt from the students. Their unique viewpoints

as young northerners on the forefront of a changing climate and changing culture inspired us to shift our perspectives and approach our roles differently. We believe mutual learning experiences such as this summer school program are critical in order to respectfully and confidently move into a challenging future together. Ongoing future 4+1 Climate Action courses are planned to take place at both U of M and in Churchill. Plans to expand the program to other communities are in discussion phases and we are seeking partners and collaborators to enrich this program further.

Churchill partners Polar Bears International Parks Canada Churchill Northern Studies Centre Wapusk Adventures

## The process

Through conversations and brainstorming, what started as an idea for an outreach component for an ArcticNet proposal in December 2021 transformed into a full-fledged summer program, integrated into Duke of Marlborough's 4+1 high school curriculum. In early 2022, Erica Rosenblum, under the supervision and funding of Julienne Stroeve's C150 Program, and with colleagues Michelle McCrystall, Jennifer Lukovich and Elizabeth Worden, put together a program involving many partners from within and outside CEOS. Jacqueline Monteith was a dynamic contributor of ideas and funding to the program, bringing forward Frontier School Division's 'Envirothon', exploring environmental science and Cree culture. Erica Rosenblum and Michelle McCrystall were the driving force behind the execution of the scientific portion of the program, facilitating experiments at SERF and in Churchill, and organizing scientific programming. Jennifer Lukovich (2022) and Elizabeth Worden (2023) designed course content around climate change priorities through the My Climate Risk program (WCRP), tying together local observations, science and policy. Patricia Montalvo-Rodriguez facilitated various logistical aspects of life on campus for the students, and outside excursions.. Together, the team coordinated legalities, logistics, partnerships, funding, timelines, travel, and scheduling. Although it was far from simple, it was incredibly gratifying for all involved, and proved that the best things come from team work.

Other U of M collaborators Migizii Agamik, Department of Chemistry, Department of Physics and Astronomy, National Centre for Truth and Reconciliation



Other collaborators University of Toronto, University of Auckland, Brown University, Qaumajuq, Fort Whyte Alive, Assiniboine Park Zoo, Canadian Museum for Human Rights, and more!



Thank you to our funders, partners and contributors. Please contact Jacqueline Monteith (Jacqueline.Monteith@fsdnet.ca ) if you are

