



## Nunavut Research Institute

### License Holder Reporting requirements

For research undertaken in the 2024 calendar year (commencing January 01, 2024 and ending December 31, 2024)

**Project Title:**

Multidisciplinary Observatory for Arctic Climate Change and Extreme Events Monitoring (MOACC)

Ukiuq tamaat Unniudjuti: Amihunik Anullaqhiidjutikhanik Qun'ngiarniq Ukiuqtaqtumi Hilaup Aalannguqtiirninga (MOACC)

**Project Leader(s):** Full name, affiliation, and contact information (address, phone number, email) of each project leader (principle investigator and co-PIs)

Prof. Dr. Alexandre Langlois, Université de Sherbrooke / Sherbrooke ilihaqviat

Prof. Dr. Kimberly Strong, University of Toronto / Toronto ilihaqviat

**Project Team:** Full name, affiliation, and address (name of city/community and province/territory/state) of each member of the project team

List of project members:

Atiit tautungnaqtun laisikharnik:

- Daniel Kramer, Norm O'Neill, Alain Royer, Patrick Ayotte, Frédéric Bouchard, Alexis Lussier-Desbiens, Dominique Gravel (Université de Sherbrooke, Qc, Canada)
- Robert Sica (University of Western Ontario, Kingston, ON, Canada)
- Patrick Hayes, Daniel Fortier (Université de Montréal, Qc, Canada)
- Richard Kelly (University of Waterloo, ON, Canada)

**Abstract:** A concise summary of what was done, found, and concluded to date, and how the results/information will be used. This summary must be translated into the appropriate dialect of Inuktitut. Suggested length: 250-300 words. **\*This section will be published in the NRI's annual compendium of licensed research**

The Multidisciplinary Observatory for Arctic Climate Change and Extreme Events Monitoring (MOACC) proposal is submitted by the Université de Sherbrooke (lead institution-UdeS), University of Toronto (UofT), Western University (WU) and Université de Montréal (UM). The main objective of our project is to develop a permanent multidisciplinary scientific infrastructure that enables long-term observations of Arctic climate change, bringing together experts from a wide range of expertise and institutions. The project is led by Prof. Alexandre Langlois (UdeS) and Prof. Kimberley Strong (UofT) and responds to a consensus on the lack of temporal observations that are crucial to understand feedback processes and to promote model development in the Arctic. The innovative aspect of this proposal resides in its multidisciplinary approach while enabling long-term Arctic measurements spanning several disciplines. The proposed observatory will be located at the Canadian High Arctic Research Station (CHARS) in Cambridge Bay, Nunavut, while enhancing the reach of CHARS with linkages to the Environment and Climate Change Canada supersite in Iqaluit. Our ambition is to establish the site as one of the largest instrumented high Arctic observatories dedicated to the monitoring of key indicators that drive climate change. The site will generate and enhance partnerships, not only with Canadian research centers and organizations, but also with international research partners and networks.

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Taamna Amihunik Havaktilik Qauyihaivik Ukiuqtaqtumi Hila Aallannguqpalliyumi Hilalukpiaqtumiklu Munaqhiyut (MOACC) tughirautait tuniyauhimayuuq talvanngat Ilihaqpaalliqviat Sherbrooke-mi (hivuliqtuyut ilihqpaalliqvik-UdeS), Ilihaqpaalliqviat Toronto-mi (UofT), Western Ilihaqpaalliqviat (WU) taamnalul Ilihaqpaalliqviat Montreal-mi (UM). Inirumalluaqtaat havaaghainit taimaa hanalutik amihunik havaktilingmik ayuqnaqtunik qauyihavingmik taimaa hivituyumik munariyaamik Ukiuqtaqtumi hila aallannguqpalliyumik, katitihutik ayuittunik amihunik ilihimattiaqtunik ilihqpaalliqvingnillu. Havaaghat hapkua hivuliqtuqtauyut taaffuminnga Prof. Alexandre Langlois (UdeS) taamnalul Prof. Kimberley Strong (UofT) kihivaghutiklu angihimagihutik munaqhivighailluqtut iharianaqutut ilihimattiarimik kiutjutinut havahirnik atuqtittivaalliqlugillu havahighaliuqtut Ukiuqtaqtumi. Hanatuniit ilitturinnaqtuq tughirautainit taimaa amihunik havaktiqahutik havahiqahutik hivituyumi Ukiuqtaqtumi qauyihaiplutik qaffiuplutik havaaghat. Tughirautayuuq munaqhivighaq talvaniinnaqtuq Kanatami Ukiuqtaqtumi Qauyihaivik (CHARS) Iqaluktuuttiaqmi, Nunavunmi, ihuaqhivaalliqhugu ihanganiat CHARS-kut atatarutinut Avatiliqiyinut Hilalu Aallannguqpalliyumi Kanata havakvitqikvianit Iqalungni. Iniqhiyumayugut taimaa havakvik taamna anginiqhauluni ingilrutiqaquni Ukiuqtaqtumik munaqhivighaq munaqhiyaamik ilittuqhitilluanik hilmik aallannguqtirutinik. Havakvik taamna ikayuqtigiingnik aulapkainiaqtuq ihuaqhivaalliuqtilugillu, taapkunainnaunngittunut Kanatami qauyihavingnit timiqutinullu, kihimi taapkualu nunaqyuami qauyihaiyut ikayuqtigiit havaqatigiillu.

**Key messages:** Concise, plain language summary of key take-away messages of work to date, findings and conclusions. Preferably 3-5 points, in bullet form.

- **Where, when, and for how long will the field research be undertaken?**

The research will take place on the Canadian High Arctic Research Station (CHARS) campus in Cambridge Bay, and North of the Greiner Lake Watershed in an area known as the Intensive Monitoring area. The project is funded by the Canadian Foundation for Innovation (CFI), and an agreement already exists between POLAR Knowledge Canada and project partners, valid for the next 5 years so that research will occur 2022-2027, renewable every 5 years.

- **What methods will be used to conduct fieldwork?**

The methods for fieldwork include: Snow, atmosphere and meteorology measurements; remote sensing measurements and UAVs; permafrost boreholes.

- **What impacts will the research produce impacts to the environment, wildlife, or people?**

No anticipated impact on people and wildlife, minimal impact from the permafrost boreholes in which temperature sensors will be deployed. The drilling operation will be conducted on rubber mats while the active layer is still completely frozen to avoid any surface disturbance such as damage to the vegetation, removal of organics or soil compaction.

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- **Nani, qakugu, qanuqlu hivituniaqqa maniraqmi qauyihaiyughat?**

Qauyihavangniat talvani Kanatami Ukiuqtaqtumi Qauyihavianiit (CHARS) havakvianit Iqaluktuuttiaqmi, Tununnganilu Iqaluktuuttiaq tahiraa imaiyarvianit ilihimayuyuuq taimaa Amirnaqtumik Munaqhiviuyuuq. Havaaghat hapkua manighaqtitauhimayut talvannat Kanatami Tunngaviat Hanatuniqmut (Canadian Foundation for Innovation (CFI)), angirutiqaqhutiklu tajja taapkualu POLAR Qauhimayatuqat Kantami (POLAR Knowledge Canada ikayuqtigiingniklu havaaghainut, aulavangniaqtuq tallimanik ukiunik atuqtughanit taimaa qauyihaiyaamik 2022-2027-mut, nutaannguqtiqtaulaaqhuni talliman ukiut naattaraangat.

- **Qanuq havauhiqarniaqqat maniqqami havaghutik?**

Havauhighait maniqqami taapkuanguyut: Aputimik, avatinik hlamiklu qauyihailutik, unghiktumit qauyihailutik UAV-niklu; qiqumayutuqait ikuutarniit.

- **Qanuq ikpingnautaniaqat qauyihaiyut ihuilutait avatinut, anngutighanut, inungnulluuniit?**

Ihuilitit mihingnautaulaittut inungnut, anngutighanut, mikiyumiklu ihuilutauniarahugiyuyuuq qiqumayutuqamut ikuutarniit talvani niklaumaniqmik qauyihautit iliuraqtauniaqtut. Ikuutaqpangniat ulapangnik natiqarlutik taamna havakvigiyaat qiqumatillugu taimaa qaanganik piqpaluiyaqtailiyaamik taimaatut nauttiat piqpaluiyaqtailiplutik, ahivaittailutik nauyunik nunamulluuniit.

**Objectives:** Project objectives, preferably in bullet form.

**Establish a World-Leading Multidisciplinary Arctic Observatory:**

Develop the MOACC at CHARS to address gaps in long-term, high-resolution observations of climate processes, focusing on radiative forcing constituents (GHGs, aerosols, clouds) and surface state variables (snow, permafrost).

**Advance Model Development and Satellite Validation:**

Provide critical data to improve climate, snow, and permafrost models while supporting the validation of current and future satellite missions, such as RCM, Sentinel, and Snow Mass Mission.

**Foster International Collaboration and High-Quality Training:**

Create a global networking platform to support multidisciplinary research, train highly qualified personnel (HQP), and strengthen partnerships with Canadian and international institutions.

**Generate Knowledge for Climate Adaptation:**

Deliver actionable insights on the impacts of climate change and extreme events on Arctic ecosystems, communities, and industries to inform adaptive strategies and sustainable development.

**Annual activities:** A description of activities and methods carried out during the current reporting period. This section should answer the questions: What? Where? When? Who? How? Include dates team members conducted research at remote field sites or collected data (including interviews) in communities; append a map with locations and/or coordinates of remote field sites, if applicable.

The maps and sites are unchanged where most of the activities occurred in two main places: CHARS, and the IMA. First at CHARS, lab containers were installed with atmospheric devices looking at greenhouse gases and aerosols. Those containers are now in the CHARS entrance, and we are in the process of calibrating the instruments and finish the containers' configurations. This installation occurred over several trips throughout the summer-fall 2024. The second site is in the IMA, where we conducted our snow campaign and permafrost campaign in July-August 2024. The snow campaign consisted in mapping snow characteristics at local scale using drones and interpolation techniques, whereas the permafrost campaign worked on developing an approach to retrieve freeze-thaw state.

**Results and Achievements:** Findings and results to date of the above activities, highlighting any key research achievements (see guide below for formatting tips regarding tables and figures).

This year was dedicated to instruments installation, but the overall project allowed the publications of the following:

Hamel-Jomphe, E., Levesque, E., Bayle, A., Johnson, C.A., Langlois, A., and Roy, A. 2025. Enhancing The Monitoring of Greening Across the Canadian Arctic Archipelago Using a Relative Greening Index. *International Journal of Remote Sensing*, submitted, TRES-LET-2025-0020.

Meloche, J., Royer, A., Roy, A., Langlois, A. and Picard, G. 2024. Improvement of snow microwave brightness temperature simulations for dense wind slabs and large grain size for Arctic snow, *IEEE TGRS*, doi, 10.1109/TGRS.2024.3428394.

Sasseville, V.\*, Langlois, A., Brucker, L. and Johnson, C.A. 2024. Patterns and trend analysis of rain-on-snow events using passive microwave satellite data over the Canadian Arctic Archipelago since 1987. *Journal of Hydrometeorology*, vol. 25, no. 2, 311-324, doi: 10.1175/JHM-D-22-0218.1.

**Challenges/Obstacles:** In this section, please comment on any challenges/obstacles (if any) that you experienced during this project year. If there were any actions to mitigate or resolve these challenges, please list them here. Were any concerns raised regarding the conduct of research team members or the impacts of the project?

No noticeable challenges other than logistical constraints with shipping, but overall nothing major hindering our project.

**Expected Project Completion Date:** Provide month and year of expected completion date of the project.

The site is permanent, so at the moment there is no end of project, other than our current agreement with Polar Knowledge Canada due for renewal on 2026, on which a MoU is attached between Inuit Tapiriit Kanatami and Polar Knowledge Canada. We expect this project to be renewed then.

**Project website (if applicable):** If your project has a presence on the internet, including a website and/or social media page, please provide the link and/or account handle.

Currently under construction.

**Citations:** Please append a complete reference list if citations are used anywhere in the document.

Not applicable.

## **POLICY RELEVANCE**

Does this research support policy development or decision-making in Nunavut? If yes, please describe.

The research supports policy development and decision-making in Nunavut by providing critical data and insights into the impacts of climate change and extreme events on the Atmosphere-Snow-Ground interface (ASGI). By establishing the Multidisciplinary Observatory for Arctic Climate Change (MOACC) at CHARS, the project addresses significant observational gaps needed to improve climate models, guide sustainable resource management, and support infrastructure planning in melting permafrost regions. The data generated will help policymakers and stakeholders, including Inuit communities, to develop adaptive strategies, mitigate climate impacts, and make evidence-based decisions that align with traditional knowledge and regional priorities. Furthermore, the project enhances Nunavut's role in international scientific collaborations and ensures that local policies are informed by cutting-edge, multidisciplinary research.

## RESEARCH OUTCOMES: BENEFITS

**Community engagement:** Briefly list and describe any community consultation, engagement, collaboration and outreach activities that you have undertaken for the project; describe the role(s) that community members and/or specific organizations have played in research co-design and activities.

We are currently co-developing a research program focused on the impacts of permafrost thaw on water turbidity and fish (Char) habitat along the Kitigaoq River, about 40km west of CB. Targeted meetings with community stakeholders (e.g. EHTO board members) and public outreach activities are scheduled for February 2025. Other governmental and local organizations (ex. POLAR, Viventem) are involved in the project. A 3-year project proposal has just been submitted to ArcticNet in the context of the Partnered Research Program.

**Youth engagement:** Briefly list and describe any outreach, school or classroom activities that you have undertaken for the project; describe the role(s) that youth have played in your research activities.

We hired Red Fish Studio to assist with the installation of a specialized window for the MPL (LiDAR) system in the container. The process involved cutting a hole to fit the window, followed by careful sealing to ensure a secure installation. Once the work was completed, we enjoyed pizza and discussed future projects together. We also plan to present our new research project (above) at the local school during the winter/next summer. Youth would be involved as 'junior scientists' for fieldwork sampling.

### **Training and Employment:**

How many Nunavummiut received training from team members? Please describe training and/or compensation provided.

None for 2024, as again this is an infrastructure deployment year.

How many team members received training from Nunavummiut? Please describe training received and/or what knowledge sharing and/or skills exchange took place.

None for 2024, as again this is an infrastructure deployment year.

How many Nunavummiut received employment? Please describe employment type and length, role(s) and responsibilities, and compensation provided.

Working with CHARS, we have the support of Nunavummiut techs, that are paid through POLAR.

How many Nunavummiut received honoraria as research participants? Please describe method of participation (interview, observation, sample, survey, etc.), including compensation provided.

Ajuittuq (Grise Fiord), March 2024, 4 Individual interviews with honoraria (300\$ per person), Theme 1 of the project Qausuittuq (Resolute Bay), January 2024, 5 participants to individual interviews and a workshop with honoraria (300\$ per person), Theme 1 of the project. One should also note that THEME 1 of MOACC, is center to a larger project, PECA involving 10 communities in which numerous workshops are occurring. PECA has its own license, hence we limit the details here.

Please explain how the project directly benefited Nunavut organizations and/or businesses (e.g., through contract services, local purchases, equipment donations, etc.)

MOACC directly benefited Nunavut organizations and businesses by encouraging collaboration and providing economic opportunities through contract services and local purchases. Inuit organizations were engaged to support interviews and workshops, creating employment opportunities for local residents at POALR and for MOACC, while valuing their expertise in traditional knowledge of caribou and snow during workshops. The projects also invested in local infrastructure, utilizing accommodations and facilities at the Canadian High Arctic Research Station (CHARS) and sourcing goods and services from local businesses. Additionally, equipment donations and shared access to advanced monitoring tools strengthened the capacity of local organizations to participate in ongoing climate change monitoring and research. These initiatives not only contributed to the local economy but also empowered Nunavut communities by integrating their knowledge into innovative solutions addressing climate change and biodiversity challenges.

**OPTIONAL: Nunavut Team Members, hires, and/or trainees (excluding research participants e.g., interviewees)**

*The NRI is creating an inventory of Nunavummiut who are skilled and/or interested in research. The information provided below will not be shared publicly but will support long-term capacity sharing by connecting local and visiting researchers with research talent in each community.*

Name	Expertise/skills	Training/interest areas	Contact Info	Community

**Academic Mobility**

If you are affiliated with an academic institution, please answer the following question: For which Level of Project(s) will the data be used? (Check all that may apply)

- Research**
- Post-Doctoral**
- Research PhD Thesis**
- Masters (Major Research Paper)
- Masters (Thesis)**
- Graduate Course Project
- Staff/Administration Research
- Undergraduate Honours Thesis

Other

## BUDGET

Please complete the table below to detail your projected and actual research expenditures during the reporting period.

Category	Planned/Approved Expenditure	Actual Expenditure
Travel and Accommodation		
Equipment, Materials and Supplies		
Salaries/Wages for Nunavut residents		
Salaries/Wages for non-Nunavut resident researchers		
Professional Fees and services in Nunavut		
Professional Fees and Services outside of Nunavut		
<b>TOTAL EXPENDITURES</b>		

List the total \$ amount of funding from each funding source for your full research program, including in-kind support

This is a 4.2M\$ where funds are not planned annually, but overall over a period of 5 years. The project also is part of the Groupe Interdisciplinaire sur les Milieux Polaires (GRIMP), which includes several other budgets. Furthermore, if only considering MOACC, salaries are not eligible given it is only infrastructure budget, so putting numbers in the above section is not relevant in this case.

Full program is:

- CFI, 4.2M\$ 2021-2026
- NSERC Alliance, 1.8M\$ 2021-2026
- NSERC discovery and northern supplement, 195K\$ 2021-2026\*

We are working across 4 universities, 2 government partners with a team of 30 people so putting numbers in the above table is simply out of scope of this renewal.

\*This is only for me, excluding the 9 collaborators from MOACC.

## RESEARCH OUTPUTS / REPORTING TOOLS

What research outputs were generated? Please list below and append copies of each. Specify which outputs (if any) may be made public on the NRI research licensing database.

Publications were highlighted above, and available through the DOIs. Once the infrastructure is complete, we will participate to a workshop at CHARS to describe the project to community members. Again we are under a MoU, in which the details are explained.

Have peer-reviewed manuscripts been published as a result of your project? If Yes,  
complete the following table:

Full citation	Publicly accessible/ free to access (Y/N)	Link (if available) and DOI (if available)

Hamel-Jomphe, E., Levesque, E., Bayle, A., Johnson, C.A., Langlois, A., and Roy, A. 2025. Enhancing The Monitoring of Greening Across the Canadian Arctic Archipelago Using a Relative Greening Index. International Journal of Remote Sensing, submitted, TRES-LET-2025-0020.

Meloche, J., Royer, A., Roy, A., Langlois, A. and Picard, G. 2024. Improvement of snow microwave brightness temperature simulations for dense wind slabs and large grain size for Arctic snow, IEEE TGRS, doi, 10.1109/TGRS.2024.3428394.  
<https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10608056>

Sasseville, V.\*, Langlois, A., Brucker, L. and Johnson, C.A. 2024. Patterns and trend analysis of rain-on-snow events using passive microwave satellite data over the Canadian Arctic Archipelago since 1987. Journal of Hydrometeorology, vol. 25, no. 2, 311-324, doi: 10.1175/JHM-D-22-0218.1.  
<https://journals.ametsoc.org/view/journals/hydr/25/2/JHM-D-22-0218.1.xml>

Were non-peer reviewed materials produced to either communicate or synthesize results to the public? Examples of these materials include (but are not limited to): websites, reports, brochures, podcasts, webinars, presentations, non-peer reviewed publications, etc.

Not during the reporting period, where again, the focus was on installing infrastructure.

Did your project develop a communications plan? Please describe communications/reporting tools used, and list the target audience for each and/or who requested which.

Not during the reporting period, where again, the focus was on installing infrastructure.

How were Nunavummiut credited and/or acknowledged in all project outputs, such as co-authorship, participant biographies, article acknowledgements, etc.

Not applicable for 2024.

#### **DATA AND INTELLECTUAL PROPERTY**

Did you enter into a research agreement, data-sharing agreement and/or intellectual property rights agreement with a community and/or designated Inuit organization (DIO)? If yes, please explain.

All details on data, ownership are detailed in the research agreement, and MoU. In order to obtain those, the legal office of Université can be contacted upon request.

Do intellectual property rights apply to your research? If yes, please explain.

All details on intellectual property are detailed in the research agreement, and MoU. In order to obtain those, the legal office of Université can be contacted upon request.

Who owns the data? Has the raw data been shared with the appropriate community and/or DIO? If yes, how? How is data security and storage handled by community-based co-owners?

The data management plan, is under construction, should be fully ready by 2026 once all infrastructure are in place.

Where is the data stored and will the data be destroyed within a set timeframe?

The data management plan, is under construction, should be fully ready by 2026 once all infrastructure are in place.

Is the data trackable and/or available in a public data repository? If yes, please provide the appropriate information and/or link to ensure the findability and accessibility of the data.

The data management plan, is under construction, should be fully ready by 2026 once all infrastructure are in place.

Please append a copy of your data management plan.

The data management plan, is under construction, should be fully ready by 2026 once all infrastructure are in place. This said, we do have a governance plan. The management plan for MOACC will benefit from, and build on, the existing structure that is in place for CHARS operations and science (Figure-1). CHARS has a complement of permanent staff on site in Cambridge Bay who will contribute to installation, maintenance, trouble shooting and utilization of the proposed infrastructure as well as covering the electricity costs associated with the infrastructure. For the MOACC team, management will be augmented with the hiring of a site officer and a data manager (see budget). The CHARS Director of Science & Technology (A. Leclair) will coordinate three committees (Advisory Committee, Executive Committee and HQP Committee) with the MOACC team (PI Langlois and co-applicants). PI Langlois will have overall responsibility for the administration of the project, which will include communications, budget management and ensuring the communication between the themes. The Advisory Committee will provide support to MOACC by overseeing the project as a whole and will be comprised of two representatives of the MOACC project (Langlois, O'Neill) and major stakeholders from Polar Knowledge Canada, ECCC and two members for the Cambridge Bay community. The Executive Committee will include the PI, theme leaders and our site officer that will oversee the project management while steering the scientific objectives and communications through monthly teleconferences and yearly in-person meetings. The site officer will support field coordination in close collaboration with CHARS' operations manager (G. Redvers), while supporting the data manager ensuring data quality, proper archive while establishing data sharing agreements. The site officer will also coordinate, with the UdeS engineer, field deployment of instruments. The HQP Committee will include existing and future students from MOACC and ensure the maximization of HQP training within the project. The data produced by the project will be hosted at the Université de Sherbrooke on existing data platforms managed by A. Langlois and D. Gravel and managed through the Site officer and a Data manager. Finally, outreach will be integrated through community meetings as well as HTO meetings to ensure the proper inclusion of traditional knowledge in the science objectives while contributing to training through snow/summer schools hosted at CHARS given the existing classrooms and laboratories availability.

Y /

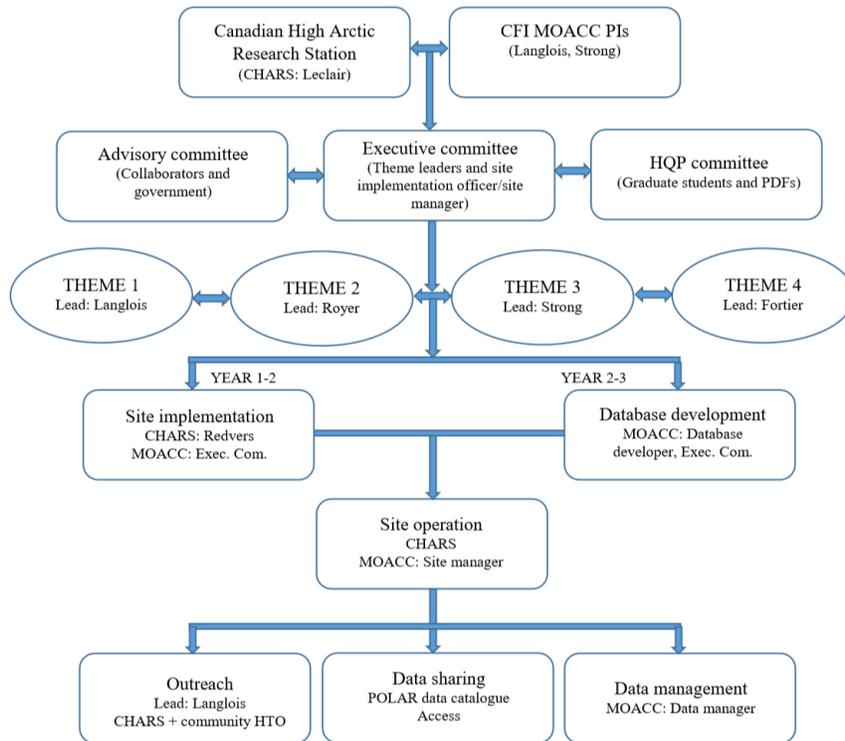


Figure-1: Governance model for MOACC

## CLIMATE CHANGE

Is your research about climate change (causes, impacts, mitigation, adaptation, etc.)? If yes, explain.

Yes, the research is focused on climate change, encompassing its causes, impacts, and potential mitigation and adaptation strategies. The projects investigate how rapid warming in the Arctic affects critical environmental components such as snow, permafrost, vegetation, and biodiversity, as well as their interactions with the atmosphere. By combining traditional Indigenous knowledge with advanced scientific methods, the research examines the impacts of climate change on the distribution and survival of key Arctic species like caribou, muskoxen, polar bears, and apex predators permafrost and atmospheric processes. It also explores how these changes influence Inuit communities, their traditional practices, and infrastructure. Furthermore, the research aims to develop and test adaptation strategies, such as conservation networks, to mitigate biodiversity loss and promote sustainable, evidence-based policy-making. Through its multidisciplinary and inclusive approach, the research directly addresses the complex challenges posed by climate change in the Arctic.

## PHOTOGRAPHS

*If possible, please provide high-resolution photos of licensed research activities that NRI may use in communication materials, organizational reporting, and other promotional purposes. The photographer and all recognizable people in each photo must sign the attached Photo and Video Release form. Please also complete the table below for each photo provided and submit to NRI along with all required NRI photo release forms. The photographer/owner will be credited in all uses of the photograph(s).*

File Name	Location	Description	Subjects	Photographer/Owner	Date

Would you like your project to be considered for a research profile and promotion by the NRI? **Yes**

## **FORMATTING TIPS**

### ***Main text:***

Please supply report in a standard manuscript format (**Microsoft Word format is required**).

### ***Tables:***

Any number of tables can appear in one file (as long as they are clearly marked). Tables prepared using simple table formats as provided in word processing programs such as WordPerfect are preferred. Each table should be numbered according to its appearance in the text (e.g., Table 1, Table 2) and each should have a brief descriptive heading.

### ***Figures:***

Each figure or graphic element should be submitted as a separate file. Black & white and colour graphics are both acceptable. We can accommodate most standard graphic file formats, however, please indicate in which format the graphic was prepared.

### ***References:***

Please use the APA or MLA Citation Style while referencing throughout the report.

### ***Size:***

The size of the electronic document must not exceed 4MB (if larger than 4MB, please send attachments separately and number the emails).