Project Dashboard

Permafrost Pathways Monitoring Network (149935)

Proposal Status: **Conformity Determination Issued**

- **Overview**
- Documents
- Questionaire

Project Overview

Type of application: **New**

Proponent name:	Patrick Murphy
Company:	Woodwell Climate Research Center

Schedule:

Start Date:	2023-08-24
End Date:	2027-07-10
Operation Type:	Annual

Project Description:

Permafrost Pathways is a multi-institutional project made of scientists, international policy experts, and community stakeholders, led by Dr. Susan Natali at the Woodwell Climate Research Center. Our goal is to quantify permafrost greenhouse gas fluxes across the Arctic boreal region, and use these results to inform more realistic international climate policy. Currently, estimates of carbon emissions from permafrost regions are highly variable and thus, policymakers do not account for these carbon emissions when setting emissions reduction targets. We intend to measure carbon exchange where data is needed most across the Arctic boreal region using a network of monitoring stations, including in Nunavut. Over the course of five years, these stations will measure carbon dioxide and methane emissions from natural permafrost ecosystems. The monitoring stations would remain in Nunavut year-round and consist of a structure such as a metal tri-pod, with sensors attached above and below ground. These sensors collect data about weather, environmental conditions, and associated greenhouse gas movement. Storage of the data will be managed by our organization, but all data will be openly shared to an online repository at the end of each calendar year. The availability of this data will promote collaboration with other researchers and allow public use and engagement. We will publish our results that identify relationships between climate change and permafrost. Our project will have a relatively small impact on the lives of Nunavut residents. Our researchers will install the monitoring station in an undisturbed location that will be approved by the landowner and local organizations, and we will return annually to repair and maintain the sensors. We also plan to contract interested local residents to make small adjustments to the sensors and assist with troubleshooting throughout the year. We intend to and would like to participate in a town meeting annually to share our research and answer any questions local residents may have about our local research site and larger goals. This includes meetings in Resolute, Pond Inlet, Iqaluit, or any other location that we may work in the future.

Personnel:

Persons:	6
Days:	33

Project Map

List of all project geometries:

ID	Geometry	Location Name

9990	point	Resolute Monitoring Station (primary)
9991	point	Pond Inlet Monitoring Station (primary)
9995	point	Resolute Monitoring Station (alternative)
9996	point	Pond Inlet Monitoring Station (alternative)

Planning Regions:
Kivalliq
Affected Areas and Land Types
Municipal
Settlement Area
North Baffin Planning Region

Project Land Use and Authorizations

Project Land Use
Scientific Research
Temporary Structures
Licensing Agencies
NRI: Scientific Research Licence
NIRB: Screening Decision Report
Other Licensing Requirements
No data found.

Material Use

Equipment

Type	Quantity	Size	Use
ATV	3	2m x 1.5m	We will use ATVs to tow our equipment to the monitoring site, as long as land owners approve.
Tripod towers	4	2m x 2m x 3m	These semi-permanent aluminum or galvanized steel tripds will be erected at the monitoring site (2 tripods at each site for a total of 4). We will use these to mount monitoring equipment for the duration of the project. We will remove them entirely at the end of the project

Scaffolding structure	2	1.5m x 3.2 m x 4.3m	These semi-permanent scaffolding structures will be erected at the monitoring site (1 at each site for a total of 2). We will install them above the tundra and anchor them to protect against wind. The structures will hold wind turbines and solar panels to power our equipment for the duration of the project. We will remove them entirely at the end of the project.

Fuel Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Hazardous Material and Chemical Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Water Consumption

Daily Amount (m^3)	Retrieval Method	Retrieval Location
0		

Waste and Impacts

Environmental Impacts

Our research site will operate continuously for approximately 4 years. The structures required to install and power the equipment will have a minimal impact on the terrain. Tripods and scaffolding structures will sit on the surface of the tundra, and be anchored with stakes and cement weights. We will remove all equipment, structures, and anchoring supplies at the end of the project period. The biggest foreseen impact is the travel associated with visiting the site for maintenance and repairs. We will follow existing ATV tracks whenever possible, and will avoid taking ATVs along parts of the landscape that land managers ask us to avoid.

Waste Management

Waste Type	Quantity Generated	Treatement Method	Disposal Method
No data found.			