



New

Scientific Research

Period of operation: from 2025-06-01 to 2028-04-01

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▷Δ&NDS: Ce projet de recherche scientifique dirigé par la professeure Stephanie Kusch (Université du Québec Rimouski) étudiera les changements dans la reminéralisation du carbone organique du pergélisol et l'érosion en réponse au changement climatique. Les activités réalisées par une équipe de 3 chercheurs universitaires pendant la durée du projet (échantillonnage annuel pendant 2 à 3 semaines en juillet/août de 2025 à 2028) comprennent l'échantillonnage du sol du pergélisol pour étudier la production de gaz à effet de serre et la transformation de la matière organique, ainsi que l'échantillonnage des sédiments marins pour étudier l'érosion du carbone organique du pergélisol dans l'océan et les mécanismes de rétroaction océanique. Les échantillons de sol seront prélevés dans de petites fosses de 15 x 15 cm atteignant la table du pergélisol (30 à 50 cm de profondeur) et les sédiments (0-2cm de profondeur) seront prélevés à l'aide de petites bennes. Les observations faites dans le cadre de ce projet de recherche seront reliées à des enregistrements de sédiments plus longs afin de comprendre la dynamique passée du pergélisol au-delà des enregistrements d'observation, ce qui permettra d'évaluer la sensibilité et la réponse du pergélisol OC aux forçages climatiques naturels et anthropogéniques et aidera à prédire la réponse future du pergélisol au changement climatique. Cette recherche aidera la communauté de Qikiqtarjuaq à mieux comprendre les changements en cours dans l'environnement et dans leurs territoires de pêche et de chasse. Les chercheurs utiliseront la nouvelle station de recherche de Qikiqtarjuaq, exploitée par l'Université Laval, qui s'occupe de l'élimination des déchets. Aucun impact environnemental sur les terres n'est prévu. Aucun produit chimique ou plastique ne sera utilisé pour l'échantillonnage. Les protocoles de nettoyage de l'équipement seront respectés afin d'éviter toute importation d'espèces envahissantes. Les volumes d'échantillons sont faibles (500 cm³) et les fosses pédologiques seront fermées après l'échantillonnage afin qu'elles ne posent pas de problème de sécurité.

[illegible]

Personnel

Days on site: 80

Total Person days: 240

Operations Phase: from 2024-12-08 to 2028-04-01

Operations Phase: from 2025-06-01 to 2028-04-01

Post-Closure Phase: from to

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permafrost 1	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 2	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 3	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 4	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples	N/A	within 5km aerial distance to Qikiqtarjuaq

			have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.		
permafrost 5	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 6	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 7	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 8	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface	N/A	within 5km aerial distance to Qikiqtarjuaq

			vegetation will be used to close pits after a sample of 500ccm has been taken.		
permafrost 9	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 10	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 11	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 12	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a	N/A	within 5km aerial distance to Qikiqtarjuaq

			sample of 500ccm has been taken.		
permafrost 13	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
permafrost 14	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Permafrost soils samples will be taken from small soil pits, approximately 15x15cm wide and 30-50cm deep (to the permafrost table). Soil pits will be opened with knives and shovels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits after a sample of 500ccm has been taken.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 11	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Sediment samples will be taken from a small boat using a Ponar grab sampler. Approximately 200ccm sediment will be sampled. One to two 40L canisters will be filled with water to filter suspended sediments.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 12	Scientific/International Polar Year Research	Marine	Sediment samples will be taken from a small boat using a Ponar grab sampler. Approximately 200ccm sediment will be sampled. One to two 40L canisters will be filled with water to filter suspended sediments.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 13	Scientific/International Polar Year Research	Marine	Sediment samples will be taken from a small boat using a Ponar grab sampler. Approximately 200ccm sediment will be sampled. One to two 40L canisters will be filled with water to filter suspended sediments.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 14	Scientific/International Polar Year Research	Marine	Sediment samples will be taken from a small	N/A	within 5km aerial

			boat using a Ponar grab sampler. Approximately 200ccm sediment will be sampled. One to two 40L canisters will be filled with water to filter suspended sediments.		distance to Qikiqtarjuaq
sediment 15	Scientific/International Polar Year Research	Marine	Sediment samples will be taken from a small boat using a Ponar grab sampler. Approximately 200ccm sediment will be sampled. One to two 40L canisters will be filled with water to filter suspended sediments.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 1	Scientific/International Polar Year Research	Inuit Owned Surface Lands	One to two 40L canisters will be filled with water to filter suspended sediments. If no surface flow is observed, surface sediment samples (200ccm of uppermost 2cm) taken with a small shovel.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 2	Scientific/International Polar Year Research	Inuit Owned Surface Lands	One to two 40L canisters will be filled with water to filter suspended sediments. If no surface flow is observed, surface sediment samples (200ccm of uppermost 2cm) taken with a small shovel.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 3	Scientific/International Polar Year Research	Inuit Owned Surface Lands	One to two 40L canisters will be filled with water to filter suspended sediments. If no surface flow is observed, surface sediment samples (200ccm of uppermost 2cm) taken with a small shovel.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 4	Scientific/International Polar Year Research	Inuit Owned Surface Lands	One to two 40L canisters will be filled with water to filter suspended sediments. If no surface flow is observed, surface sediment samples (200ccm of uppermost 2cm) taken with a small shovel.	N/A	within 5km aerial distance to Qikiqtarjuaq
sediment 5	Scientific/International Polar Year Research	Inuit Owned Surface Lands	One to two 40L canisters will be filled with water to filter suspended sediments. If no surface flow is observed, surface sediment samples (200ccm of uppermost 2cm) taken with a small shovel.	N/A	within 5km aerial distance to Qikiqtarjuaq

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ᓄᓯᓇᕋᖁᖅ	Geela Kooneeliusie	hamlet Qikiqtarjuaq	2025-02-03
ᓄᓯᓇᕋᖁᖅ	Billy Arnaquq	Nunavut Experience Outfitting Services	2025-02-01

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Project transportation types

Transportation Type	How to Use	Length of Use
Water	boat	
Land	ATV, by foot	

Project accomodation types

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AL^{9b} ◀^{9b} C ▶^{9b} L^{9b} ◀^{9b}

$\triangleright \lrcorner \dot{\mathbf{C}} \dot{\mathbf{L}}^{\mathbf{f_b}} \triangleleft \mathbf{f_b} \mathbf{C} \triangleright \sigma \triangleleft \mathbf{f_b} \mathbf{C}^{\mathbf{f_b}}$	$\mathbf{f_b} \mathbf{f_b} \triangleleft \mathbf{f_b} \mathbf{C}^{\mathbf{f_b}} \mathbf{C}^{\mathbf{f_b}} \sigma \triangleleft \mathbf{f_b} \mathbf{C}^{\mathbf{f_b}}$	$\mathbf{aP}^{\mathbf{C}} \triangleleft \mathbf{f_b} \mathbf{C}^{\mathbf{f_b}} \mathbf{C}^{\mathbf{f_b}} \sigma \triangleleft \mathbf{f_b} \mathbf{C}^{\mathbf{f_b}}$
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		produced by 3 researchers	team will stay at the new research station operated by Laval University. The station is equipped with a septic tank that will be used for sewage disposal. No human waste will be disposed of in the field.	managed by the research station operators.
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Environmental Impact

The environmental impact of this project is minimal. Soil pits will be opened with knives and trowels and closed after subsamples have been taken; excess soil and surface vegetation will be used to close pits, small depressions of the ground (15x15cm) are expected, but do not pose a safety issue. All soil and sediment samples will be transported back to the laboratory in Rimouski (no treatment of samples on site / no use of chemicals).

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

Cumulative Effects

Impacts

[illegible][illegible]

($P = \langle b \rangle_{\dot{a} \cdot p \cap \dot{a} \cdot \dot{c}}$, $N = \langle b \rangle_{\dot{a} \cdot \dot{r} \cap \dot{d} \cdot \dot{a} \cdot \dot{c}}$ $\langle \dot{c} \dot{d} \dot{r} \dot{r} \dot{c} \dot{c} \dot{d} \dot{a} \dot{r} \dot{c} \dot{c}$, $M = \langle b \rangle_{\dot{a} \cdot \dot{r} \cap \dot{d} \cdot \dot{a} \cdot \dot{c}}$ $\langle \dot{c} \dot{d} \dot{r} \dot{r} \dot{c} \dot{c} \dot{d} \dot{a} \dot{r} \dot{c} \dot{c}$, $U = \dot{c} \dot{d} \dot{r} \dot{a} \dot{r} \dot{c} \dot{c}$)

1	point	permafrost 1
2	point	permafrost 2
3	point	permafrost 3
4	point	permafrost 4
5	point	permafrost 5
6	point	permafrost 6
7	point	permafrost 7
8	point	permafrost 8
9	point	permafrost 9
10	point	permafrost 10
11	point	permafrost 11

12	point	permafrost 12
13	point	permafrost 13
14	point	permafrost 14
15	point	sediment 1
16	point	sediment 2
17	point	sediment 3
18	point	sediment 4
19	point	sediment 5
20	point	sediment 6
21	point	sediment 7
22	point	sediment 8
23	point	sediment 9
24	point	sediment 10
25	point	sediment 11
26	point	sediment 12
27	point	sediment 13
28	point	sediment 14
29	point	sediment 15