ᓄᓇᕘᒥ ᐊᕙᑎᓕᕆᔩᒃᑯᑦ ᑲᑎᒪᔨᖏᑦᑎᒍᑦ ᑐᒃᓯᖅᑑᑦ ᕿᒥᕐᕈᔭᒃᓴᖅ #125734

Multidisciplinary Observatory for Arctic Climate Change and Extreme EventsMonitoring (MOACC)

ᑐᒃᓯᖅᑑᑕᐅᔪᖅ ᖃᓄᐃᑦᑑᓂᖓ:	New
ᐱᓕᕆᐊᓕᔭᐅᔪᒪᔫᑉ ᖃᓄᐃᑦᑑᓂᖓ:	Scientific Research
ᐅᓪᓗᖓ ᑐᒃᓯᖅᑑᑎᓕᐊᖑᓂᐅᑉ:	8/1/2022 1:46:38 PM
Period of operation:	from 0001-01-01 to 0001-01-01
ᑲᔪᓯᒃᑲᐃᔨᐅᓂᐊᕋᓯᒥᔭᐅᔪᑦ:	from 0001-01-01 to 0001-01-01
ᐱᓕᕆᐊᖅᑲᕈᒪᔪᖅ:	Université de Sherbrooke, Alexander Langois

Université de Sherbrooke, Alexander Langois

Department de Géomatique appliquée, Alexander Langois, Université de Sherbrooke, Sherbrooke, QC J1K2R1, Phone: 819-821-8000 ext. 65690, Email: a.langlois2@usherbrooke.ca

Sherbrooke Quebec J1K 2R1

Canada

ᐅᖄᓚᐅᑏᑦ: 819-446-4860, ᓱᑲᔪᒃᑯᑦ:

ᑐᓴᐅᒪᔭᒃᓴᑦ

ᖃᓄᐃᑦᑑᑎᓂᒃ ᐱᓕᓇᐊᖅᑲᖅᓂᐊᓇᐊᖕᒐᓐᓂᒃ

ᖃᓪᓗᓈᑎᑐᑦ: The site is to be based in Cambridge Bay, Nunavut with the Canadian High Arctic Research Station (CHARS). MOACC's monitoring strategy involves establishment of baseline Arctic datasets at the leading edge of current measurement capabilities, which may be generalized to the wider Arctic. Our monitoring strategy will be applied within the context of four research themes: TH1-Snow Remote Sensing and Ecological Applications; TH2-Snow Modeling and Hydrology; TH3-Atmosphere, and TH4-Permafrost. While each theme has its own motivation and objectives, they are inevitably linked together by climate change and impacts that transcend the Atmosphere-Snow-Ground interface (ASGint) system.THEME1: The main objectives of this theme are: (1) to develop new techniques to derive snow water equivalent (SWE) and stratigraphy using passive and active microwave data; and (2) to quantify the processes governing snow spatial distribution using innovative photogrammetric approaches (Structure-for-Motion) at the in-situ and airborne scales. Snow retrievals approaches from (1) and (2) will be used (3) to map snow properties at various scales to assess ungulates foraging conditions. Finally, we will (4) continue our development of remote sensing algorithms capable of monitoring extreme events using satellite passive microwave data and in-situ Frequency Modulated Continuous Wave (FMCW) radars that will enable us, along with results from (3), (5) to develop an ungulate habitat quality index based on surface snow conditions and extreme event occurrence. The theme will also aim at developing a methodology to retrieve high-resolution snow information from unmanned aerial vehicle-UAVs (small scale).THEME 2: The main objectives of the theme will be: (1) to pave the way towards improved model approaches by quantifying isotope values (δ18O, δD) of Arctic snow cover in order (2) to evaluate linkages between physical and geochemical measurements according to snow stratigraphy, weather factors and seasonal evolution providing a nice link to Theme 1. We will also (3) quantify the geochemical components of winter snow cover and spring snowmelt (4) to determine snow contributions to spring flow of the major river systems associated with the Greiner watershed at the MOACC site. These results will allow (5) the development of an isotope routine to be implemented in our snow simulation platform developed by the Université de Sherbrooke team [18] to better understand flow patterns in other important watersheds of the Arctic. Finally, this snow simulation platform will also (6) aim to predict the impact of future changes in snow cover to freshwater export into the marine system.THEME 3: Within the context of lower Arctic region of the Canadian Arctic Archipelego, we seek: (1) To quantify the relative importance of regional sources and long-range transport on GHG concentrations and aerosols. (2) To better understand climate change impacts on the regional carbon cycle. (3) To determine what is driving changes in springtime tropospheric Arctic ozone depletion and Arctic Haze aerosols in the PBL (4) To investigate the near-surface microphysics and chemistry of aerosols (notably with respect to aerosol absorption) and relationships with snow/ice surface albedo (5) To characterize the surface to columnar transformation of aerosol microphysics and chemistry across the total PBL. (6) To employ CTMs in order to help understand the high- to low-Arctic transect from Alert to Eureka to Resolute Bay to CHARS. (7) To establish, in general the determinants of Arctic air quality and how they are changing with time.THEME 4: The main objectives of this theme will be: 1) to develop a surface energy budget (SEB) to predict the ground surface temperature (GST) and energy fluxes with varying snow regimes and properties; 2) to evaluate the impact of weather events, in particular extremes events, on the thermal regime of permafrost; 3) to evaluate the movement of water in permafrost as a result of thawing and freezing cycles in a context of climate change; 4) to model the dynamics of ground ice in the transient layer to changing climatic conditions; 5) to evaluate the impact of changing climatic conditions and extreme events on surface stability and topographical changes; 6) to evaluate the thermal resistance of permafrost to warming using various ground ice scenarios and simulations of regional climate change; 7) to monitor long-term (beyond the duration of this project) climate change as recorded by deep permafrost temperature.The personnel 'Person days' and fuel are estimated for Year 1 of the project only.

ᐅᐃᐋᑎᑐᑦ: L'objectif principal du projet vise le développement à long-terme d'un Observatoire multidisciplinaire pour le suivi du changement climatique et des événements extrêmes en Arctique (OMCCA), incluant le suivi de variables clés constituant les processus atmosphériques tels que les gaz à effet de serre (GES), aérosols, nuages ainsi que des variables d'état de surface telles le couvert nival et le pergélisol. Au cours de la dernière décennie, plusieurs projets et campagnes de terrain intensives ont mené à une amélioration de la compréhension empirique des divers processus gouvernant le changement climatique en Arctique. Cependant, il existe un consensus dans la communauté scientifique concernant le manque d'observations temporelles qui demeurent cruciales dans : la compréhension (encore incomplète) des processus de rétroactions climatiques et le développement de modèles de variables d'état de surface, de transfert radiatif et atmosphériques. L'aspect innovant du projet réside dans son aspect multidisciplinaire permettant les mesures à long-terme en Arctique à travers plusieurs disciplines. L'Observatoire sera localisé sur le campus de la Station canadienne de recherche dans l'Extrême-Arctique (SCREA) à Cambridge Bay, au Nunavut permettant ainsi de répondre à un besoin criant : augmenter notre capacité de mesure à coût avantageux lorsque comparé à d'autres stations à vocations spécifiques ailleurs dans l'Arctique où les contraintes financières et logistiques sont dissuasives. L' Observatoire sera localisé dans un endroit protégé et dont l'opération et la maintenance sera faite en étroite collaboration avec la SCREA qui est partenaire du projet. De plus, son emplacement géographique est stratégique et représente un site très important à tous les niveaux, notamment au niveau de suivi atmosphérique en complétant un transect Nord-Sud liant les stations de Alert et Eureka à celles de Whitehorse et Cambridge Bay tel que proposé dans ce projet.Le mandat que nous nous sommes donné répond donc à des applications de recherche fondamentales et appliquée en collaboration avec la SCREA, tout en contribuant au développement d'une plateforme de réseautage facilitant les efforts de recherche internationaux dans l'Arctique canadien. L'Observatoire deviendra l'un des plus gros sites instrumentés multidisciplinaires dans le haut-arctique dédié au suivi d'indicateurs clés contrôlant le changement climatique, ce site complémente les stations météorologiques d'Iqaluit et d'Eureka). Notre projet vise le déploiement d'un site de référence de calibre mondial en Arctique équipé d'une suite d'instruments uniques dans leur diversité. Le site pourra aussi supporter diverses missions satellites de suivi du couvert nival ou du pergélisol telles RADARSAT Constellation Mission, Sentinel, Snow Mass Mission project, MetOp-SG Sat B pour une synergie multifréquence de capteurs passifs et actifs (WMO Polar Space Task Group). Les mesures de GES et aérosols contribueront à la validation de missions telles que GOSAT-2, TROPOMI sur Sentinel 5P, et potentiellement AIMNorth. Notre stratégie de mesure s'inscrit donc dans un contexte se concentrant sur quatre thèmes de recherche principaux : 1) Télédétection du couvert nival et applications écologiques; 2) Modélisation du couvert nival et hydrologie; 3) Atmosphère et 4) Pergélisol. Le projet incorporera des mesures optiques et micro-ondes pour le suivi du couvert nival et du pergélisol dans le but de développer des algorithmes de télédétection; le développement technique de l' utilisation de drones en contexte polaire; des mesures de GES, aérosols, nuages ainsi que des mesures de concentration d'ozone stratosphérique. Ceci sera complémenté pas des mesures in-situ de la couche active et de la température du pergélisol, du contenu en eau liquide du sol, de la conductivité thermique et mouvement du sol et des mesures de neige (hauteur, densité) pour évaluer la variabilité interannuelle du changement climatique.

ᐃᓄᒃᑎᑐᑦ: NA is this in the the Kitikmeto region

Inuinnaqtun: •Havaaghaum AtiaAmihunit Havaktinit Qunngiaqvik Ukiuqtaqtumi Hila Aallannguqpalliayumi Qayangnaqpiaqtuniklu Munaqtiuyut (MOACC)•Hivulliqtiuyuq Qauyihaiyim Atia Havakviillu Prof. Dr. Alexandre Langlois, Ilihaqpaalliqviat Sherbrooke-miProf. Dr. Kimberly Strong, Ilihaqpaalliqviat Toronto-mi•Kitunik qauyihainiqmut apiqhuutinik kiuhiniaqhimavat havaaghakkut? Kituuvat qauyihainiqmut iniqtauyughat huuqlu qauyihautit iharianaqqat?Taamna Amihunik Havaktilik Qauyihaivik Ukiuqtaqtumi Hila Aallannguqpalliayumi Hilalukpiaqtumiklu Munaqhiyut (MOACC) tughirautait tuniyauhimayuq talvanngat Ilihaqpaalliqviat Sherbrooke-mi (hivuliqtiuyut ilihaqpaalliqvik-UdeS), Ilihaqpaalliqviat Toronto-mi (UofT), Western Ilihaqpaalliqviat (WU) taamnalu Ilihaqpaalliqviat Montreal-mi (UM). Inirumalluaqtaat havaaghainit taimaa hanalutik amihunik havaktilingmik ayuqnaqtunik qauyihaivingmik taimaa hivituyumik munariyaamik Ukiuqtaqtumi hila aallannguqpalliayumik, katitiqhutik ayuittunik amihunik ilihimattiaqtunik ilihaqpaalliqvingnillu. Havaaghat hapkua hivuliqtuqtauyut taaffuminnga Prof. Alexandre Langlois (UdeS) taamnalu Prof. Kimberley Strong (UofT) kiuhivaghutiklu angiqhimagiighutik munaqhivighailliuqtut iharianaqtutut ilihimattiariamik kiutjutinut havauhirnik atuqtittivaalliqlugillu havauhighaliuqtut Ukiuqtaqtumi. Hanatuniit ilitturinnaqtuq tughirautainit taimaa amihunik havaktiqaqhutik havauhiqaqhutik hivituyumi Ukiuqtaqtumi qauyihaiplutik qaffiuplutik havaaghait. Tughirautauyuq munaqhivighaq talvaniinniaqtuq Kanatami Ukiuqtaqtumi Qauyihaivik (CHARS) Iqaluktuuttiaqmi, Nunavunmi, ihuaqhivaalliqhugu ihanganiat CHARS-kut atatarutinut Avatiliqiyinut Hilalu Aallannguqpalliayumi Kanata havakvitqikvianit Iqalungni. Iniqhiyumayugut taimaa havakvik taamna anginiqhauluni ingilrutiqaqluni Ukiuqtaqtumik munaqhivighaq munaqhiyaamik ilittuqhitilluanik hilamik aallannguqtirutinik. Havakvik taamna ikayuqtigiingnik aulapkainiaqtuq ihuaqhivaalliutilugillu, taapkunainnaunngittunut Kanatami qauyihaivingnit timiqutinullu, kihimi taapkualu nunaqyuami qauyihaiyut ikayuqtigiit havaqatigiillu.•Nani, qakugu, qanuqlu hivituniaqqa maniraqmi qauyihaiyughat?Qauyihaivangniat talvani Kanatami Ukiuqtaqtumi Qauyihaivianit (CHARS) havakvianit Iqaluktuuttiaqmi, Tununnganilu Iqaluktuuttiaq tahiraa imaiyarvianit ilihimayauyuq taimaa Amirnaqtumik Munaqhiviuyuq. Havaaghat hapkua manighaqtitauhimayut talvanngat 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 hilamiklu qauyihailutik, ungahiktumit qauyihailutik UAV-niklu; qiqumayutuqait ikuutarniit.•Qanuq ikpingnautauniaqat qauyihaiyut ihuilutait avatinut, anngutighanut, inungnulluuniit?Ihuilutit mihingnautaulaittut inungnut, anngutighanut, mikiyumiklu ihuilutauniarahugiyauyuq qiqumayutuqamut ikuutarniinut talvani niklaumaniqmik qauyihautit iliuraqtauniaqtut. Ikuutaqpangniat ulapangnik natiqarlutik taamna havakvigiyaat qiqumatillugu taimaa qaanganik piqpaluiyaqtailiyaamik taimaatut nauttiat piqpaluiyaqtailiplutik, ahivaittaililutik nauyunik nunamulluuniit.•Qanuq naunaitkutat katitiqhimayut qauyihaiyunit tutquumavangniaqqat munaqtauniaqqallu? Titiraqhimayutut talvani angirutinit, POLAR-kut pilaarutiqarniaqtut laisiniktittaamik taapkua Inuit Tapiriit Kanatami taapkualu Gwich'in Tribal Council-kut akiliqtuqnaittumik, utiqtitaulaittumik, aularaaqtumik, ilaupkaiyunik nuutitaulaittuniklu pilaarutinik aturiamik qauyihaiyit naunaiqhimaliqtait manighiurutaunngittumik iluani qauyihautighat, qauyihaiyut ilihautighaillu kihiinnaq, pilaarutaittumik laisiniktittiyaamik. Ahiagullu, hapkua havaaghat angirutikkut titiraqhimayuq taapkualu POLAR-kut ITK-kullu/Gwich'in Tribal Council talvuuna ilittuqhitiittuq hamani taimaa angirutik 40-nik makpiraqarami.•Qanuq hivituyumik Nunavunmiutat ilauniaqqat qauyihaiyunut? Havaktighaqhiuqlutik

Iqaluktuuttiaq Anguniaqtit Naniriaqtuqtillu Katimayiigut aputimik munaqhiyughamik aulayughaq 2023-mi. Ahiagullu, POLAR-kut CHARS-kullu, HTO-kut apiriyauniaqtut ilauquyaulutik unniqtuiyit katimayiralaanginut parnaiyaqhimayutut talvani MOACC-mi ataniqtuqtuiniqmut havauhikkut.

Personnel

Personnel on site: 10

Days on site: 10

Total Person days: 100

Operations Phase: from 2022-06-01 to 2026-03-31

Operations Phase: from 2022-06-01 to 2026-03-31

Post-Closure Phase: from to

ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᑦ

ᓇᒥ	ᖃᓄᐃᑦᑑᒥᑦ ᐱᓕᕆᐊᖃᕐᓂᐊᖅᐸ	ᑮᒃᑯᑦ ᓄᓇᖁᑖᓂ	ᑐᓴᐅᒪᔭᒃᓴᑦ ᓄᓇᐅᑉ ᖃᓄᖅ ᐊᑐᕆᐅᓚᐅᖅᓯᒪᔭᕆᐊᖓᓐᓂᒃ	ᐃᑦᓴᕐᓂᑕᖃᕐᐱᐅᕙᓗᐅᖅᐸ ᐃᓄᒃᓄᑦ ᓇᔪᖅᑕᐅᖃᑦᑕᕐᓂᑰᕙᓗ ᑕᐃᑦᓱᒪᓂᑐᖃᐅᓕᖅᑐᖅ	ᖃᓂᓐᓂᖅᐹᖅ ᓄᓇᓕᒥᔭᐅᔪᖅ ᐊᒻᒪᓗ ᓴᐳᒻᒥᒃᓰᕕᐅᕙᓗ ᓱᓇᓄᑦ
Intensive Monitoring Area	Drilling	Crown	NA	NA	15 km from Cambridge Bay
Intensive Monitoring Area	Aerial surveys	Crown	NA	NA	15 km from Cambridge Bay
Intensive Monitoring Area	Equipment installation	Crown	NA	NA	15 from Cambridge Bay
Intensive Monitoring Area	Researching	Crown	NA	NA	15 km from Cambridge Bay
Intensive Monitoring Area	Sampling sites	Crown	NA	NA	15 km from Cambridge Bay

ᓄᓇᓕᐅᑉ ᐃᓚᐅᖃᑕᐅᓂᖓ ᓄᓇᓖᓪᓗ ᐊᐱᒃᑐᖅᓯᒪᐅᕐᓂᖓᓄᑦ ᐃᑲᔪᑕᐅᔪᓐᓇᖅᑐᑦ

ᓄᓇᓕᒥᔭᖅ	ᐊᑏᑦ	ᑲᑐᔾᔨᐊᖃᑎᒌᒥᔭᖅ	ᖃᖓᓗ ᑐᓴᖅᑎᑕᐅᓚᐅᕆᐊᖏᓐᓂᒃ
ᐃᖃᓗᒃᑑᑦᓯᐊᖅ	Beverly Maksagak	Hunters & Trappers Organization (HTO)	2020-07-01

ᓇᐃᓴᓐᓰᑦ ᐱᒍᓐᓇᐅᑏ ᐊᖏᖅᑕᐅᓯᒪᔪᑦ

ᓇᒦᒥᐊᖏᓐᓂᒃ ᐱᓕᕆᐊᕆᕝᕙᐅᓂᐊᖅᑐᑦ ᑎᑎᕋᕐᓗᒋᑦ:

Kitikmeot

ᓇᐃᓴᓐᓰᑦ ᐱᒍᓐᓇᐅᑏ ᐊᖏᖅᑕᐅᓯᒪᔪᑦ

ᒐᕙᒪᒋᔭᐅᔫᑉ ᐊᕕᒃᑐᖅᓯᒪᐅᕐᓂᖅᒐᓐᓂ ᒪᓕᒐᕐᓅᖅᑲᔪᓂᒃ ᐱᖁᔭᕐᓅᖅᑲᔪᓂᒡᓗ ᑲᒪᔩᑦ ᐱᔪᓐᓇᐅᑎᑖᕆᑎᓂᒃ ᓇᐃᓴᓐᓯᓄᓪᓗ ᑲᔪᓯᒃᑲᐃᔩᑦ	ᖃᓄᐃᑦᑐᓪᓚᓂᐅᕙ ᓇᐃᓴᓐᓯᑖᕈᑕᐅᔪᖅ ᐱᔪᓐᓇᐅᑎᑖᕈᑕᐅᔪᖅ ᐊᖏᖅᑕᐅᔪᕐᓅᓐᓃᑦ	ᒫᓐᓇ ᖃᓄᐃᓕᖕᒐᕙ	ᐅᓪᓗᒥ ᑐᓂᔭᖅ/ ᑐᒃᓯᖅᑑᑕᐅᓚᐅᖅᓯᒪᔪᖅ	ᑭᒡᓕᖅᑲᕐᕕᖕᒐ
ᓄᓇᕗᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ	License initiated along with NPC	Applied, Decision Pending		

Project transportation types

Transportation Type	ᓱᓇᒎᑦ ᐊᑐᒐᐅᓂᐊᖅᐸ	Length of Use
Land	skidoos and ATV	

Project accomodation types

Temporary Camp

ᓄᓇᓕᒥᔭᖅ

ᐊᑐᒐᐅᓂᐊᖅᑐᖅ

ᐱᖁᑦ ᐊᖏᔪᖅ ᐊᑐᖅᑕᐅᓂᐅᓴᔪᖅ ᐃᓚᖅᑲᓯᐅᑎᓗᒋᑦ ᐃᑰᑕᐃᑦ, ᒥᓪᓗᐊᕈᑏᑦ, ᖃᖕᒪᑕᓲᖅ, ᓄᓇᓯᐅᑦ ᐊᓯᖏᓪᓗ

ᐊᖏᔪᖅ ᐱᖁᑦ ᐊᑐᒐᐅᓂᐊᖅᑐᖅ ᖃᓄᐃᑦᑑᓂᖓ	ᖃᑦᓯᐅᕙᑦ	ᐊᖏᓂᖏᑦ - ᐳᖅᑐᓂᖏᑦ	ᓱᓇᒧᑦ ᐊᑐᒐᐅᓂᐊᖅᐸ
Skidoo	4	2	Transportation
ATV	2	2	Transportation
Permafrost drill	1	2	Drilling boreholes
UAV	2	1	Aerial survey

ᑎᑎᕋᐅᓯᓇᓗᒍ ᐅᖅᓱᒃᓴᐃᑦ ᐊᑦᑕᓇᖅᑐᖅᑕᓖᓪᓗ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᖏᑦ

ᓱᓇᒧᑦ ᐅᖅᓱᒃᓴᓕᐊᖅ ᐊᑐᒐᐅᓂᐊᖅᐸ	ᖃᓄᐃᑦᑐᓪᓚᕆᐅᕙ ᐅᖅᓱᒃᓴᓕᐊᖅ	ᖃᑦᓯᐅᕙᑦ ᐅᖅᓱᒃᓴᖃᐅᑏᑦ	ᑑᒃᓴᐅᒃ ᐃᒪᖅᑲᖅᑎᒋᔪᓐᓇᕐᓂᖓ	ᑲᑎᓪᓗᒍ	ᑑᒃᓴᐃᑦ ᐊᒥᓱᓂᖏᑦ	ᓱᓇᒧᑦ ᐊᑐᒐᐅᓂᐊᖅᐸ
Gasoline	fuel	3	100	300	Liters	Generators

ᐃᒪᖅ ᐊᑐᖅᑕᐅᔮᖅᑐᖅ

ᐅᓪᓗ ᑕᒫᖅ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᖅ	ᖃᓄᖅ ᐃᒥᖅᑕᖃᑦᑕᕐᓂᐊᖅᐸᑦ	ᓇᑭᑦ ᐃᒥᖅᑕᖃᑦᑕᕐᓂᐊᖅᐸᑦ
0		

ᐊᒃᑕᑰᑦ

ᐊᒃᑕᑰᓕᓇᓂᐊᕐᓂᖅ

ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒧᑦ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᖅ	ᖃᓄᐃᑦᑐᖅ ᐊᒃᑕᑰᖅ	ᖃᓄᑎᒋ ᐊᒃᑕᑰᑦ ᓴᖅᑭᐊᓂᐊᖅᑐᕆᔭᐅᕗᑦ	ᖃᓄᖅ ᐊᒃᑕᖅᑕᐅᓂᐊᖅᐸ	ᓴᓗᒪᖅᓴᐅᑎᒃᓴᒃᑲᓐᓂᐅᓂᐊᖅᑐᑦ
Information is not available				

ᐊᕙᑎᒥᐅᑕᓅᑦᑐᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᑦ

Sampling to occur in winter, to measure snow characteristics, no impacts anticipated given that we do not sample the soil and no chemicals or fuel are involved, other than snowmobile use..

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

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

ᒫᓐᓇ ᐊᕿᑎᐅᑉ ᖃᔪᐃᑦᑐᓪᓚᕆᐅᓂᖓ: ᔪᓇᐅᑉ ᖃᔪᐃᑦᑑᓂᖓ

ᒫᓐᓇ ᐊᕿᑎᐅᑉ ᖃᔪᐃᑦᑐᓪᓚᕆᐅᓂᖓ: ᐆᒪᔪᖅᑕᖃᕐᓂᖓ

ᒫᓐᓇ ᐊᕿᑎᐅᑉ ᖃᔪᐃᑦᑐᓪᓚᕆᐅᓂᖓ: ᐃᔪᓕᕆᓂᕐᒨᖓᔪᑦ-ᐱᕿᓪᓕᐊᔪᓕᕆᓂᕐᒨᖓᔪᑦ

Miscellaneous Project Information

ᓇᓗᓇᐃᖅᑕᐅᓂᖏᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᑦ ᖃᔪᐃᑦᑑᓂᖏᑦ ᐸᓚᐅᒥᔾᔪᓯᖅᑕᐅᓂᐊᕐᓂᖏᓪᓗ

Cumulative Effects

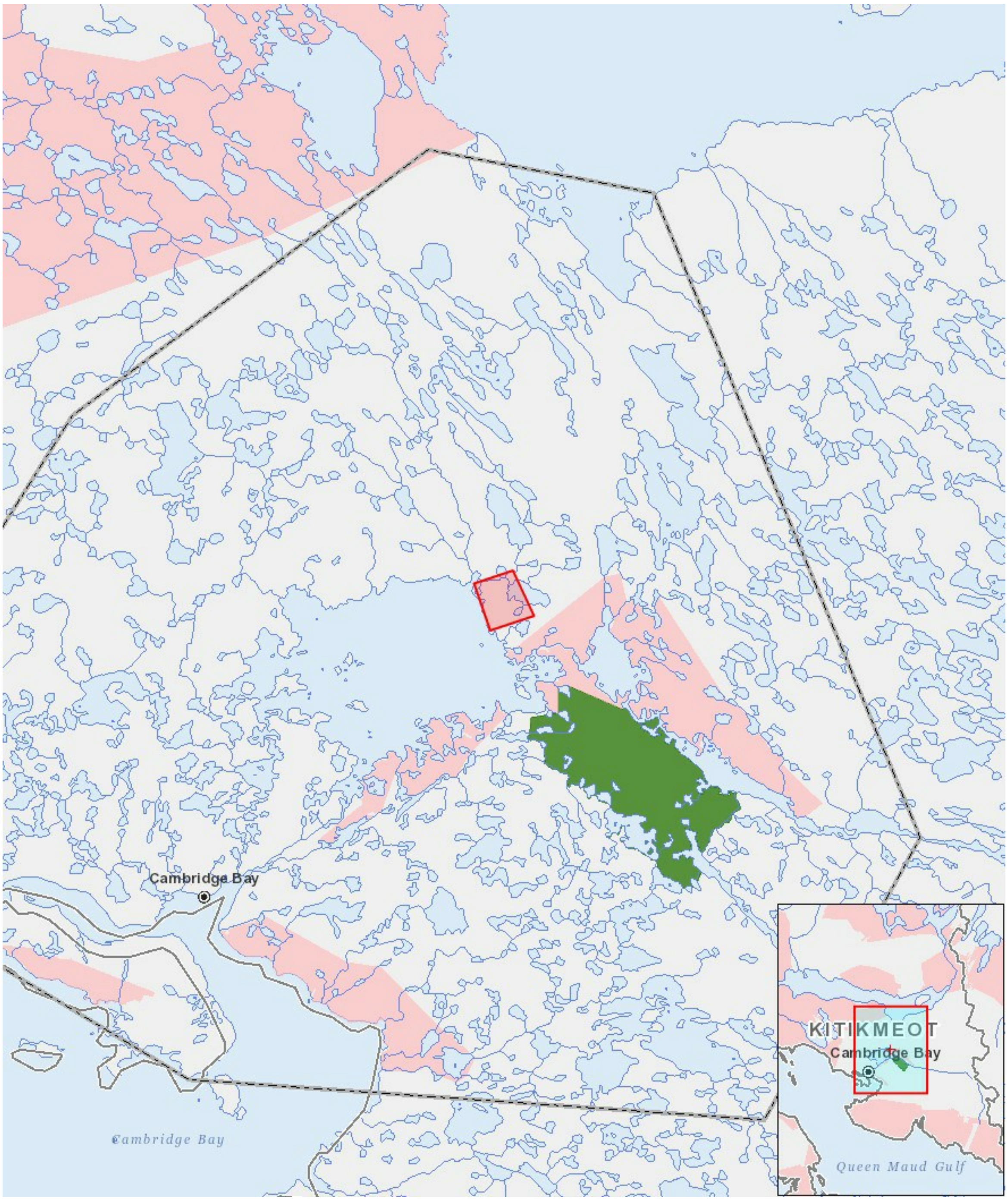
Impacts

ᓇᓗᓇᐃᖅᑕᐅᓂᖏᑦ ᐊᕙᑎᒥᐅᑕᓅᑦᑐᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᑦ

	PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
ᓴᓇᓂᖅ																									
Drilling		-	-	N	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Equipment installation		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
ᐅᔭᕋᒃᑕᕐᓂᖅ																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
ᐃᑐᑦᑎᕆᓂᖅ																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = ᐊᑲᐅᓈᕈᑎᔪᓐᓇᖅᑐᑦ, N = ᐊᑲᐅᖏᔾᔪᑕᐅᔪᓐᓇᖅᑐᑦ ᐸᓚᐅᒥᔾᔪᓯᖅᑐᖅᑕᐅᔪᓐᓇᖏᑦᑐᓪᓗ, M = ᐊᑲᐅᖏᔾᔪᑕᐅᔪᓐᓇᖅᑐᑦ ᐸᓚᐅᒥᔾᔪᓯᖅᑐᖅᑕᐅᔪᓐᓇᖅᑐᓪᓗ, U = ᖃᐅᔨᒪᓐᓇᖏᑦᑐᖅ)

ᓇᒦᒪᕐᓛᖅ ᐱᓕᕆᐊᕆᔭᐅᔪᖅ



List of Project Geometries		
1	polygon	Intensive Monitoring Area