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Copernicus Expansion Missions Sea Ice Experiment (CEMSIE)

Type de demande : New

Type de projet: Scientific Research

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Period of operation: from 2026-03-15 to 2026-05-05

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DÉTAILS

Description non technique de la proposition de projet

Anglais: The Copernicus Expansion Missions Sea Ice Experiment (CEMSIE) is a collaborative scientific project led by a Canadian university team with researchers from nine countries. Dr. John Yackel, Professor of Geography, University of Calgary is the project principal investigator, and he leads a team of three other Canadian University scientists and six other international University scientists. The project involves numerous Canadian government scientists and University graduate students.What the Project InvolvesThe 'Copernicus Expansion Missions' refers to a group of new satellites set to launch between 2027 and 2029 by the European Space Agency aimed at providing Canadians with new and improved capability to measure the thickness of sea ice on a near-daily basis. This is vital for northern community safety during the ice-travel and hunting seasons near Canada's northern Arctic communities. The project unites scientists in snow, sea ice, and satellite remote sensing to improve how Arctic sea ice and snow thickness are measured from space. The project is supported by Polar Knowledge Canada (POLAR), Canadian High Arctic Research Station (CHARS), Polar Continental Shelf Project (PCSP) and the Canadian and European Space Agencies. These space agencies are preparing several upcoming satellite missions focused on the polar regions. Fieldwork will involve 25–30 scientists, engineers, and technical staff working in rotation, with an average of 12-14 personnel staying at CHARS at any given time.CEMSIE will examine landfast (non-moving) sea ice near Cambridge Bay using scientific instruments placed on the ice and specialized radar sensors aboard research aircraft and satellites. A temporary, seasonal field camp will be located about 15 km southwest of the community. It will include portable tents and small equipment shelters, all removed at the end of the project. Small field teams will make day trips to the camp via snow machine to collect snow and sea ice data.CEMSIE values Inuit Qaujimajatuqangit and is committed to open data, community involvement, and respectful communication with Nunavummiut. The project will work with the Kitikmeot Inuit Association, the Hamlet of Cambridge Bay, POLAR, and CHARS to share information through:•Community meetings and presentations with the EHTO led by project lead John Yackel.•Summary reports and visual materials, including plain-language posters and maps for Cambridge Bay, the EHTO, and CHARS.•Training and involvement opportunities, such as local guiding, logistics support, or participating as an observer during field activities.Fieldwork includes measuring snow depth, ice thickness, layering, density, salinity, and surface roughness. These measurements will be coordinated with airborne radar instruments that simulate data expected from the upcoming CIMR, CRISTAL, and ROSE-L satellite missions. Aircraft will conduct short daily flights from the Cambridge Bay airport over Dease Strait, Queen Maud Gulf, and Victoria Strait to compare ground, airborne, and satellite observations and assess how well satellites detect true snow and ice thickness.Transportation will rely on snowmobiles, small sleds, fixed-wing aircraft (Twin Otter or similar), and occasional helicopter use for regional sampling and airborne data validation. No heavy equipment is required. All aerial radar survey flights are planned for April 10–15, 2026, weather permitting.Why the Project Is NeededAccurate observations of sea ice are vital for climate monitoring, weather prediction, northern shipping, and community safety. Satellite measurements of Arctic snow and sea ice are difficult because snow characteristics and thickness vary across short distances and strongly influence radar signals. These variations introduce uncertainty in satellite-derived ice thickness. As the Arctic Ocean increasingly shifts toward first-year ice, improving measurement accuracy has become more urgent.Data collected through CEMSIE will help refine the algorithms used by current and future satellites, strengthening climate and weather forecasting, marine safety, and understanding of Arctic change. Because sea ice is central to global heat exchange and ocean circulation, improved measurements will also benefit broader climate research.Where the Project Will Take PlaceWork will occur on landfast first-year sea ice in Dease Strait, about 15 km southwest of Cambridge Bay. All logistics, accommodation, and aircraft operations will be based out of CHARS in Cambridge Bay. Aircraft surveys will cover Dease Strait and extend over Queen Maud Gulf and Victoria Strait. The study area lies well outside protected areas and wildlife sanctuaries and is known for stable late-winter ice conditions appropriate for safe fieldwork and high-quality data collection.When the Project Will OccurField activities will occur over six weeks next spring, beginning around April 1 and ending by May 15, 2026. During this period, the snowpack remains cold and dry, which is necessary for accurate radar measurements. Once melt begins in mid-May, radar signals degrade, and fieldwork must end. While CEMSIE contributes to a multi-year international effort supporting future satellite missions, all on-ice work near Cambridge Bay occurs only within this short seasonal window.

Français: Le projet expérimental sur la glace de mer des missions d'expansion Copernicus (CEMSIE) est un projet scientifique collaboratif dirigé par une équipe universitaire canadienne réunissant des chercheurs de neuf pays. Le professeur John Yackel, professeur de géographie à l'Université de Calgary, est le chercheur principal du projet. Il dirige une équipe composée de trois autres scientifiques d'universités canadiennes et de six scientifiques d'universités internationales. Le projet mobilise également de nombreux chercheurs du gouvernement canadien ainsi que des étudiants aux cycles supérieurs.En quoi consiste le projetLes « Missions d'expansion Copernicus » désignent un groupe de nouveaux satellites qui seront lancés entre 2027 et 2029 par l'Agence spatiale européenne. Leur objectif est de fournir aux Canadiens une capacité nouvelle et améliorée permettant de mesurer l'épaisseur de la glace de mer presque quotidiennement. Il s'agit d'une information essentielle pour la sécurité des communautés nordiques pendant les saisons de déplacement sur la glace et de chasse près des collectivités arctiques du Nord canadien.Le projet réunit des spécialistes de la neige, de la glace de mer et de la télédétection satellitaire afin d'améliorer les méthodes de mesure de l'épaisseur de la glace de mer et de la neige dans l'Arctique depuis l'espace. Il est soutenu par Savoir polaire Canada (POLAR), la Station canadienne de recherche dans l'Extrême-Arctique (CHARS), le Projet de la Commission géologique polaire (PCSP) ainsi que les agences spatiales canadienne et européenne. Ces agences préparent plusieurs futures missions satellitaires axées sur les régions polaires. Le travail sur le terrain fera intervenir de 25 à 30 scientifiques, ingénieurs et techniciens travaillant en rotation, avec en moyenne 12 à 14 personnes hébergées à CHARS à tout moment.CEMSIE étudiera la glace de mer côtière (fixe, non dérivante) près de Cambridge Bay à l'aide d'instruments scientifiques installés sur la glace et de capteurs radar spécialisés embarqués à bord d'aéronefs de recherche et de satellites. Un camp saisonnier temporaire sera établi à environ 15 km au sud-ouest de la communauté. Il comprendra des tentes portatives et de petits abris pour l'équipement, qui seront tous démontés à la fin du projet. De petites équipes de terrain effectueront des excursions quotidiennes en motoneige pour recueillir des données sur la neige et la glace de mer.CEMSIE valorise l'Inuit Qaujimajatuqangit et s'engage à une gestion ouverte des données, à la participation communautaire et à une communication respectueuse avec les Nunavummiut. Le projet collaborera avec la Kitikmeot Inuit Association, le hameau de Cambridge Bay, POLAR et CHARS pour partager l'information au moyen de :• Réunions communautaires et présentations avec l'EHTO dirigées par le chercheur principal, John Yackel.• Rapports sommaires et documents visuels, y compris des affiches et des cartes en langage clair destinées à Cambridge Bay, à l'EHTO et à CHARS.• Occasions de formation et de participation, telles que du guidage local, du soutien logistique ou la possibilité d'agir comme observateur lors des activités sur le terrain.Les travaux sur le terrain comprennent la mesure de l'épaisseur de la neige, de l'épaisseur de la glace, de la stratification, de la densité, de la salinité et de la rugosité de surface. Ces mesures seront coordonnées avec des instruments radar aéroportés simulant les données attendues des prochaines missions satellitaires CIMR, CRISTAL et ROSE-L. Des aéronefs effectueront de courts vols quotidiens depuis l'aéroport de Cambridge Bay au-dessus du détroit de Dease, du golfe de la Reine-Maud et du détroit de Victoria afin de comparer les observations terrestres, aéroportées et satellitaires et d'évaluer la précision des satellites dans la détection réelle de l'épaisseur de la neige et de la glace.Le transport s'appuiera sur des motoneiges, de petits traîneaux, des avions à voilure fixe (Twin Otter ou semblable) et l'utilisation occasionnelle d'hélicoptères pour l'échantillonnage régional et la validation des données aéroportées. Aucun équipement lourd n'est requis. Tous les vols de relevés radar aériens sont prévus du 10 au 15 avril 2026, selon les conditions météorologiques.Pourquoi le projet est nécessaireDes observations précises de la glace de mer sont essentielles pour la surveillance du climat, les prévisions météorologiques, la navigation dans le Nord et la sécurité des communautés. Les mesures satellitaires de la neige et de la glace de mer dans l'Arctique sont difficiles, car les caractéristiques et l'épaisseur de la neige varient sur de courtes distances et influencent fortement les signaux radar. Ces variations introduisent de l'incertitude dans les estimations satellitaires de l'épaisseur de la glace. À mesure que l'océan Arctique se transforme de plus en plus vers une dominance de glace de première année, améliorer la précision des mesures devient encore plus urgent.Les données recueillies dans le cadre de CEMSIE aideront à affiner les algorithmes utilisés par les satellites actuels et futurs, renforçant ainsi les prévisions climatiques et météorologiques, la sécurité maritime et la compréhension des changements dans l'Arctique. Comme la glace de mer joue un rôle central dans les échanges thermiques mondiaux et la circulation océanique, des mesures améliorées bénéficieront également à la recherche climatique à plus grande échelle.Où le projet sera réaliséLes travaux se dérouleront sur la glace de mer côtière de première année dans le détroit de Dease, à environ 15 km au sud-ouest de Cambridge Bay.

Toutes les opérations logistiques, l'hébergement et les activités aériennes seront basés à CHARS, à Cambridge Bay. Les relevés aériens couvriront le détroit de Dease et s'étendront au golfe de la Reine-Maud et au détroit de Victoria. La zone d'étude se situe bien à l'extérieur des aires protégées et des refuges fauniques et est reconnue pour ses conditions de glace stables à la fin de l'hiver, propices à un travail de terrain sécuritaire et à une collecte de données de haute qualité.Quand le projet aura lieuLes activités sur le terrain auront lieu sur une période de six semaines au printemps prochain, débutant vers le 1er avril et se terminant le 15 mai 2026. Durant cette période, le manteau neigeux demeure froid et sec, ce qui est nécessaire pour obtenir des mesures radar fiables. Dès que la fonte commence à la mi-mai, les signaux radar se dégradent et les travaux doivent cesser. Bien que CEMSIE contribue à un effort international pluriannuel soutenant les futures missions satellitaires, tous les travaux effectués sur la glace près de Cambridge Bay se déroulent exclusivement dans cette courte fenêtre saisonnière.

Inuktitut: Introduction & What the Project InvolvesThe Copernicus Expansion Missions Sea Ice Experiment (CEMSIE) una takuinnarmik ilihimaniqaqtuq havaaq, Kanatami universitetangata hivulliit, havaktiqqatigiiktut tallimanik nunanit. Dr. John Yackel, University of Calgary-mi Ilinniaqtuliqijikkut Geographymi professor, taamna havaalliuriaqtuq, hivulliutijuni, ilauqatigiillugit avinngaarutinik Kanatami universitetangit ilihimayut maligiaqtuqtaullutik, huli arvinginnut nunarjuami ilihimalik ilihimayut. Havaaq ilauqatigijaujuq Kanatami governmentmi ilihimayut huli university-mi ilinniarniqaqtut.Havaaq suna tunngavinga"Copernicus Expansion Missions" taapkuat nutaangat satilaangit European Space Agency-mit aullaqtinnianginnangaat 2027-mi 2029-milu. Taapkuat satilaangit ikajuqtigiinniangmata Kanatami inungnut, ikayuutigianginniangmata ikia qinginniq hiku pimmarianguqnikkut, ubluumikkut qanurittaanginnik. Taanna pinguaqtut nunallaami inungnut, ukiumi hikuqaqtumi tikittianit angunirmilu.Havaaq CEMSIE katitirniaqtuq ilihimayut manniit, hiku, huli satilaangit qingirijuq qinirhiinniq, ikajuutillu qanuq takujaqtauvillugu hikuup manniaqtanga huli hikup akittanga. Havaaq ikajuqtigiijaujuq Polar Knowledge Canada (POLAR), Canadian High Arctic Research Station (CHARS), Polar Continental Shelf Project (PCSP), huli Kanatami Europeanmi Space Agencies. Taapkuat havaqatiginiaqtuq satilaangit nutaqqat, piniarniaqtuq silaqhimajuq akunniqaqtuq, qaujihaqtakhait.Havakviaqtuq ukiuqtaqtillugu 25–30 ilihimayut, ingijaarutiit, aulapkaiyitlu katimaqatigiillugit, tautuktillugit 12–14 havaktiit CHARS-mi ukiuqtaqtillugit.CEMSIE qaujihaqtiaqniaqtuq qikiqtani hiku malirinnaqtuq (malikpiaqtuq) Cambridge Bay-mi hikuani, havaktiqatigiillugit qaujihautiliurnirmik hikulirniq, aullaqtittillugit airplanengnik radaarikkut huli satilaangit. Ubluumiuuluni havakvik taimani atuinnaqtut 15 km Kangiani nunallaami. Taapkua igluittat, havaktiqarviallu piqaqtut, inuinnaqtunit piguinnariaqtuq havaap naammaqatigiinnaqtillugu. Pamitiqtuqtaullutik havaktiit ukiumi unnukkut snowmachine-mik aullaqtillugit, qaujihaqtillugit manniit hikuqaqtullu._____Part 2: Community Engagement, Measurements & Field MethodsCEMSIE ilauqatigiiktut Inuit Qaujimajatuqangit (IQ) pitquhiqaqtillugit, kangiqhidjutinik, katimadjutinik, huli inuit uqaudjutinik. Havaaq katimadjutikhaqaqtuq Kitikmeot Inuit Association, Hamlet of Cambridge Bay, POLAR, CHARS-lu, kangiqhidjutikharnik:• Nunallaami katimadjutit huli uqaudjutit EHTO-mit, John Yackel hivulliuliuqtiulluni.• Kangiqhittiarniaqtut unipkaangit, mapit, posterallu uqausiqaqtut nalungnangittut Cambridge Bay, EHTO, CHARS-milu.• Ilinniaqatigiingnikkut ikajuutit: angijuqtuqaqtut, logistics-mik ikajuqtaujut, atauhirmik pihimayunut nunaqaqtunut takujaqtut ukiuqtaqtillugu.Havakviaqtaullutik manniit manniutingit, hikuup akittanga, ukkuutit, pujjiit, salinity, huli hikup akunniqaqtanga. Taapkuat qinirhiinniq pitquhiqatigiingniaqtut airplanikkut radaarikkut qinirhiutinik, naunaiqtillugu qanuq takujaqtauvillugu satilaangit CIMR, CRISTAL, ROSE-L. Airplanengnik aullaaqtuqiviaqniaqtut Cambridge Bay airport-mi, Dease Strait-mi, Queen Maud Gulf-mi, Victoria Strait-milu. Taapkua naunaiqtariaqaqtut qanuq hakuqhiqtut hikuup manniaqtanga satilaangitigut.Aullaaqtitaullutik snowmachine-mik, qamutiit mikinut, airplanengnik (Twin Otter-mik), huli helicopter-mik naunaiqtillugu nunakkut aullaarutit. Angiyuqaqtumik havaktauhimaittuq. Airplanengnik radaarikkut aullaaqtuqniaqtut April 10–15, 2026, sila pittiaqtillugu._____Part 3: Why the Project Is NeededNaunaiqhijut hikuup pimmariangit pinguaqtut silaqhimayut, silakkut naunaiqtakhat, ukiuqtaqtumi umiarjuqaqtut, huli nunallaami inuuhimayut. Satilaangitigut qinirhiinniq akittulluni, taima manniit qanuq ubluumikkut aqittuq, qanuq akunninngittuq, huli qanuq radaarimik aulatittijangat. Taapkuat uqaridjutikhait pinasungngujuq hikuup akittanga naunaiqtittillugit.CEMSIE-mit katimaqatigiingmata naunaiqhijut ikajuqatigiingniaqtut satilaangitigut akittuq takujaqhimayut, ihuaqhailutik sila naunaiqtitinirmik, umiarnirmik, huli qaujihaqtillugit hikuup sivulliqpaanik aulatsijuni. Hikuup akittanga pinguaqtut sila nunarjuami, qanuq sila aulatijangat imarmi, taima ihuaqhijangat ikajuqniaqtuq sila

qaujihaqniq._____Part 4: Where the Project Will Take PlaceHavaaq havaktiqarniaqtut hiku malirinnaqtuq sivulliqpaaq Dease Strait-mi, kanngiqpaani 15 km Cambridge Bay-mi. Tamaita logistics, accommodation, airplanengnik havaktiqniaqtut CHARS-mi. Airplanengnik qaujihaqtutik aullaaqtuqniaqtut Dease Strait, Queen Maud Gulf, Victoria Strait-mi.Taakkua naunaipqijaujut havaqatigiingnaqtuq, akhuqhinngittuq naunaijautikhanut, huli hivulliqpaaq hikumik pisimajut ukiumi, takujaqtaujut pittiaqhutik data-khanik._____Part 5: When the Project Will OccurHavaaq havaktiqniaqtut ukiuqtaqtillugu 6 ublunik, April 1-mi angmaffaarluni May 15, 2026-milu naammaqtuq. Taamna ukiuq nakuuyuq, manniit qamanngittuq, qanuqtuq, pittiaqtuq radaarikkut qinirhiutinut. May-mi qanuittuqtuq manniit, radaarikkut pimmariangit akittuq, taima havaaq utirnialiqtut. CEMSIE ilauqtuq multi-year satilaangit aulatsijuni, kihiani Cambridge Bay-mi hikuani havaktiqniaqtut una ubluumiuqtaqtuq ukiuqpaami.

Inuinnaqtun: Copernicus Expansion Missions Sea Ice Experiment (CEMSIE) tuumatuq ihivriuqtiqatigiiktukhaq havaakhaq, taimaa piqpagitillugu Kanatami unipkaaqhuni haffumunga University-havaktinit, tautuktitut talimanik avataaniittunik nunarjuamit ublumiqatauyut. Dr. John Yackel, University of Calgary-mi Ilitquhiriyauyimut Uqautchiqtiuyuq, tuumatuq takiuqhijuq havakviuyuq, havaktiuyuq iluani pingahuuyut Kanatami University-mi ilihimayut, tautuktitillugu hitamanik avatinniittunik ilihimayunit.Havakvik CEMSIE-kut kiinauyatuq tautuknirmi ilihimayut, nunarjuami ilihimayut, nunallaammi ilihimayut, talvaniitut ilihimayat uqauhimalutik talvannguqtillugit makpiraqmi, havaqatigiikniqaqtut akhuurutiglu. Havakvikmi takkuhimaaqtut tautuktiit, Government of Canada-mi ilihimayut, University-mi ilinniaqtiit, havakniqaqtut tamainni uumannguqtillugit hanaqatigiiknikkut.Copernicus Expansion Missions" unniqtitauttut nutaqqat satelliangat, aimavingmi havaariakhauyut 2027-miit 2029-mut European Space Agency-kunit. Taimaittut satelliangat ikayuqtukhauyut Kanatamiunut, ilitaqhugit nutaamigut ikayuutait imarmi havaktiit hailiurutikhanik, taimaatigut tuqungniaqtut imarmi avatingani aullaqniq, iqaluqtuuqniq, piqpagitillugu tautuktitiyaangat hikuqpaamiuni.Havaakhaq CEMSIE-kut katimayut ilihimayut annuraaqmi, hikuqmi, satelliangani, ilihimayaangat qanuq hikuqpaamiuni hikuq atiqaqtiliqiyait satellianganit. Havaakhaq ikayuutigiyaa Polar Knowledge Canada (POLAR), Canadian High Arctic Research Station (CHARS), Polar Continental Shelf Project (PCSP), havaktillu Canadian and European Space Agencies-kunit. Hapkua havaqatigit ilihimayut katimayut satelliangat nakuuyaqhimayut talvannguqtillugit qilamiuqhiurniqmi.Nunaat havakvikmi ikayuutauvakhimaaqtut 25–30 ilihimayuliit, ingilrayuliit, ikayuutiliit, katimayut ikayuutikhainik, tautuktitlugit 12–14 hilamiittutik CHARS-mi Iqaluktuuttiaqmi tamainni ukiuqhailagiami.CEMSIE-kut ihivriugutaa landfast (hikunit itirniqhaq, aullaniqtuq) hikuq talvani Iqaluktuuttiaqmi. Havaqatigiiktut havaktititauyut ihivriuqtilugit hikuq hamlat, annuraaq, hinnginnaqtumik ikayuutauvakhutik qanuriliurniqmut. Havaqatigiikniqmi aulaniqaqtut qajarnikkut, research aircraft-kunit radar-anginik, satelliangat, ihivriuqniaqtut hamna hikuq, annuraaq, qanuq ilihimayuq.Havautiqhaq siyaaqtuq, ukiuqhaq, havakvikmi angmaumaniaqtuq ublukkut paunnaqtittilugit ilihimayaangat. Havaqatigiiktut maniqqami havakviaqtut talvunga 15 km-kut Iqaluktuuttiaqmit kangiani, havakviuyuq ukiuqhailami atuqtauvakhimayuq, hiamittiarlugu ukiuqhailami. Tamapta tent-it, equipment shelters-it, havaktauyut atuqtauvakhimayut, aallanik ikayuutit, niggianiqaqtut havakvikmi pihimaniqtillugu.Havakviit CEMSIE-mi ihivriuqniaqtut qanuq annuraaq, hikuq, uvalu imaalu qanuq atugakhaat. Havaqatigiiktut ilihimalutik annuraaq miqhuqtit, hikumi uuktuutit, annuraaqmi atuqhimayut, hikuqmi qayaqhimayut, salinity-mi (saviannait), uvalu hikuq akhuqhiurutiit. Hapkua qauyihimayut ikayuutigiyaat research aircraft-kunit radar-anginnut, ihivriuqtilugit qanuq takujaaqtut satelliangat aulaniqniaqtut CIMR, CRISTAL, ROSE-L-kunit.Aircraft-angit aullaaqniaqtut tingmidjutik Iqaluktuuttiaqmi airport-mit ublukkut. Aullaaqniaqtut Dease Strait-mi, Queen Maud Gulf-mi, Victoria Straitmi, ilihimalutik ilihimayut nunami, qulimiguuliluni, satelliangani tautuktitillugit qanuriliuqniaqtut hikuq annuraaqpallu. Taimaatigut ilihimayut ihivriuqniaqtut qanuriliuriami qanuq satelliangat pittiarniaktut tautuktitlugit hikuq annuraaqmik.Aullarniqmi atuqtauvakhimayut qamutit (snowmobiles), panigaqtuq sled-it, fixed-wing aircraft-angit (Twin Otter immaqallu atauttimik), uvalu qulimiguuliit (helicopter) atuqtauvaktuq hapkunani nunallaami tikikkani, ilihimalutik angirrarniqmi. Hapkua atuqtauvakhimayut ikayuutigiyaat havakviit amihuutikhainik, apqutikhainik, uvalu tigummiviit havagiikhutik. Hakuanginnaqtuq aanniaqtuqutauyukhauhimaittuq, taimaatigut no heavy equipment atuqtauvakhimaittuq.Tingmidjutik aullaqniaqtut apqutikhainut tautuktillugu April 10–15, 2026-mi, havaakhaq ublukkut hangaqtuqhailagiami, havaariakhauhimmaaqtillugu havaangnaqhiurutinik.Hikuqmi ihivriuqhimayut qanuq atugakhaat ihariagringniqaqtut havaqatigiikniqmi sila qanuqturnianni, ublukkut qauyihimalutik havangniqmut, aullarniqmut amihuni, uvalu ammiqsuutiglu Nunavunmiunut aanniaqtuqutikhainik. Satelliangat

tautuktitiyaangat annuraaq hikuqpallu qanuq allaniqaqtut akhuqnaqtut, havakhimaaqtut qanuq pittiarniqtuq tautuktitillugit ukiumi. Annuraaq akhuqhimayuq, annuraaqmi akhuqhiurutikhanik, una uumaqtuq naglikitaaqtillugu radar-mi takujaaqtunik. Hakuanginnaqtuq allaniqaqtut hikuq annuraaqmi tautuktittilugit ilihimayauyuq uqauhimalutik, taimaatigut tautuktittiniaqtuq ilihimayuq hakuanga ublukkut tamakpiaq ihivriuqhimalugit.Ukiuqhaqmi hikuq amihut qangaaktuq, taimaatigut first-year ice atauttimiut, asuilaak pittiarniqtuq ihivriuqhimayainik puiguqtailillugit. Taimaatigut CEMSIE-kut qauyihimayut ihariagringniqaqtut ikayuqlutik qanuq pittiarniqtuq ilihimayut hikuq annuraaq talvani qilamiuqhiurniqmi.Hapo ilihimayut katimayut CEMSIE-kunit ikayuutitigiyaat ilihimayaangat algorithms aulatitauyut satelliangkatigut. Una ikayuutigiyaa sila qauyihimalutik, aanniaqtuqutikhainik, aullarniqmut hikuqpallut, uvalu qanuqturniq talvani havaktitlugit hikuq ukiumi. Hikuq atuq & imaalu sila uqauhiqhimayut pittiarniaqtuq qanuqturniq, havaqatigiikniq havattainni sila qanuqturnirmi.Havaakhaq aulaniqtauyuq landfast first-year ice-mi talvani Dease Strait-mi, hanganitittillugu Iqaluktuuttiarmi 15 km-kut kangiani. Tamainni havaktitauyut ilihimayut, akhuqhiurutit, uvalu aullarniqmut atuqtakhat pivakhimaaqtut CHARS-mi Iqaluktuuttiarmi, talvani ukiuqhailami tamainni katimayakhainni.Tingmidjutikmi (aircraft) ilihaqniaqtut havangniq, hivuliqtihaqniaqtut Dease Strait-mi, tautuktillugit Queen Maud Gulf-mi uvalu Victoria Strait-mi. Una tamainni ilihaqniq katimayut ihivriuqniaqtut hikuq annuraaqmik, qanuq ilihimayaangat satelliangani pittiarniqtuq.Havakhaq aulaniqtauyuq hamna avatingani ikayuutigiiktillugu, talvaniittuq avataani protected areas-tigut, niruarutitigutlu, taimaatigut hamanga ihivriuqniaqtut hikuq ukiumi ihivriuqtiullunilu, naunaiqhimmaaqtillugu ihivriuqnikkut qanuqturniqmi.Havaktitauyut aulaniqtauyut hitamanik-avluni ublunik ukiuqhaqmi tikikkaangat, havangniaqtut April 1-miit May 15-mut, 2026-mi. Taimai hivulliutigiplugu ukiuqhaqmi annuraaq aalangnaittumik, qiqutailaqtumik, hikuqmi anihaqtuqmi qanuqturniqmi. Una ublukkut hakuanga ihariagiplugu pittiarniqtuq radar-mi tautuktitillugu ilihimayut.Mid-May-mi tikikkaangat, qanuqturniq amihaaqtuq, annuraaq aanniqtuq, satelliangiitlu radar-anginnut takujaaqtuq aqittuuqtittillugu. Taimaatigut havakvikmi itqaumaniqtuq, niuhiqtaalu havakvingmi havaqatigiiknik upauttinniarpata.CEMSIE-kut ikayuutigiyaat multi-year international effort, ikayuqtugu tikinmi satelliangat nutaami, kihimi tamapta on-ice work talvani Iqaluktuuttiami pihimaniqtillugu ukiuqhaqmi ikayuutauyuq hamna ikaarutillugu ublumi.

Personnel

Personnel on site: 23
Days on site: 45
Total Person days: 1035
Operations Phase: from 2026-03-15 to 2026-05-05

Activités

Emplacement	Type d'activité	Statut des terres	Historique du site	Site à valeur archéologique ou paléontologique	Proximité des collectivités les plus proches et de toute zone protégée
ice camp location (approx 15km SW of Cambridge Bay)	Camp	Marine	We have used location in the past (i.e., 2017) to erect surface-based radars	N/A	approx 15 km SW of Cambridge Bay
region for ocassional aircraft flights in mid-April using radars to measure sea ice thickness	Aerial surveys	Marine	Christian Haas (Alfred Wegener Institute, Germany) and Richard Kelly (U Waterloo) are project partners and have flown aerial surveys for radar collection in this region (Queen Maud Gulf) before	N/A	approx 200 km south and southeast of Cambridge Bay
region for ocassional aircraft flights in mid-April using radars to measure sea ice thickness	Aerial surveys	Marine	Christian Haas (Alfred Wegener Institute, Germany) and Richard Kelly (U Waterloo) are project partners and have flown aerial surveys for radar collection in this region (Victoria Strait) before	N/A	approx 200 km east of Cambridge Bay

Engagement de la collectivité et avantages pour la région

Collectivité	Nom	Organisme	Date de la prise de contact
Cambridge Bay	Rosemary Maksagak	Interim Manager, Ekaluktutiak Hunters & Trappers Organization	2025-10-13
Cambridge Bay	Rosemary Maksagak	Interim Manager, Ekaluktutiak Hunters & Trappers Organization	2025-09-29

Autorisations

Indiquez les zones dans lesquelles le projet est situé:

Kitikmeot

Autorisations

Organisme de régulation	Description des autorisations	État actuel	Date de l'émission/de la demande	Date d'échéance
Institut de recherche du Nunavut	Manager, Research Liaison / ᐊᐃᐅᓪᓕᖅ, ᖃᐅᔨᓴᖅᑐᓕᕆᓂᖅᓯᒪᔪᑦ ᑐᓴᐅᒪᑎᑦᑎᔨNunavut Research Institute / ᓄᓇᕗᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ	Applied, Decision Pending		
Nunavut Planning Commission	Solomon Amuno, PhD Senior Planner Nunavut Planning Commission	Applied, Decision Pending		

Project transportation types

Transportation Type	Utilisation proposée	Length of Use
Air	twin otter aircraft used for radar flights into Queen Maud Gulf and Victoria Strait. The twin otters do not land on the ice. Great Slave Helicopter will be used to travel to same locations to make snow and ice measurements underneath twin otter and satellite ground tracks	
Water	CHARS snow machines will be used to travel from CHARS to ice camp site approx 15km SW of Cambridge Bay	
Land	CHARS snow machines will be used to travel from CHARS to ice camp site approx 15km SW of Cambridge Bay	

Project accomodation types

Temporary Camp

Collectivité

Utilisation de matériel

Équipement à utiliser (y compris les perceuses, les pompes, les aéronefs, les véhicules, etc.)

Type d'équipement	Quantité	Taille – Dimensions	Utilisation proposée
aircraft	2	twin otters	scientific radar flights of the snow covered sea ice
helicopter	1	Bell 206 JetRanger	snow and ice validation of twin otter radar and satellite radar ground tracks
ice auger	2	1m	ice core samples
surface based radar and radiometers	5	50 kg each	measure electromagnetic signals from snow surface
2000W Honda generator	3	5 kg	these gasoline generators will be used periodically each day to power the surface-based radar systems
snow machines	6	225 kg	transport scientific personnel from CHARS to ice camp site
tents	2	12x14 ft	scientific personnel shelter for computer laptops to operate radars

Décrivez l'utilisation du carburant et des marchandises dangereuses

Décrivez l'utilisation de carburant :	Type de carburant	Nombre de conteneurs	Capacité du conteneur	Quantité totale	Unités	Utilisation proposée
Aviation fuel	fuel	2	200	400	Liters	twin otter aircraft fuel will be obtained at the Cambridge Bay airport prior to flights in mid-April
Aviation fuel	fuel	2	200	400	Liters	helicopter fuel will be obtained at the Cambridge Bay airport prior to flights in mid-April
Gasoline	fuel	6	1	6	Liters	three 2000W Honda generators
Diesel	fuel	1	40	40	Gallons	heater for diesel stove for parcol tents on ice

Consommation d'eau

Quantité quotidienne (m3)	Méthodes de récupération de l'eau proposées	Emplacement de récupération de l'eau proposé
20	snow machine	Water will be periodically hauled to the ice camp from CHARS for human consumption purposes

Déchets

Gestion des déchets

Activités du projet	Type des déchets	Quantité prévue	Méthode d'élimination	Procédures de traitement supplémentaires
Camp	Eaux usées (matières de vidange)	200 liters	Brought back to CHARS from ice camp via snow machine for disposal	None required

Répercussions environnementales :

Predicted Environmental Impacts – Disturbance to landfast sea ice and snow cover: Repeated access by snow machines, installation of instruments, and drilling for ice/snow sampling may create localized surface disruption. – Wildlife disturbance: Aircraft overflights and on-ice activity may temporarily disturb polar bears, seals, or migratory birds. – Temporary noise and emissions: Twin Otter aircraft, snow machines, and generator-powered instruments produce short-term noise and minor fuel emissions. – Waste generation: Packaging, sampling materials, and human-presence–related waste pose contamination risks if not managed carefully. – Site footprint concentration: A semi-permanent on-ice station may cause localized compaction and surface alteration. Mitigation Measures – Use pre-defined access routes and minimize snow-machine traffic to reduce surface disturbance. – Employ wildlife awareness protocols, including spotters and minimum-altitude guidance for aircraft. – Select low-emission equipment, limit engine idling, and consolidate flights to reduce noise and fuel use. – Implement strict waste-handling, storage, and removal procedures; no waste left on ice. – Anchor instruments lightly and remove all equipment post-campaign, restoring the site as feasible. – Maintain real-time weather and visibility monitoring to avoid unnecessary flights and disturbance.

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

Description de l'environnement existant : Environnement physique

We will set up a small, self-contained camp on the sea ice in late March, 2026. This camp will consist of an insulated tent provided to our team from PCSP and one additional longhouse tent for storing our radar instruments in case of a blizzard. One small igloo tent will also be erected and serve as a latrine for all genders in our team. We expect the sea ice to be approx 150cm thick (plus/minus 20 cm) and to have between 10 and 20cm of snow. We will make daily commutes from CHARS to the ice camp via snow machine. We will travel down the West Arm/Kangiqhuk fiord and then cross the landBetween April 1 and 10 we expect between 6 and 8 scientists will make this trip. Between April 10 and 15 is when we expect the most number of scientific personnel (between 13 and 15) in camp as this is when the aerial surveys (twin otters and helicopter) will be flying over our polygon flying regions (identified on Project Map). After April 15, scientific personnel numbers decrease below 12 but likely more than 9 until the project concludes on May 15th.

Description de l'environnement existant : Environnement biologique

No biological research or sampling occurs in this project

Description de l'environnement existant : Environnement socio-économique

Our sea ice camp is situated approx 15km southwest of Cambridge Bay.

Miscellaneous Project Information

Identification des répercussions et mesures d'atténuation proposées

Predicted Environmental Impacts– Disturbance to landfast sea ice and snow cover: Repeated access by snow machines, installation of instruments, and drilling for ice/snow sampling may create localized surface disruption.– Wildlife disturbance: Aircraft overflights and on-ice activity may temporarily disturb polar bears, seals, or migratory birds.– Temporary noise and emissions: Twin Otter aircraft, snow machines, and generator-powered instruments produce short-term noise and minor fuel emissions.– Waste generation: Packaging, sampling materials, and human-presence–related waste pose contamination risks if not managed carefully.– Site footprint concentration: A semi-permanent on-ice station may cause localized compaction and surface alteration.Mitigation Measures– Use pre-defined access routes and minimize snow-machine traffic to reduce surface disturbance.– Employ wildlife awareness protocols, including spotters and minimum-altitude guidance for aircraft.– Select low-emission equipment, limit engine idling, and consolidate flights to reduce noise and fuel use.– Implement strict waste-handling, storage, and removal procedures; no waste left on ice.– Anchor instruments lightly and remove all equipment post-

campaign, restoring the site as feasible.– Maintain real-time weather and visibility monitoring to avoid unnecessary flights and disturbance.

Répercussions cumulatives

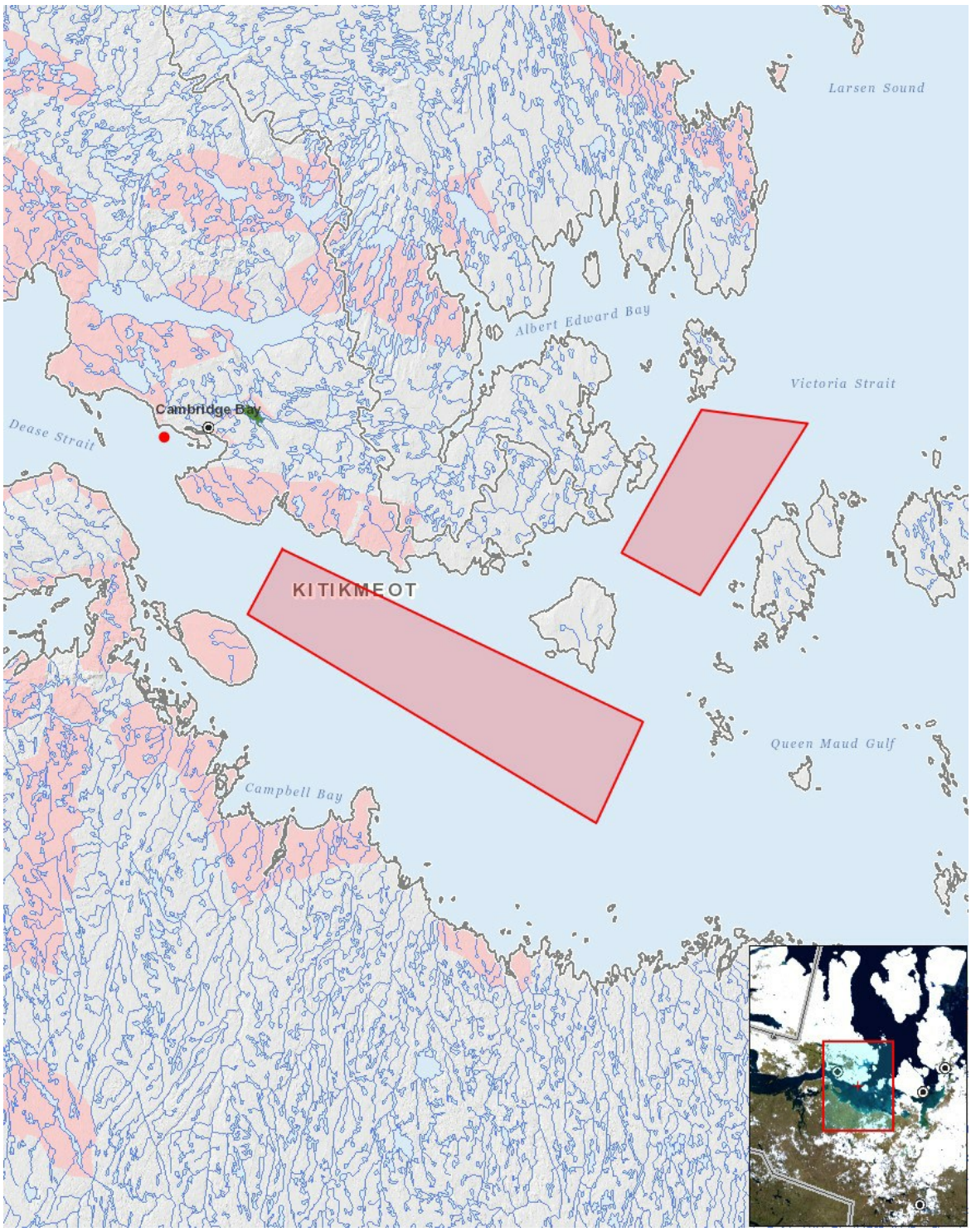
Impacts

Identification des répercussions environnementales

	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
Construction																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Exploitation																									
Aerial surveys		-	-	-	-	-	-	-	-	-	-	-	M		-	U	U	-	-		-	-	P	-	-
Camp		-	-	U	-	-	-	-	-	U	-	-	-		-	U	U	-	-		-	P	P	-	-
Désaffectation																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Négative et non gérable, M = Négative et gérable, U = Inconnue)

Site du projet



Liste des géométries de projet

1	polygon	region for ocassional aircraft flights in mid-April using radars to measure sea ice thickness
2	polygon	region for ocassional aircraft flights in mid-April using radars to measure sea ice thickness
3	point	ice camp location (approx 15km SW of Cambridge Bay)