English	Inuinnaqtun
Non-technical Project Description	Ayuqnaittut-hanayainut Havaaghainut Naunaitkutat
Project Title: _Sikunnguaq_ - "the likeness or image of ice in maps"	**Havaaghait Atia:** _Sikunnguaq_ – "aajjikkutavyait piksautikluuniit hikumik nunauyarnit"
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Project Background and Objective	**Havaaghainut Naunaiyautit Inirumayaillu**
This project was initiated by the SmartICE community management committee in Mittimatalik, the self-titled "_Sikumiut_ (people of the ice)". The _Sikumiut_ includes Elders and youth from Mittimatalik and members from the Mittimatalik Hunters and Trappers Organization, Hamlet Council, Canadian Rangers, Search and Rescue, and Parks Canada. Our international project team is now made up of co-principal investigators from University of Victoria, SmartICE, University College London in the United Kingdom, and the University of Bremen in Germany. Together with the _Sikumiut_ and SmartICE community management committees in Iqaluktuuttiaq, Uqsuqtuuq, and Qikiqtarjuaq, we have co-designed a Nunavut based research plan to make	Havaaghat hapkua aullaqtitauhimayut taapkunannga SmartICE nunallaarnit atannguyait katimayiralaangit Mittimatalingmi, inmikkut-attiqhimayuq "_Sikumiut_ (inuit hikumiutat)". Talvani _Sikumiut_ ilauyut Iniqnirit inulrammiillu Mittimatalingmit katimayiniklu Mittimatalingmi Anguniaqtit Naniriaqtuqtillu Katimayiit, Haamlatkut Katimayiit, Kanatami Anguniaqtit Ikayuqtit, Qiniqhiayit Annaktillu, taapkualu Pulaaqtarviit Kanatami. Nunaqyuaqmi havaaptingnit havaqativut tajja ikayuqtigiiktunik-ihivriuqhiyilluanik Ilihaqpaalliqvianit Victoria-mi, SmartICE, Ilihaqpaalliqviat London-mi United Kingdom-mi, Ilihaqpaalliqviallu Bremen, Germany-mit. Havaqatigiighutik taapkualu _Sikumiut_ SmartICE nunallaarnit

better maps for identifying sea ice features related to safe travel from images and data collected by satellites.	atannguyait katimayiralaangit Iqaluktuuttiaqmi, Uqhuqtuuq, Qikiqtaryuaq, ikayuqtigiitkumik-hanaqatauhimayut Nunavunmi tunngavilingmik qauyihaiyit parnaiyautainik taimaa nakuutqiyanik nunauyaliuriamik ilittuqhariamik taryum hikua qanurininganiinik ilauyughat amirnaittumik aullaaqtut piksaliuqhimayunit naunaitkutanillu katitiqhimayut qilangmi piksaliurutinit.
Recent changes in sea ice have led to more unpredictable conditions, leading to increased accidents and adverse effects on food security, health and wellbeing, economy, culture, and identity. Warming air temperatures, along with shifting ocean currents and weather patterns, have shortened the length of time in each year when sea ice is stable, affected ice roughness, and produced new cracks and areas of slush buried under surface snow. New tools are needed to complement local travel practices that are grounded in *Inuit Qaujimajatuqangit* (IQ), to overcome challenges associated with changing and unpredictable travel risks. Images and data collected by satellites, already used for some travel planning, can potentially provide more detailed information about the aspects of sea ice directly related to safe travel. Our objective is to understand how sea ice features related to safe travel can be identified in new satellite technologies, with a focus on a radar-based satellite technology called synthetic aperture radar (SAR) as a key source of	Qangahaaq aallannguqhimayunit taryum hikuanit naahurinnaiqpalliayuq, talvuuna amigaiqpalliayut irininautit huliyuqaraangat naahurinnaittunik ihuilutiniklu niqighailliurniqmut, aanniaqtailiniqmut inuuhiqattiarniqmullu, manighiurniqmut, ilitquhinut, ilittuqhitinullu. Uqquuhivalliayuq anuri, ahiagullu hanguvalliayut taryum harvait hilaplu aallannguqtarniit, naihivaalliutauyuq hivitunianik upluqhiuttikkut ukiuq tamaat taryuq amirnaiqviat, ihuilutauyut piqaluyangnit maniilruit, nutaaniklu ainniqaqtut amiriyaghallu imaq aputim ataani. Nutaat hanalrutit ihariagiyauyut ilauyughat nunallaarmiunut aullaayuktunik maliktuivaktut *Inuit Qauhimayatuqainnik* (IQ), ayuqnaiqpaalliriamik ayuqhautauvaktut ilauyut aallannguqtaqtumut naahurinnaittumullu aullaaqtunut amirnautit. Piksautit naunaitkutallu katitiqhimayut qilangmiittukkut piksaliutikkut, atuqtauliqtut tajja ilanginnut aullaaqtut parnaiyautainut, naunaiqpaalliqviunginnaliklu qanurininganiinik taryum hikua ilauyunik

sea ice information.	amirnaittumik aullaaqtunut. Iniqhiyumayugut taimaa ilihimattiariamik qanuq taryum hikua pitquhiit ilauyut amirnaittumik aullaaqtunut ilitturiyaulaariaghait nutaanit qilangmiittukkut alruyaqtuqtukkut, ihumagilluaqhugu paqititjutikkut-tunngavilik qilangmiittukkut alruyaqtuqtut taiyauvaktuq hanayauhimayut piksautinik paqititjutik (SAR) hikumut naunaiqviulluangupluni.
Methods	**Havauhiit**
Together with the community management committees in the four participating communities Mittimatalik, Iqaluktuuttiaq, Uqsuqtuuq, and Qikiqtarjuaq, we have identified ice roughness, slush, and ice thickness as priority sea ice features for monitoring with satellite images and data. Our project will conduct field work on sea ice close by to each of the four communities in late March to late May in 2025 and 2026. All field work will be done in close consultation with the SmartICE community management committees, as they rely on project outcomes for local sea ice mapping efforts. SmartICE community operators, some of whom are co-investigators on this project, will also participate in field data collection.	Havaqatigiplugit taapkua nunallaarni atannguyait katimayiralaat talvani hitamanit ilauyunit nunallaarnit Mittimatalik, Iqaluktuuttiaq, Uqhuqtuuq, Qikiqtaryuaqlu, ilitturihimaliqtaqqut hikum maniilruit, hikuilruit, hikuplu hilingnia irininaqtutut hikum pitquhiinik munariyaaghat qilangmiittukkut piksautikkut naunaitkutakullu. Havaaptingnit hikumi havakpangniaqtut qanilrumi tamangnit hitamanit nunallaarnit Qiqailruq nungutinnagu nungunnuaqtumut Qiqaiyaluarviami 2025 2026-milu. Hikumi havaaghait iniqtauvangniat katimatjutaulutik taapkualu SmartICE nunallaarni atannguyait katimayiralaangit, naahurivagamigit havaaghainit iniqtauhimayut nunallaarnit taryum hikuanik nunauyaliuriamik. SmartICE nunallaarnit aulapkaiyit, ilangi ikayuqtiuplutik ihivriuqhiyilluanguyut havaaghanit hapkunani, ilauniaqtullu hikumi naunaitkutanik katitiriyunik.

All field research associated with our objectives is non-intrusive and observational. We will measure snow and sea ice properties on areas of sea ice nearby to the four participating communities, making day trips from research stations and other accommodations, travelling by snowmobile when conditions are safe. We will carry a small amount of spare gasoline and oil for the snowmobiles and for powering a 2-stroke ice core barrel drive. Data collection includes the use of ice augers and electromagnetic (EM) sensors for ice thickness, ice core barrels for taking ice cores, equipment for measuring snow properties in snow 'pits', battery operated temperature sensors for measuring snow and sea ice temperatures, and drones for taking photographs and scanning the surface (LiDAR and EM sensors). There will be stationary thermistor-based sensors (SmartBUOYs) installed in the sea ice until they can be removed in the spring. The SmartBUOYs are routinely deployed in the ice under the direction of the SmartICE community management committees and are marked for visibility. All EM and scanning (LiDAR) sensors are low power and do not make intrusive sound. All waste from daily sea ice activities will be transported back to the communities for proper disposal.

Tamangnik hikumi qauyihaiyut ilauyut havaaptingnut kuinginnautaittut naunaiyautikaffuuplutik. Qauyiharniaqtaqqut hilingnia aputik taryuplu hikuata pitquhit taryum hikuanit haniani tamangnik hitamauyut nunallaat, upluq tamaat aullaaqlutik qauyihaqviinit ahinillu nayugainit, aullaaqhutik sikiitukkut amirnaitpat aullaariamik. Mikiyumik kaassiliiqmik uhiniaqhimayut uqhuqhamiklu sikiituqnut ingilrutituriamiklu 2-stroke-mik hikumik ikuutaqmik. Naunaitkutanik katitiriyut atuqpangniat hikumik ikuutanik alruyaqtuqtuniklu nipitaqtukkut (EM) qauyihautikkut hikum hilingnianik, hikum ikuutarniinik, ingilrutinik qauyihautighat aputim pitquhiinik aputim "hitiinit", paatulikkut ingilrayut niklamaniqmik qauyihautit qauyihariamik aputim taryuplu hikua niklamaniit, halikaaptanguillu piksaliuriamik ihivriuriamiklu qaanga (LiDAR EM-niklu qauyihautit). Havakviqarniat niklamanianik-qauyihautinik (SmartBUOY) iliuraqtauyunik taryum hikuanit ahivaqtaulutik upinngaghami. Taapkua SmartBUOY-nguyut qakugunnguraangat aullaqtitauvaktut hikumi ataani pitquhimayaitut SmartICE nunallaarnit atannguyat katimayiralaangit naunaitkutaliqhimayughallu takunnariamik. Tamangnik EM-nguyut ihivriuqhitillu (LiDAR) qauyihautit huangautituqpallaayuittut kuinginnaqtumiklu nivyaayuittut. Tamangnik iqqakuit upluqmit havaanginnit agyaqtauvangniat nunallaarnut ihuaqtukkut iqqakuqtauyughat.

Communicating Results	Ilittuqhitiyut Ilihimaliqtainik
The results will be shared with the participating communities as well as other communities across Nunavut where the Inuit-led, IQ-grounded, *Sikumik Qaujimajjuti* ("tools to know how the ice is") system for community ice information sharing has been implemented. Roughness and slush mapping results will be incorporated into the SmartICE Ice Travel Safety Maps, the need for which was first recognized by community management committees. They identified that the ice charts produced by the Canadian Ice Service are primarily designed to support shipping and ice-breaking and are generated at temporal and spatial scales that are inconsistent with on-ice travel. We will use the community management committee meetings in Nunavut communities as the primary means of communicating project results, with other means including our project report to the NRI, and national conferences like ArcticNet. Data will be stored in the Polar Data Catalog and data and results will be made available by request.	Ilihimaliqtait tuhaqtitauniaqtut ilauyunut nunallaarnut taapkualu ahiit nunallaat Nunavunmi tamaat tahamani Inungnik-hivuliqtiqaqtunik, IQ-nik maliktunik, *Sikumik Qauhimatjutit* ("hanalrutit ilihimayaamik qanurittaaghaat hiku") havauhiit nunallaarni hikumik naunaiqhimayaamik atuqtitauhimaliqtuq. Maniilruit aniuvalulik imait nunauyanughimayut iliuraqtauniaqtut talvunga SmartICE Hikumi Aullaaqtut Amirnaiyautait Nunauyat, ihariagiyatuqaq ilitariyaulraaqhimayuq nunallaarni atannguyait katimayiralaanginnit. Ilitturihimayut taimaa hikumut naunaitkutaliuqhimayut talvanngat Kanatami Hikuliqiyit Ikayuqtiit hanayaulluaqhimayut ikayuutighait agyaqtaqtut hikuhiutinullu aulavaghutik hivituyumik ungahiaqtukullu qauyihautikkut atauttikkuunngittut hikum-qaangani aullaaqtunut. Atuqpangniaqtaqqut taapkua nunallaarnit atannguyait katimayiralaangit katimaviit Nunavunmi nunallaarnit naunaiqhivilluaqtatut havaaghanit iniqtauvalliayut, ahiagullu taimaalu havaaptingnut naunaitkutakkut NRI-mut, nunaptingnilu katimaviinut ArcticNet-kut. Naunaitkutat tutquumavangniat talvani Ukiuqtaqtumi Naunaitkutanik Makpiraangit naunaitkutallu ilihimaliqtaillu hailiyauhimavangniat tughiqtaukpat.