



Arctic Air Power Seminar

Virtual Arctic Air Power Seminar 27 May 2021

Theme: All Domain Awareness

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Time (CDT)	Agenda 27 May 2021	Briefer
13:00	Welcome Remarks	Brig Gen Vaughan, DComd CANR and Dr. Andrea Charron, CDSS
13:05	Brig. Gen Tracy Smith, Commander, Alaska Air National Guard	Arctic Domain Awareness and the Future Vision of the Alaska Air National Guard (ANG)
13:35	Colonel Robyn Hulan (CA) Canadian Team Lead for Pathfinder initiative at NORAD	Pathfinder - Transforming Homeland Defence
14:05	Ms. Jacqueline Kidd ITK Sr. Policy Director, Marine Policy	Indigenous Community needs in the Inuit Nunangat
14:35	Mr. Daniel Taukie, Inuit Monitoring Program	Inuit Marine Monitoring Program
15:05	Closing comments	Brig Gen Vaughan, DComd CANR Dr. Andrea Charron, CDSS

Goal of the Arctic Air Power Seminars – the goal of the Arctic Airpower Seminars is to exchange ideas, practical applications, and build relationships that enhance airpower projection and domain awareness in the high north. The quarterly series sits between the strategic and tactical levels, examining operational-level challenges associated with agile basing. Each seminar is dedicated to a deep investigation of a specific element associated with planning, executing and sustaining agile basing solutions in a rapidly changing environment. One key difference between the Arctic Air Power seminars and other defense fora is that defense and security objectives are viewed through an integrated lens that considers non-defense factors, such as the concerns of indigenous communities, climate science realities, and commercial/economic development.

Context - As more world-wide attention turns to the Arctic, more vessel and aircraft traffic is expected. At the same time, climate change means that more requests for assistance in the Arctic by various levels of government will be made of both the U.S. and Canadian militaries. With these considerations in addition to the background great power competition in which NORAD seeks to project joint airpower into the Arctic, the Canadian and U.S. militaries need agile (moveable) bases/operating locations, and the right equipment and personnel need to be in the right place at the right time.

The aim - Bi-lateral seminar series at the action officer lever (O6 or equivalent). Participants currently include Canadian NORAD Region (CANR) Members, U.S Soldiers, Airmen, CJOC, SJS, JTF-North, and Extreme Cold Industry Innovators, and related stakeholders focus on innovation and proposing multi-domain solutions for projecting joint airpower in an extreme cold environment. This seminar concentrated on all domain awareness

The BLUF: All domain awareness continues to be a challenge. Indigenous and community needs and solutions have been treated as separate from military needs and solutions. This must change to achieve all domain awareness.

BrigGen Vaughan, DComd CANR

Russia's activities in the Arctic are provocative at times. If a Russian vessel enters Arctic waters, what do you do? What are the military and non-military responsibilities in the Arctic? This is difficult to answer because Russia and China often attempt to blur these lines. Intentions are opaque and the purpose of funding (for example research funding) obfuscates the true purpose. Our competitors do not have clear military and non-military distinctions and see all actions in the Arctic as acting in the national interest.

There are two questions we should have in mind throughout this seminar. First, how are we aware of the Arctic and how are we to understand the intent of various actors? Second, how do Arctic actions threaten or impact the traditional lands of indigenous peoples and their sovereignty?

Brig Gen Tracy Smith, Alaska Air National Guard

Climate change is affecting the Arctic and driving changes to the region. Sea ice continues to recede allowing for greater access for transportation, resource extraction and the threat of increasing militarization in the region, driven by great power competition. While the effects of climate change create challenges in the Arctic, these changes also provide opportunities for increasing cooperation in the Arctic.



Situation, Challenges, and LOE



Climate change is affecting the Arctic and driving changes to the region. Receding sea ice has **increased access** to the region **for transportation and resource extraction** and with it the **threat of militarization** from great power competition, while simultaneously providing **increased opportunities for cooperation**

Challenges

1. Ensure a safe and stable region
2. Safeguard U.S. and Canadian interests
3. Defend the U.S. and Canadian homelands
4. Facilitate cooperation to meet shared challenge



As of 25 May 2021

USAF Lines of Effort

1. Vigilance in all domains
2. Preparation for Arctic operations
3. Cooperation with allies and partners
4. Projecting power through a combat-credible force

Joint Force Headquarters Alaska

In this context, the Alaska Air National Guard (AKANG) faces four challenges. First, AKANG must ensure the regions is stable. The greatest threat to regional stability is the environment. In the Arctic, the temperature has warmed at more than double the global average, transforming ecosystems, reducing polar ice, and thawing permafrost that is needed for infrastructure. Additionally, extremely low temperatures in the winter are critical planning considerations for AKANG.

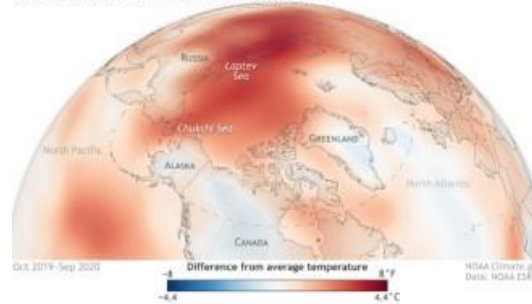


Ensure a Stable Region

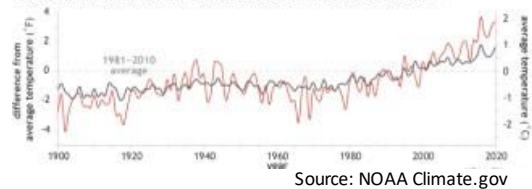


- Greatest adversary is environment
 - Transformed ecosystems
 - Temperature variations
 - Reduction in polar ice
 - Thawing permafrost

2020 WAS ARCTIC'S SECOND-WARMEST YEAR ON RECORD



ARCTIC WARMING MORE THAN DOUBLE THE GLOBAL AVERAGE SINCE 2000



As of 25 May 2021

Joint Force Headquarters Alaska

Second, AKANG must safeguard US and Canadian interests which is done via advanced air and missile defense systems, NOBLE EAGLE missions, and command and control with NORAD and USNORTHCOM. AKANG also safeguards US and Canadian interests in the region by projecting power and preparedness. Bases in Alaska are in critical positions for aerial refueling and are vital resources because so few locations in the north are suitable for airports. In Alaska, the Air National Guard demonstrates preparedness by undertaking mission rehearsals with multiple joint and coalition exercises annually.

The third challenge is that AKANG must defend the homelands of the US and Canada. Russia has spent billions of dollars in the Arctic on missile systems and advanced aircraft in the Arctic. Similarly, China considers itself a near Arctic state and has its economic and security interests linked, potentially posing dual use security concerns.

The fourth challenge is that AKANG must facilitate cooperation to meet the shared challenge.

In order to address these challenges AKANG has four key lines of effort (LOE). The first LOE is to be vigilant in all domains. For example, in 2020, NORAD, of which the AKANG provides critical tactical command and control as well as aerial refueling, intercepted 60 Russian aircraft flying near the US air identification zone. The second LOE is to be prepared for Arctic operations. To ensure preparedness, AKANG has participated operations such as Arctic Agile Combat

Employment (ACE) which exercised logistic, de-icing, and support operations, and ARTIC EAGLE which developed and field-tested cold weather operational techniques. The third LOE is to cooperate with allies and partners. This is done through multinational operations such as Khaan Quest and Operation PACIFIC ANGEL. The fourth LOE is to project power through a combat credible force, with a particular focus on airpower. AKANG has numerous refuelers and helicopters stationed in the Arctic.

Colonel Robyn Hulan, Canadian Lead of the NORAD Pathfinder Team

Pathfinder is an innovation initiative led by NORAD and USNORTHCOM with dedicated support from Canadians currently posted to NORAD in Colorado Springs. It is a technology leap for Homeland Defense command and control systems. Leveraging commercial technology, the Pathfinder ecosystem ingests air domain sensor data, utilises software automation and applies machine learning models all within a cloud-based architecture to support real-time domain awareness and warfighter decision-making.

The Pathfinder effort focuses on three themes. The first theme is digital. The central goal of the Pathfinder initiative is to harness the power of data automation and apply machine learning techniques in support of mission outcomes. The second theme is culture. The Pathfinder project aims to bring in new talent and new ways of thinking and problem solving into NORAD. The third theme of the Pathfinder project is partnerships. Throughout the development of Pathfinder, NORAD has engaged various vendors in the private sector to enhance innovation and buy down the technological debt.

Today, the monitoring of the airspace over North America depends on legacy systems across numerous domains and demands that NORAD operators use multiple, non-correlated systems that require immense amount of manual processing to stitch together command and control decisions for national security interests. Pathfinder vastly increases the velocity of the observe, orient, decide, act (OODA) loop, automating time-critical processes, removing the numerous human interactions in the loop, placing them on the loop and empowering them to focus their efforts on high level Battle Management functions.

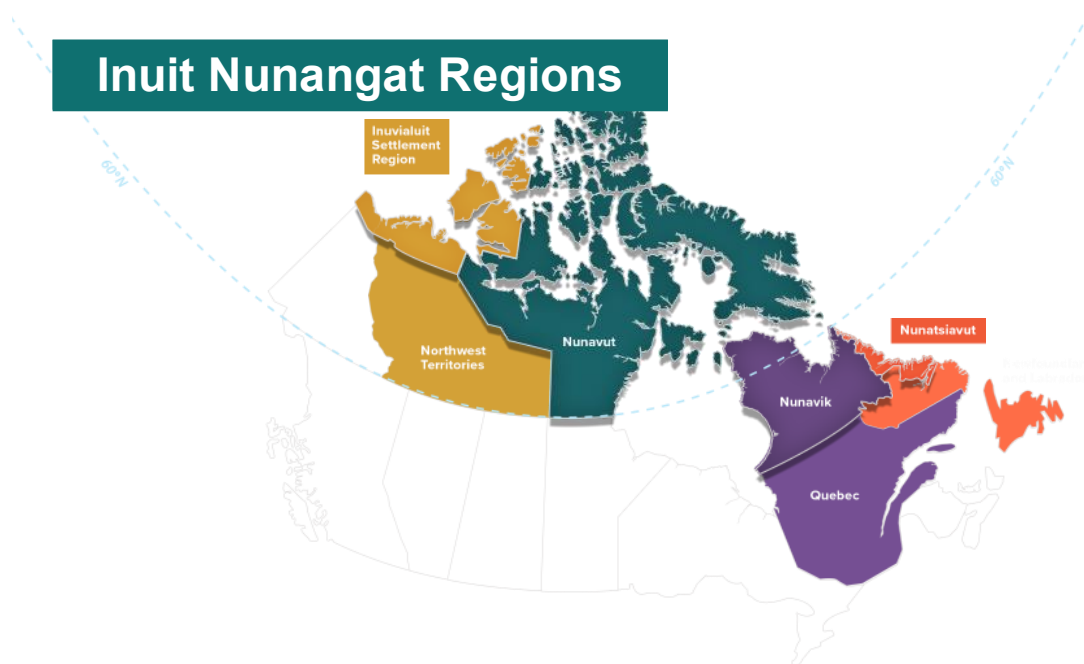
Using real world vignettes, Col Hulan showcased how the application of advanced computing technologies to various data sets can indeed yield a very different and distinct operational outcome to further enable command and control. In addition, by harnessing the power of modern technology the ability to unlock previous investments by extending the life of the data was demonstrated.

Moving forward, Pathfinder will continue to leverage the Combatant Command Global Information Dominance Experiments (GIDE) with a view to rapidly validating capabilities and data to meet new mission needs, apply software defined architectures, and algorithms whilst

eliminating stagnant processes via automation accelerating time-to-value in defense of the Homelands.

Ms. Jacqueline Kidd, ITK Sr. Policy Director, Marine Policy

Inuit Nunangat is a Canadian Inuktitut term means “the place where the Inuit live” or “Inuit homelands.” Inuit Nunangat includes areas of land, water, and ice and encompasses roughly 35% percent of Canada’s landmass and over half of its coastline. There are 51 Inuit communities in Inuit Nunangat all of which are located on the coastline save for one in-land community. Inuit Nunangat is made up of 4 regions, Inuvialuit Settlement Region (Northwest Territories), Nunavut, Nunavik (northern Quebec), and Nunatsiavut (Newfoundland and Labrador).



Inuit Tapiriit Kanatami (ITK) was founded in 1971 by seven Inuit community leaders because they were concerned about the status of land and resource ownership in Inuit Nunangat. These leaders decided that forming a national Inuit organization was necessary to voice Inuit concerns about these and related issues. Initially this organization was named Inuit Tapirisat of Canada (ITC), which means “Inuit will be united in Canada.” The ITC-led land claim negotiations for Nunavut commenced between 1976-1982. The ITC was also part of a coalition that successfully lobbied the federal and provincial governments to reinstate Section 35 of the Charter, elevating Inuit land claims to the status of treaty rights and protecting them within the Charter.

Land Claims Agreements & Organizations

Inuvialuit Final Agreement (1984)

- [Inuvialuit Regional Corporation \(IRC\)](#)

Nunavut Land Claim Agreement (1993)

- [Nunavut Tunngavik Inc. \(NTI\)](#)

James Bay & Northern Quebec Agreement (1975)

Nunavik Inuit Land Claims Agreement (2006)

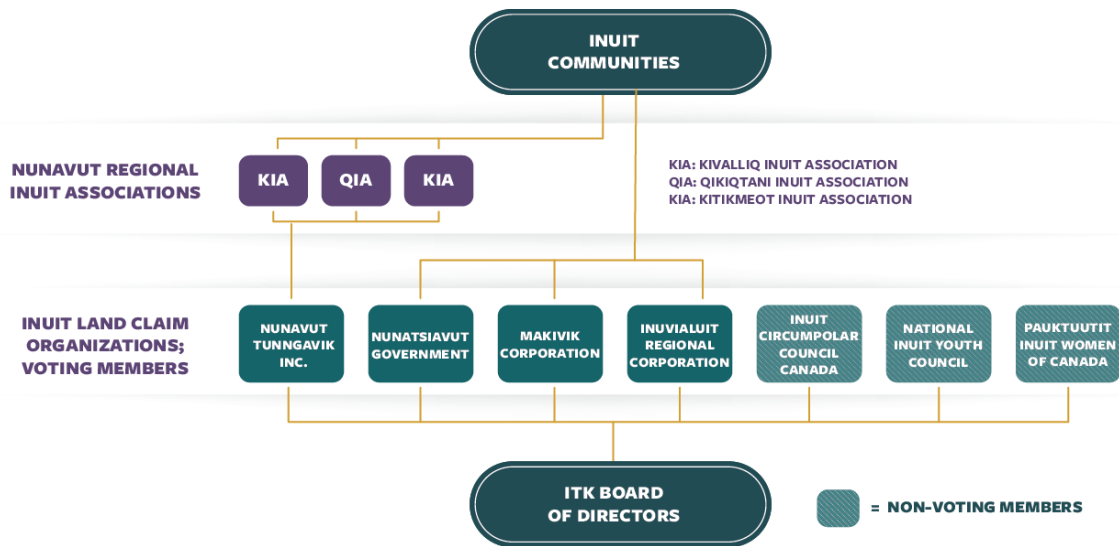
- [Makivik Corporation](#)

Labrador Inuit Lands Claim Agreement (2005)

- [Nunatsiavut Government \(NG\)](#)



In 2001, the organization changed its name to Inuit Tapiriit Kanatami (ITK), which means “Inuit are united in Canada,” and this was done to reflect the settlement of land claims in all regions in Canada.



For Inuit, part of self-determination is being meaningfully engaged in the design and implementation of the policies and programs that affect Inuit and Inuit Nunangat. Numerous needs in relation to all domain awareness in the Arctic have been identified, they include:

- Making AIS mandatory for vessels of all sizes
- Requiring all ships to request permission before landing in any area
- Requiring all vessels to have marine mammal and sea ice observers
- Conducting sufficient charting to ensure safe navigation through Inuit Nunangat waters
- Sufficient response capacity and resources for any large-scale emergencies
- Continuity in knowledge mobilization and communication with staff turnover (for example, through formal processes and channels)
- Comprehensive engagement with Inuit communities when making policy decisions
- Ensuring that Inuit have a voice in international operations that affect Inuit Nunangat
- Training sessions, provided by the federal government, about Inuit culture, history and engagement, for policy makers working with Inuit and northerners
- Increasing investment in marine infrastructure; multi-use facilities; support local training
- Developing human intelligence operations between Inuit communities and federal departments

It is important that the Canadian Airforce (CAF) and US Airforce (USAF) pursue bi-lateral engagement with the four regions of Inuit Nunangat in order to work together and have meaningful collaboration between Arctic military forces and Inuit communities. CAF and USAF dialogue with ITK can help facilitate networking with individual Inuit communities and help to develop a national Inuit position.

Mr. Daniel Taukie, Inuit Marine Monitoring Program

The Inuit Marine Monitoring Program (IMMP) takes an innovative approach to vessel monitoring in Nunavut that couples Inuit marine monitors with real-time vessel tracking technology, using automatic identification systems (AIS). IMMP was developed because there has been a recent increase in shipping around Nunavut. With this increase the communities have many concerns such as, potential accidents, increased pollution and oil spill, wildlife disturbance and interference with hunting and traditional practices. The monitoring program helps Nunavut communities implement policy guidelines for the Northwest passage. The program also provides Inuit with a greater role in shipping management and monitoring.

IMMP collects information of ships travelling through the Arctic, this information includes:

- Ship characteristics such as the vessel type, color, and flag
- Wildlife, noise, and pollution concerns
- Location, speed, and heading of vessels
- Behaviour, activity and timing of ships
- Any suspicious vessels in the area
- Concerns identified by the community

IMMP has built a network of experienced hunters who are hired as marine monitors, undergo training, and then during the shipping season, record observations of vessel activity in and around Nunavut's coastal communities. The monitors organize and utilize Inuit knowledge and local capacity, fill important data gaps, and support an emerging dynamic management regime. IMMP utilizes AIS technology, placing receivers in communities and in remote locations of cultural and environmental significance. This technology allows ships to be tracked up to 150km away from receivers, provides live weather information and is easy to use, with the potential to add more capabilities as the project develops. In 2020 six communities in Nunavut were part of IMMP. For the 2021 season, the program aims to have 10 AIS units in operation.

The overall objectives of IMMP are:

- Improve AIS network through land-based AIS infrastructure and In-town AIS sites
- Collect Inuit knowledge, expertise and presence in key areas
- Provide information for communities and Inuit organizations
- Increase capacity and coordination on vessel monitoring in Nunavut
- Establish a basis of information to support policy making and participation in the shipping management regime
- Educate communities about the Program through community visits and recruitment of summer students during shipping season

IMMP has been effective. In August 2020, a marine spotter in Nunavut spotted and made contact with a yacht from New Zealand transiting through the Northwest Passage with its AIS turned off. This demonstrates how the program can help to recognize illegal or suspicious activity in the north. IMMP has great potential for expansion, for this to happen there is a need for greater development of protocols for IMMP to work with various agencies most effectively.