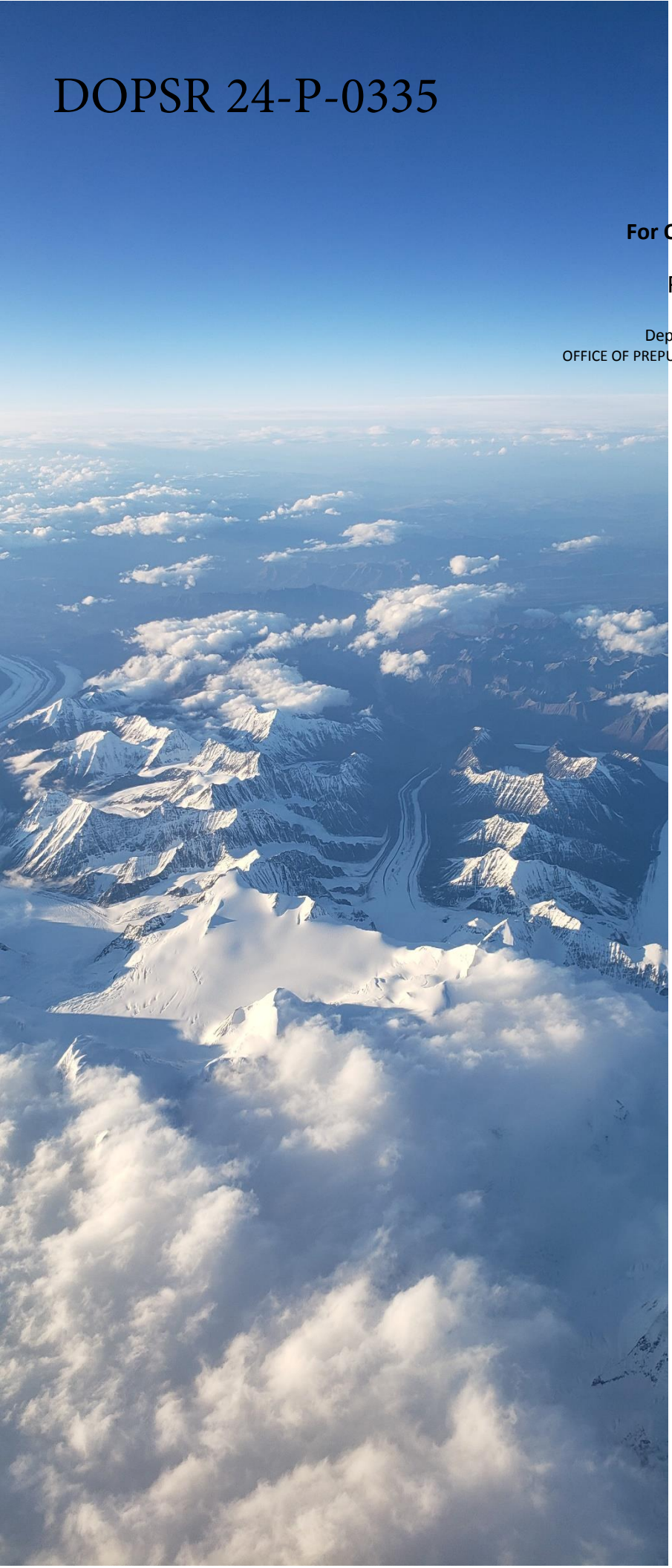

Arctic and Homeland Defense

Defending North America by Securing the Arctic Approaches

A Practitioner-focused workshop hosted by the Homeland Defense Institute and the Ted Stevens Center for Arctic Security Studies

HQ U.S. Northern Command, Peterson AFB Colorado, U.S.A.

Conducted 11 May 2023

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Arctic and Homeland Defense:
Defending North America by Securing the Arctic Approaches

Abstract: In order to defend the Homeland of the United States of America and Canada, senior defense leaders should carefully consider and guard the likely approaches to North America emanating through the Arctic. The following report is a summary of the Arctic & Homeland Defense Symposium conducted on 11 May 2023 at U.S. Northern Command, (USNORTHCOM), Peterson Space Force Base Colorado by the Homeland Defense Institute at sponsored by the USNORTHCOM J7 located at the U.S. Air Force Academy and the Ted Stevens Center for Arctic Security Studies, located at Joint Base Elmendorf-Alaska. The conference was an unclassified venue and employed Chatham House protocols.

Executive Summary

The Homeland Defense Institute, a U.S. Northern Command (USNORTHCOM) sponsored center located at the U.S. Air Force Academy, Colorado Springs, Colorado and the Ted Stevens Center for Arctic Security Studies, DoD's newest Regional Center located at Joint Base Elmendorf-Richardson Alaska conducted an "Arctic and Homeland Defense Symposium" at Headquarters USNORTHCOM, Peterson Space Force Base Colorado on 11 May 2023, in advance of the North American Aerospace Defense Command (NORAD) 65th Anniversary celebration on 12 May 2023, Peterson Space Force Base Colorado. The symposium was an invitation only event, planned and conducted in order to facilitate needed, frank discussions of the critically important topic of providing for homeland defense for both Canada and the United States in light of the challenges of an opening and increasingly accessible Arctic.

The Commander of NORAD and USNORTHCOM has provided recent Congressional testimony outlining his concerns in defending the Arctic approaches to the North America continent as this region remains key terrain as a likely avenue of attack on the homelands of Canada and the United States from an adversarial nation.

NORAD's regional responsibility contains three geographically districting defense zones, Alaska NORAD Region (ANR), Canada NORAD Region (CANR) and Continental U.S. (CONR). Both ANR and CANR regions comprise significant Arctic territory.

Further, USNORTHCOM's area of responsibility is comprised of 51% of geography above the Arctic Circle. Complicating the defense of North America in "defending forward" into the Arctic region is due to a number of

key factors, which include limited domain awareness, overall remoteness, lack of roads and infrastructure (including communications and energy), limited economic development, small and very dispersed population centers as well as the challenging/harsh Arctic geophysical environment. Rapid environmental change is further complicating the ability to defend within and through the region. The sum total of the North American Arctic defense challenges makes campaigning to deter and dissuade adversaries in the Canada-U.S. (CANUS) homeland a complicated task for both U.S. and Canadian armed forces.

With a welcome provided to the conference by Deputy NORAD Commander, Lt Gen Allain Pelletier, Royal Canadian Air Force, and an opening keynote address by Assistant Secretary of Defense for Homeland Defense and Hemispheric Affairs, the Honorable Melissa Dalton, and a subsequent panel soliciting onward reflections by these two distinguished leaders, the conference was provided a charge to investigate the key attributes of the Arctic in context to North American Arctic Defense. Secretary Dalton highlighted the current and emerging challenges to homeland defense coming from a range of threats…geo-strategically ranging to Russia and China, extending to the geophysical risks from climate change, which is being most acutely felt in the Arctic region. The secretary also highlighted the need to advance investments to the enablers to improve homeland defense for both countries, while also advancing collaboration with key Arctic stakeholders within and external to the Arctic security and defense community.

Subsequent panels of expert Arctic minded academics and practitioners from Canada and the United States provided robust bi-national views of the changing landscape ranging from the geophysical to geo-strategic that challenge current thinking on the risks and vulnerabilities to bi-national homeland defense and the Arctic approaches to the North American continent from a security and defense standpoint.

The conference discussed the keystone of North American aerospace defense, (NORAD) by examining the past and current capabilities along with outlining future needs in light of the emerging (and advanced) threat environment. Additional conversations centered on aspects to the political and resourcing challenges faced both in Washington and Ottawa in gaining internal agreement to achieve bi-national consensus to the priority in addressing the strategic and operational risks of defending the Arctic approaches to the North American continent.

In order to capture the insights from the community of Arctic practitioners, an expert set of current operators from a maritime, land, air and space domain vantage point provided the latest aspects of what is working well and what is needed to improve in conducting Arctic operations. These practitioners also provided critical perspectives in how Canadian and U.S. security and defense forces are adapting and responding to increasing pressure from Russian and Chinese military and economic collaboration within and across the Arctic. Domain awareness, communications, access to response forces and infrastructure limitations challenge current operational capabilities that will likely continue to persist.

The conference concluded with a panel seeking to characterize (in an Arctic context) the acute challenge presented by the Russian Federation and the pacing threat from the People's Republic of China (PRC). Expert academic panelists described that while Russia's illegal and immoral actions in Ukraine have reduced some

land force size and capabilities along the Russian Arctic frontier, the Russian Federation continues to keep maritime, air and space capabilities prioritized to the Arctic region.

In particular, Canda and U.S. strategic competitors sophisticated anti-access/area denial strategies necessitate an in integrated response to achieve the needed information dominance to provide an effective defense,

Conversely, China's military presence thus far have principally remained linked to joint maritime and air patrols with Russia in the North Pacific near the U.S. extended economic zone regions near the Aleutian Island chain. China has also continued to exert presence in the Arctic Ocean regions via their limited Ice Breaker fleet that is portrayed principally as a scientific research endeavor.

China's economic presence in the Arctic continues to increase principally via petrochemical resource development on Russia's Yamal peninsula, yet other Arctic centric initiatives associated with the PRC "Belt and Road" program associated with Russia's Arctic neighbors remains limited.

More work is needed to address bi-national planning and the way forward to provide funding, fielding and sustained support for the warning and response systems necessary to keep NORAD capabilities viable. A key concern is that funding needed renovations is already behind the need. Risk to the Canadian and United States homeland is the increasing sophistication and capability of the external threats to be detected and defeated, prior to such deployment of lethal force. CANUS security and defense decision makers have very good bi-national structures that guide policy and programming for shared defense, but the challenging aspects remain…will decision makers in Ottawa and Washington commit with the priority needed to support campaigning to deter and dissuade adversaries, (categorized as a true "task of the strategic important") or will the "tyranny of the urgent" in addressing security challenges in Europe, the Middle East and the Indo Pacific prove to continue to be such a staggering dilemma that slows and reduces the needed investment to protect the Canada and U.S. homelands.

Keynote speakers and panelists.

In keeping with the Chatham House protocols of the event, specific attributes of the Homeland Defense and the Arctic Symposium are not accorded to any particular speaker nor any particular participant.

Welcome Address: Lt Gen Allain Pelletier, Royal Canadian Air Force, Deputy Commander, North American Aerospace Command (NORAD), Peterson Space Force Base, Colorado.

Keynote Speech: The Honorable Mellissa Dalton, Assistant Secretary of Defense for Homeland Defense and Hemispheric Affairs, Office of the Secretary of Defense, Pentagon, Washington D.C.

Panelists and Moderators:[1]

[1] Arranged in alphabetical order.

- **Dr. Lillian "Doc" Alessa,** President's Professor, University of Idaho, Moscow Idaho. Serving as Science Advisor, Joint Staff J7, Pentagon, and Senior Scientist and Lead Special Programs, Ted Stevens Center, Joint Base Elmendorf-Richardson, Alaska.
- **Capt Mark Anderson,** Director, Military Strategic Effects, MOD-UK, London, United Kingdom.
- **SES Peter Belk,** Deputy Director of Operations, U.S. Northern Command. Peterson Space Force Base, Colorado.
- **Cdr Mike Bielby,** Space Mission Assurance & Integration 3 Canadian Space Division (3 CSD)/ Canadian Armed Forces. Ottawa, Ontario, Canada.
- **Dr. Andrea Charron**, Director, Centre for Defence and Security Studies, University of Manitoba, Winnipeg, Manitoba, Canada.
- **Dr. Jim Ferguson**, Deputy Director, Centre for Defence and Security Studies, University of Manitoba, Winnipeg Manitoba, Canada.
- **Dr. John Garver,** Director, Homeland Defense Institute, U.S. Air Force Academy and U.S. Northern Command (USNORTHCOM), Peterson Space Force Base, Colorado.
- **Dr. Ben Gochman,** J-39 USNORTHCOM, Peterson Space Force Base, Colorado.
- **Dr. Joseph Jockel**, Frank Piskor Professor of Canadian Studies, St. Lawrence University, Kingston, Ontario, Canada.
- **Maj Gen, USAF (Ret) Randy "Church" Kee,** Senior Advisor, Arctic Security Affairs, Ted Stevens Center for Arctic Security Affairs, Joint Base Elmendorf-Richardson, Alaska.
- **Dr. Whitney Lackenbauer**, Network Lead, North America Arctic Defence and Security Network Trent University, Peterborough Ontario, Canada.
- **Dr. Adam Lajeunesse**, Irving Shipbuilding Chair in Canadian Arctic Marine Security Policy, St. Francis Xavier University, Antigonish, Nova Scotia, Canada.
- **RADM Nathan Moore**, USCG, Commander, USCG District 17, Juneau Alaska.
- **BGen FW Radiff**, Deputy Commander, Alaskan NORAD Region, Joint Base-Elmendorf-Richardson, Alaska.
- **Mr. Alexander "Sasha" Rojavin**, Director of Counter Foreign Malign Influence Strategy, Deft9 Solutions, Inc., Charlottesville Virgina.
- **Mr. Niklas Taylor**, Senior Principal Analyst, Defence Science and Technology Laboratory, London, United Kingdom.

Background.

The 2022 United States National Security Strategy (NSS) is America's overarching guidance defining the U.S. national security goals and objectives. In support of the NSS, the 2022 National Defense Strategy (NDS) states that defending the homeland is the number one priority for the Department of Defense. To ensure homeland defense, NORAD and USNORTHCOM require credible capability to deter strategic competitor actions across the whole of our area of operations and responsibility, including the Arctic. The 2022 National Strategy for the Arctic Region (NSAR) defines U.S. Federal goals and objectives specifically for the Arctic region, from both an international and domestic vantage point.

Since 2017, Canada's defense policy is enshrined in the national document "Strong, Secure and Engaged" and continues to guide Canadian defense prioritization, planning and programming.

Canada and the U.S. leverage the bi-national defense policy forum, titled the Permanent Joint Board of Defense (PJBD), established in 1940 as the shared defense collaboration and prioritization forum, involving two U.S. and two Canadian departments: Canada's Department of National Defense and Public Safety and the U.S. Department of Defense and Homeland Security. On average, the Canada-U.S. PJBD meets every 6 months.

In accordance with the Unified Command Plan for the United States, USNORTHCOM is the lead Geographic Command for Arctic advocacy and USNORTHCOM is the assigned geographic command vested with responsibility for homeland defense.

Canada's Joint Operations Command is Canada's single combatant command and is responsible for Canada's homeland defense.

NORAD is responsible for aerospace defense of Canada and the United States as a bi-national command.

The Commander of NORAD and USNORTHCOM serves not only for homeland defense of the U.S. and leading response for aerospace defense of Canada and the U.S., but also is responsible for bilateral security cooperation and military activities as assigned by the U.S. Secretary of Defense as regards Mexico and the Bahamas, plus defense support to civil authorities for the U.S. homeland.

The Department of Defense's newest regional center, Ted Stevens Center (TSC) for Arctic Security Studies advances a network of civilian and military practitioners to promote understanding and provide collaborative security solutions with Allies and Partners for the Arctic region.

The Homeland Defense Institute (HDI) at the U.S. Air Force Academy (USAFA) (sponsored by USNORTHCOM's J7 Directorate, strengthens U.S. and Canadian national security by establishing sustained relationships to foster innovation and leverage homeland defense expertise to meet global security challenges.

Both the TSC and HDI efforts align with the National Strategy for the Arctic Region of coordinating shared approaches with allies and partners and mitigating risks of unintended escalation. In the spirit of partnership between HDI and TSC, these 2 new centers jointly organized and conducted the *Arctic and Homeland Defense Symposium* as a practitioner's forum where military leaders, government officials, and academic experts could discuss key issues related to the future of NORAD and homeland defense in the Arctic, as well as strengthen Arctic regional partnerships.

Figure 1: The North American Arctic remains a remote region, were lack of surface lines of communication challenge infrastructure sustainment and logistics.

The *Arctic and Homeland Defense Symposium* was held in advance of the commemoration of NORAD's 65th Anniversary on May 11, 2023, at the United States Northern Command and NORAD combined headquarters in Colorado Springs.

For 65 years, NORAD has been a symbol of U.S.-Canadian cooperation and partnership, and it continues to be a vital component of North American defense. In an era of increasing global threats, such as terrorism, cyber-attacks, and potential threats from near-peer adversaries, NORAD continues to play a critical role in safeguarding North American airspace and maritime approaches.

The importance of the alliance has grown as the security environment and technological capabilities have evolved. America's asymmetric advantage in supporting U.S. national interests in the Arctic and in defending American homeland remains the strength and capability of alliances: NORAD and NATO. The same

The symposium provided the opportunity to recognize important NORAD accomplishments and highlight the enduring strength of its mission in defense of North America. Critical to the success of NORAD is the "tri-command framework" that serves as an enabler to NORAD…namely, USNORTHCOM (as described is vested with responsibilities of the full spectrum of military operations, security cooperation and defense support to civil authorities for the United States and the North American continent) and Canada's Joint Operations Command (CJOC…Canada's single unified command responsible for the planning and employment of the Canadian Armed Forces to crisis and contingency with global responsibilities in support of Canada's national security interests). CJOC is the Canadian Armed Forces enabler to Canada's defense strategy of "Strong, Secure and Engaged."

Experts from across the Arctic convened at the *Arctic and Homeland Defense Symposium* to discuss, analyze, and advance homeland defense and U.S. and Canadian national interests. The Arctic is an essential avenue of approach in defending the North American homeland. The symposium provided a forum where military leaders, government officials, and academic experts could discuss and collaborate on key issues related to the future of NORAD and homeland defense in the Arctic. The result was an important venue that combined useful analysis and practical recommendations for North American defense policymakers. This report provides a summary and analysis of the proceedings of the symposium, beginning with an overview of each of the panels, and concluding with implications for the Arctic and policy recommendations. As mentioned previously, Chatham House Rule applied to the entirety of the symposium.

NORAD — Past, Present, Future

This first panel examined the past, present, and future of NORAD through the perspectives of the three featured panelists assigned to one of the respective vantages. The intent of the panel was to facilitate meaningful discussions on various aspects related to NORAD's history, mission, responsibilities, bilateral cooperation, future prospects, and civil-military coordination. NORAD has been a cornerstone of security in North American —and of U.S. foreign policy—for over six decades. NORAD—Past, Present, and Future looks at what the U.S.- Canadian alliance must do to maintain NORAD's relevance in the face of today's evolving strategic environment.

Figure 2 Photo from NORAD 65th Anniversary celebration, Peterson SFB CO, 12 May 2023

The panel began by examining the origins of NORAD to contextualize the discussion, and symposium more broadly. As one of the world's sole bi-national defense alliances, the establishment of NORAD is a compelling case study of two nations establishing an agreement for the common defense of North America. Moreover, the longevity of NORAD demonstrates its enduring relevance in the evolving geostrategic landscape. In September 1957, the U.S. and Canada created the "North American Air Defense Command" in Colorado Springs, CO as a bi-national command, centralizing operational control of continental air defenses against the threat of Soviet bombers. In 1958, the agreement was formalized with 11 governing principles and a mandate to renew the agreement every 10 years. The agreement was initially considered a functional military arrangement intended to be flexible but was eventually formalized diplomatically. This evolution made NORAD more than just a command, but also a diplomatic partnership which informs how the public and policymakers perceive its current and future utility. Moving forward, the number one consideration should be what is the best model for what is primarily a joint air defense command.

Next, the panel examined the current state of NORAD through a normative lens of perils, politics, and publics. Looking at current perils, NORAD is highly dependent on modernization challenges. With the

increased focus on emerging threats in the North, specifically with the Arctic as a primary avenue of approach, it is imperative that NORAD continues to invest in capabilities to detect, deter, and defeat aerospace threats in North America. The success of NORAD requires consistent funding that combines both technical and institutional resilience. To achieve integrated deterrence, we must establish a whole of society approach. Homeland defense requires a balance of overseas engagement, while also mitigating domestic vulnerabilities.

From the political lens, NORAD must integrate political objectives with existing military frameworks and other domains. Looking to the current structure of NORAD, it is important to consider what the optimal organizational construct is for the contemporary security environment. NORAD has a global Area of Operation with a 360-degree threat environment. Currently, NORAD depends on hundreds of individual mutual support agreements with other commands for aerospace warning, to include the detection, validation, and warning of attacks against North America whether by aircraft, missiles, or space vehicles. Consequently, NORAD works best at the small-scale functional level. That being said, the over- classification of materials on the U.S. side is a barrier to efficient and effective collaboration and creates a general reluctance on the Canadian side to share information. It is important that we maintain a common lexicon between the U.S. and Canada to ensure the success of NORAD.

Finally, public perceptions of NORAD within the U.S. and Canada is generally characterized by a misunderstanding or ignorance of the NORAD mission. This was highlighted in the 2023 media response to the Chinese spy balloon. The emotional manipulation of sovereignty for political purposes creates public unease. Moving forward, it is important to manage the public image of NORAD, as it directly contributes to our joint ability to address threats to North America.

Looking ahead, NORAD is 5-6 years behind on modernization. According to the respective national strategies of the U.S. and Canada, the sophisticated anti-access/area denial (A2/AD) strategies of our competitors necessitate an in integrated response to achieve information dominance. This increasingly complicated operating environment necessitates a reexamination of NORAD's role in deterrence, shifting from defeat capabilities to deterrence by denial. However, beyond technical capabilities modernization, NORAD must also look at the structural relationship to assess effectiveness and efficiency. For NORAD modernization to be realized, the binational defense alliance will need to be reexamined beyond its foundational construct. This carries significant political implications for the future of the agreement.

Enabling Arctic Security — Operations and Activities

The subsequent panel "Enabling Arctic Security— Operations and Activities," represented an organizationally diverse vantage of what is working and what should be considered to better enable North American Arctic security as principally viewed from an operations perspective. Questions considered included:

- What sort of activities are currently successful to deter and dissuade Canada-U.S. (CANUS) Strategic competitors?
- What are the kinds of emerging risks to North American Arctic security that make future deterrence less certain?

- What is needed to better reduce risk? Perhaps more platforms, technology investments (such as domain awareness), logistics or some support function?
- What is keeping your organizational leadership "up at night" …worrying about shortfalls and capabilities to respond?

Each of the panelists presented their organizational perspective spanning all domains of the North American security spectrum, from maritime to space. Panelists explored the impact of the region's unique geophysical elements which constrain our operational capacity. Harsh terrain and weather conditions make essential homeland defense functions such as communications, global positioning, and domain awareness a significant challenge in the Arctic. Yet, the Arctic also holds some of the U.S.'s most advanced security infrastructure, such as radar systems, missile defense, 5th- generation fighter aircraft, and undersea capabilities. To enable Arctic security, it is important to consider how we maintain integrated air and missile defense to defend the homeland. Finally, operating in the Arctic must factor in climate change and the role a warming Arctic will play in the evolving homeland defense needs of North America.

The first operational component examined on the panel was the U.S. Coast Guard (USCG) District 17, located out of Juneau, Alaska. District 17 exemplifies the importance of presence in the region and has a longstanding history protecting and serving the homeland defense mission in the Arctic. The first U.S. flag was delivered to Alaska on a Coast Guard cutter in 1959. The 17th District encompasses over 3,853,500 sq. miles and over 47,300 miles of shoreline throughout Alaska and the Arctic. In September 2022, the Coast Guard Cutter Kimball crew on a routine patrol in the Bering Sea encountered a People's Republic of China Guided Missile Cruiser and Russian Federation Navy destroyer operating as a combined surface action group in the U.S. Exclusive Economic Zone (EEZ). The USCG activated Operation Frontier Sentinel, a Seventeenth Coast Guard District operation designed to meet presence with presence when strategic competitors operate in and around U.S. waters. The U.S Coast Guard's presence in and around the Arctic strengthens the international rules-based order and promotes the conduct of operations in a manner that follows international norms.

Next of the operational components examined within the panel was Alaska NORAD Region (ANR) headquartered at Joint Base Elmendorf-Richardson, Alaska. ANR provides the capability to detect, validate, and warn of any aircraft and/or cruise missile threat in its area of operations that could threaten North American security. Both the active and Air National Guard units supporting ANR are trained and equipped in the Arctic, for the Arctic. Within the Alaska region, there are significant environmental and geographic constraints which cause a capability gap; The tyranny of distance to import goods to Alaska through a single port creates distribution and supply challenges. Moreover, climate concerns such as melting permafrost, coastal erosion, and forest fires pose a challenge to our ability to effectively operate in the Arctic and defend the homeland. Finally, a core function of ANR is domain awareness and the U.S. and Canada's ability to passively defend the homeland. Of particular importance in the North American subregion of the Arctic, is our ability to partner with Native communities for a localized perspective on security and domain awareness.

From the academic perspective, the subsequent panelist argued that whoever owns information and knowledge in the Arctic can weaponize the Arctic, meaning it is imperative that the U.S. and Canada are at the cutting edge of scientific research. Further, the panelist argued for the concept of Arctic exceptionalism, noting that all Arctic challenges will spill over to the rest of the globe. To account for this, we need multi- actor diverse

distributed assets to achieve modalities. Our adversaries have more than 17 modalities. In this forum, the panelist identified three modalities: academia, economics, and policy. The speed to aggregate knowledge for information dominance will provide decision advantage in the Arctic. We haven't identified where we are in the competition spectrum; Once we do, we can determine which modalities to use.

Looking to the space domain, the final panelist examined space as a warfighting domain and force multiplier. Geosynchronous satellites generally don't function at higher latitudes (above approximately 65 degrees N) due unfavorable geometries in common low-inclination orbits. Lower orbital inclinations are selected to maximize the satellites' view of the more densely populated equatorial and mid-latitude regions. Consequently, the Arctic operating environment is a region where traditional SATCOM is largely unavailable, necessitating ship-shore broadcasting. Space-based Intelligence, Surveillance, and Reconnaissance (ISR) architecture is essential to future strike capabilities through. This is particularly important in an era where China is developing dual purpose satellite research. Finally, looking to Low Earth Orbit (LEO) satellite technology, the Arctic is a critical region. LEO satellites follow the Earth's lines of longitude, meaning they cross the poles daily. These satellites are significantly smaller without the risk of radiation due to the sufficient coverage by the Earth's atmosphere. Looking to the future, as well as potential vulnerabilities in Ukraine, as commercial LEO satellites such as Starlink are used for defense purposes, this critical space infrastructure becomes a target for adversaries.

Strategic Competition in the Arctic—Russia and the People's Republic of China

The final panel, "Strategic Competition in the Arctic—Russia and the People's Republic of China," addressed Russian and People's Republic of China (PRC) strategies in the Circumpolar Arctic region. The Arctic sits at the confluence of a changing geopolitical landscape and changing environment. As the previously impenetrable landscape becomes increasingly accessible, the likelihood for conflict, miscalculation, or interference becomes more likely. This panel identified key Arctic players, quantified relative influence, and assessed the competitive landscape of the Arctic region.

To establish the context for understanding strategic competition in the Arctic, the first panelist suggested the framework of threats to the Arctic versus threats through the Arctic. To that end, it is important to consider what makes an issue exceptionally Arctic. Although we categorize many traditional defense and security threat as Arctic, very few originate in the Arctic, but are rather spillover from non-Arctic regions as a stage for strategic competition. Threats specifically to the Arctic are related to the changing environment, such as wildfires or coastal erosion, and aligned with the Defense Support for Civilian Authorities (DSCA) mission and the mission of the Canadian Rangers. Rather than rely on Arctic exceptionalism as a model for strategic competition, we need to distinguish what is inherently Arctic. Making this distinction is important to our strategic messaging and ability to project presence as a component integrated deterrence to ensure regional stability. By creating a synchronized allied message in the Arctic region, we can establish information dominance.

It is important to understand the nature of the relationship between Russian and China as a potential avenue of exploiting competition in the region. The following panelist argued that Russia and the PRC are partners of choice out of necessity. Russia is an Arctic nation and has a significant stake in maintaining Arctic sovereignty, as well as the impact of climate related policy decisions in and about the Arctic. China, on the other hand, is interested in playing a larger role in the Arctic solely from a resourcing and investment perspective. The two nations project partnership, but the unequal power dynamic, and divergent messaging revels a gap. These

competing views of Arctic sovereignty are a potential vulnerability that the like-minded Arctic states can exploit.

To effectively address strategic competition in the region, it is important to then understand elements of deterrence. The next panelist emphasized that deterrence is not a reactive/ passive tool of statecraft, but rather an active/ proactive set of actions intended to influence the adversary. Joint military exercises in the Arctic allow NORAD and USNORTHCOM, and its components to demonstrate operational capabilities that are critical for integrated deterrence and layered defense. Exercise ARCTIC EDGE 23 takes place across Alaska and supports joint force readiness and development, extreme cold weather tactics, techniques, procedures refinement, and Arctic testing and experimentation. Further, effective deterrence spans beyond the military element of power, to include a whole of society approach towards integrated deterrence. Deterrence must be credible, cohesive, and communicated in order to achieve the desired effect on the adversary. Deterrence is essential to maintaining the rules-based international order in the Arctic and beyond. This sets the conditions for a stable, secure, and prosperous Arctic region.

Workshop Conclusions and Associated Recommendations for Policymakers.

The following set of summary conclusions and recommendations for policy makers was distilled from the presentations made by guest speakers and panelists, as well as follow-on discussions from the conference participants.

Classification of materials.

Throughout the symposium, the issue of the overclassification of materials was raised several times. This is a barrier to effective collaboration between the U.S. and Canada, as well as localized search and rescue components in the Arctic. Considering the need for all domain awareness, information dominance, and decision superiority, information sharing is of the utmost importance.

The need for increasing technology in sensing, characterizing, and responding to threats to the North American Homeland.

The sophistication of threats to the North American Homeland from adversarial nations continues to grow. NORAD modernization to sense, characterize and respond to next generation of threats is critical. Creating capability to counter competitors' ability to put the homeland at risk requires improved sensing (at finer details and longer ranges) to detect and characterize threats is essential. Overall, All Domain Awareness followed by the ability to defeat advanced threats in the approaches to the North American homeland is essential. As related the Arctic approaches remain the most likely avenue of approach to the Canadian and U.S. homelands and should be prioritized accordingly.

Preparing for future "next generation" capabilities.

The role of next generation capabilities (such as Artificial Intelligence and Machine Learning) used by NORAD and NATO's strategic competitors and the role such technology to support NORAD's ability to defend, is critical to understand and to drive onward investment priorities.

Advancing Arctic logistics.

The ability to cope with current logistics in defending forward in the Arctic remains less understood and in need of more determined priorities. Planning, prioritizing, and procuring capabilities (along with training and exercising) Arctic logistics in support of operational efforts for homeland defense continues to be an important and growing need.

Increasing the Arctic practitioner community.

The geophysical challenges of operating in and through the Arctic remains more of a specialized competency community. Increasing Arctic education to more operators to advance Arctic awareness remains an important consideration.

Strategic Messaging.

In an era of strategic competition, synchronized messaging across the like-minded Arctic states is extremely important to demonstrate presence and unity. It is also critical to message the importance of NORAD to the public. By Demystifying NORAD, the U.S. and Canada will be better able to communicate with the public when addressing security incidents. Further, a deeper understand of the value of NORAD elevate homeland defense investment as a priority.

Assessing NORAD command structure.

Looking to the future, it is important to consider what the ideal command structure is for NORAD. The complex and "dual-hatted" nature of NORAD has impacted command and control over the last decade necessitating the creation of a Combined Forces Air Component Command(er) (CFACC). This will likely have implications for the future culture and structure of NORAD. Along with the question of structure is the strategic allocation of resources in North America for the homeland defense mission.

The Future of NORAD and Greenland.

As Greenland continues to progress towards independence it is important to consider the implications for North America, NORAD, and the Arctic. Pituffik Space Force Base in Greenland is essential to the defense of the North American Arctic. Symposium participants advocated for including Greenlandic representation in discussions of the future of NORAD, acknowledging that this must be done with the permission and sensitivities of the Kingdom of Denmark and people of Greenland.

Conclusion

For 65 years, NORAD has safeguarded Canada and the U.S. from threats in the air domain and, since 2006, in the maritime domain. The strength of NORAD is in its ability to evolve in response to the changing strategic environment to keep North America safe from aerospace and maritime threats.

In the face of emerging threats, NORAD is at an inflection point. Its missions have assumed renewed importance in a dynamic strategic environment. NORAD continues to foster the partnerships and alliances that provide Canada and the U.S. with what is our most distinct strategic advantage. In the Arctic, NORAD and USNORTHCOM demonstrates consistent commitment to the Arctic in order to deter malign actors in the region, ensure the defense of North America, and keep the Arctic as stable and secure as possible.

The Arctic remains the most unforgiving operational environment on earth, and NORAD and USNORTHCOM require access to trained and ready forces capable of operating in the Arctic. Strategic decisions regarding Arctic investment in critical capabilities and infrastructure support the Joint Force's ability to provide persistent presence in the region for day-to-day campaigning.

This *Arctic and Homeland Defense Symposium* accomplished several goals for the U.S. and Canada. It provided the opportunity to convene policymakers, practitioners, and academics to discuss important dynamics in the Arctic region. The symposium was a unique opportunity where there was an open channel of communication between NORAD and academia. Additionally, symposium participants reaffirmed the value of NORAD and the institutional partnerships that keep the Arctic a peaceful and stable region.