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Today's increasingly complex security environment is defined by increased inter-state competition, the changing nature of conflict, rapid technological change, and challenges from adversaries in every operating domain. Adversaries have methodically formulated doctrine and developed the capability to support it, specifically aimed at threatening our countries with conflict below the nuclear threshold. To meet the demand of the emerging security environment, North American Aerospace Defense Command (NORAD) and U.S. Northern Command (USNORTHCOM) has partnered with academia to seek new ways to shape the security environment and enhance the United States and Canadian defense capabilities.

The 2022 Homeland Defense Academic Symposium was held on 13-14 July 2022 at the NORAD and USNORTHCOM headquarters in Colorado Springs, Colorado. NAADSN participants were Andrea Charon, Jim Fergusson, Rob Huebert, and Adam Lajeunesse.

NORAD's Five Ps: Perils, Purse Strings, Politics, Paradigms and Possibilities

Paper by Andrea Charron and Jim Fergusson
University of Manitoba

From its early days, the North American Aerospace Defense Command (NORAD) has often been referenced as a solipsistic shortcut to indicate all is well with the Canada-United States' (CANUS) defence relationship. Yet, few among the Canadian public understand its missions, other than tracking Santa, and at times, one might wonder if successive Canadian governments fully understand NORAD's missions. Nonetheless, NORAD continues to be vital to the defence and security of Canada, reducing the cost to defend national approaches, generating investments in the Arctic which can have civilian benefits, and providing significant opportunities to access, influence and offset American unilateralist proclivities with regard to continental defence.

At its core, NORAD is the functional solution to the indivisibility of the airspace above North America. It could also be the solution to manage the multidomain threats North America faces today. However, NORAD's evolution from a North American Aerospace to an integrated North American Defence Command faces numerous external impediments, including its own history and culture. These can be conceptualized as perils, purse strings, politics, and paradigms, which have

always existed in the background influencing Canada's participation in this one-of-a-kind binational Command. We end the paper with possibilities for the future including new partners and revisit of NORAD's global area of operations.

Perils

Since the end of World War II, North America was primarily secured through the United States' ability to project political and military power globally, with few, external restrictions following the end of the Cold War. Canada, in turn, largely followed suit in support of many, but not all US-led overseas commitments. This did not substantially change following 9/11, even though NORAD and its new institutional partner, US Northern Command (USNORTHCOM), shifted focus internally to terrorist threats. More recently, however, successive NORAD Commanders, especially General O'Shaughnessy (2018 – 2020) and the current commander General VanHerck (2020 -), have repeatedly emphasized a range of relatively new state-based military and security threats directly facing North America that cannot be dealt with via overseas commitments. From the development of hypersonic weapons to cyber attacks, and from peer competitors to nonstate actors, North America faces a number of threats and adversaries with both the intent and capabilities to affect the economic and physical security of North America and its people, as well as the rules-based, liberal international world order upon which they rest.

Paramount among the main actors of concern are Russia and China which are developing and deploying new, long range weapon systems with the primary purpose "to hold critical sites in the United States and Canada at risk with conventional strikes"¹ by threatening and, in conflict,

¹ Gen(ret) T. O'Shaughnessy and Brig Gen Peter Fesler, *Hardening the Shield: A Credible Deterrent and Capable Defense for North America* (Washington D.C.: Wilson Center, September 2020): 2.

attacking North America. These new systems include conventional very long-range stand-off air and sea launched cruise missiles, and the ongoing development of supersonic nuclear-powered cruise missiles, and hypersonic glide vehicles which transit and maneuver through sub-orbital space, and subsequently airspace. Neither NORAD's aerospace warning nor its air defence capabilities are capable of fully dealing with this new generation of threats. This, as such, is the capability peril now confronting North American defence.

This emerging 360-degree threat environment, as a function of these new weapons emanating from multiple domains allows for North America to be struck from anywhere in the world.

NORAD, at least on paper, provides the detect, deter and defend solution because of its global area of operations, although its defence function is limited by mandate and capability to the airspace above North America. In this regard, NORAD's place within the overarching US defence command structure produces another peril.

NORAD is a combatant command. Although it is rarely conceptualized as such, it is an essential

part of the US Unified Command Plan (UCP).² NORAD is the independent air defence command or component twinned with USNORTHCOM – a combatant command responsible for ballistic missile, land, and maritime defence for the continental United States, including Alaska.³ The two, in turn, co-exist with the other ten combatant commands.⁴ This structure enables adversaries, especially Russia, to exploit, and manipulate the numerous command seams and capability gaps amongst the regional combatant commands, as well as those between NORAD & USNORTHCOM and NATO. In this regard, particular concern has been directed towards Russia and the Greenland, Iceland, United Kingdom and Norway (GIUK-Norway) maritime gap in the North Atlantic which is a choke point and transit route to and from the European Arctic.⁵ In addition, USINDOPACOM shares responsibility with NORAD & USNORTHCOM for the Arctic along with USEUCOM. USEUCOM is the “lead” given that Russia is in its area of responsibility, but USNORTHCOM is the US military’s Arctic capabilities’ advocate and USINDOPACOM has many of the needed capabilities. These seams and capability gaps are ripe for exploitation.

In addition, new perils have emerged for which NORAD has neither the means nor mandate to tackle of which drones (Remotely Piloted Aerial Systems (RPAS)) and cyber threats stand out. While RPAS warning and defeat is within NORAD’s mandate, current 1970’s NORAD sensors

² Agreement Between the Government of Canada and the Government of the United States of America on the North American Aerospace Defense Command (E105060). 28 April 2006. See Article 1 (1). <https://www.treaty-accord.gc.ca/text-texte.aspx?id=105060>.

³ On the Canadian side, NORAD is independent of, but linked to its single operational command, Canadian Joint Forces Command (CJOC), which has responsibility for the land and maritime defence of Canada. The three commands, CJOC, NORAD and USNORTHCOM are coordinated through a (not well articulated) tri-command structure.

⁴ These commands are European Command (USEUCOM), Central Command (USCENTCOM), Indo-Pacific Command (USINDOPACOM), Africa Command (USAFRICOM), Southern Command (USSOCOM) and SPACECOM – the formerly known geographic commands - and US Transport (USTRANSCOM), US Cyber (USCYBERCOM), US Special Forces Command (USSOFCOM) and Strategic Command (USSTRATCOM) – the formerly known functional commands

⁵ IISS, *The GIUK Gap’s Strategic Significance*, Benjamin Rhode (ed), London: IISS. Vol 25 (30). October 2019. <https://www.iiss.org/~publication/799791dd-7be1-4484-abfd-05fa3a400889/the-giuk-gaps-strategic-significance.pdf>

struggle to detect them because of the altitude and speed at which they fly, their increasingly stealthy concealment and the inability to detect their weight, which is a proxy for destructive power. (At NORAD, it is referred to as the low and slow problem). In the cyber domain, NORAD is only mandated to protect its infrastructure from attack (i.e., its feeds into combined air operations centres or the North Warning System (NWS)) but not other government, civilian or industry cyber assets. In both cases, and especially for the cyber domain, North American defence and security cooperation is also compounded by its own command seams that cut across national boundaries as well as civil security organizations and military commands. These other areas of bilateral defence and security cooperation between Canada and the United States are also examples of the two states working extremely well together but limited to the tactical level. The same cannot be said necessarily for the operational and strategic level, and rarely are strategic-

level plans exercised bilaterally.

In light of these perils, and primarily, but not exclusively because of strategic competition today, North American defence and security requires a common, all domain operational picture, one to which Canada's contributions are vital. Given new technology, and aging infrastructure (especially the NWS), successive studies (including NORAD Next, the Evolution of North American Defence or EvoNAD and Hardening the Shield⁶) have called for a fundamental rethink of "homeland" defence which includes new command and control (C²) arrangements, and the joining of all domains (traditional ones such as air, sea and land) with contemporary domains (cyber, space and the cognitive domain) to achieve "information dominance".⁷

According to the US National Defense Strategy⁸, the sophisticated anti access/area denial (A2/AD) strategy of adversaries, like Russia and China, makes the future operating environment more complicated, and deadly if allies do not achieve information dominance. This new operating environment requires a re-examination of NORAD's place along the deterrence continuum, with a shift from focusing solely on defeat capabilities to deterrence by denial.⁹ If all recommendations associated with NORAD Modernization are implemented, these changes, in theory, will allow future Commanders of NORAD to think strategically taking advantage of and working with the other co-commands rather than being bogged down in tactical decisions.

At the same time, focusing on denial and systems-of-systems approaches to connect all domains could default to a focus on peer competitors, symmetric threats and kinetic defeat responses.

⁶ NORAD Next was a study ordered by General Jacoby (NORAD and USNORTHCOM 2011 – 2014) and the wider EvoNAD was started under General Robinson (2016 – 2018) and then continued under General O'Shaughnessy.

Commander Gen (ret) Terrence O'Shaughnessy and Brig Gen Pete Fesler, "Hardening the SHIELD: A Credible Deterrent and Capable Defense for North America". The Canada Institute: Wilson Center, Washington D.C. 2020. <https://www.wilsoncenter.org/publication/hardening-shield-credible-deterrent-capable-defense-north-america>

⁷ In the United States, these domains will be linked in a system of systems via Joint All Domain Command and Control (JADC2) whereby sensors from all of the military services—Air Force, Army, Marine Corps, Navy, and Space Force—are connected into a single network.

⁸ Department of Defense. Summary of the National Defense Strategy of the United States of America 2018: *Sharpening the American Military's Competitive Edge*. (Washington D.C.) <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>

⁹ See Andrea Charron and Jim Fergusson, "North America's Imperative: Strengthening Deterrence by Denial", *Strategic Studies Quarterly* 15(3) Winter 2021: 1-17. https://www.airuniversity.af.edu/Portals/10/SSQ/documents/Volume-15_Issue-4/D-Charron.pdf

Neither potential terrorist threats from non-state actors nor threats below the threshold of war have gone away, and arguably threats below have grown not least of all due to the cyber world. In this regard conceptually, the best way to deter such threats may be to prosecute rather than to defeat them; a challenge for an organization in which defeating threats is part of the mandate. Twenty plus years after 9/11, NORAD has shifted from an exclusive focus on threats approaching

North America, to those inside North America to a shift outward again.¹⁰ These shifts in focus mean that choices are made about the attention paid to certain threats versus others increasing a potential vulnerability that could be exploited anew.

Two final perils exist stemming from this new threat environment. The first, as noted in the introduction to this discussion of perils, is whether or not the defence cultures in both countries truly understand these threats and the need to prioritize investments in NORAD and continental defence cooperation. After decades of a military culture on both sides of the CANUS border prioritizing overseas investments, whether the new threat environment will be sufficient to dramatically transform thinking remains to be seen. Second, especially in the case of Canada, the public rarely perceives these threats as immediate and/or of particular concern. Certainly, defence and security issues are more salient within the American public, but whether this salience translates into political pressure to invest in North American defence is another open question. For Canada, whether after four years of being exposed to Trump's railings against allied 'free-riding' will also translate into political pressure to invest also remains to be seen, especially in relation to the Biden Administration. Anecdotally, while the support NORAD receives in Canada (measured by recognition of the Command) is higher than in the United States, the Canadian government and public may not be ready for the eye watering price tag attached to modernizing NORAD and North American defence cooperation, whether in response to the US' new homeland defence vision or not.

Purse Strings

The second challenge for Canada vis-à-vis the NORAD Command is the problem of the 'purse'. Reflecting the primacy attached to overseas commitments and missions, there has been a habitual tendency for successive Canadian governments to fund discretionary defence missions, such as support to the UN, and non-Article 5 NATO missions, and not to fund adequately or indeed at all, the nondiscretionary missions that include the defence of Canada and North America. This, in turn, has affected NORAD's ability to acquire and employ up-to-date technology, as well as the ability of the CAF to provide assistance to civil authorities.

In the words of Winston Churchill "Gentlemen [and gentlewomen], we have run out of money; now we have to think" ... This is a wonderful quip, but thinking, notwithstanding its importance, will not fund the necessary upgrades, replacements and modernization of the new systems of systems and command structures that the United States and Canada need for NORAD to stay ahead of the new perils. The tsunami that is great power competition, climate change inspired natural disasters, new technologies, COVID-19 financial deficits, the retention and recruitment problems for military and security agencies and the crumbling defence infrastructure, especially

¹⁰ Andrea Charron and Jim Fergusson, "In, Out and In Again" in *The Legacy of 9/11 and the Idea of North America*. Andrea Charron, Alex Moens and Stéphane Roussel (eds) (Kingston: McGill-Queen's University Press, 2023) forthcoming.

forward operating locations in the Canadian Arctic, have thrown into question the defence of North America and, as a result, the credibility of the US-led western deterrent and Canada's contribution.¹¹

In line with Churchill's quip, Canada's current defence policy, *Strong, Secure and Engaged* (SSE), referenced NORAD forty-seven times and specially notes the need to "modernize" NORAD. This, of course, seems to refer to a wider rethink of continental defence, including a command and control structures and processes, which includes renewal of the North Warning System.¹² Even so, \$0 was set aside in SSE for these modernization efforts in the 2018 Defence Investment Plan and the 2019 Update.¹³ Instead, senior DND officials, including the Deputy Minister of Defence, have indicated that additional funding for modernization is forthcoming from the government in the future.¹⁴ Budget 2021 earmarks several millions of dollars¹⁵ and Biden and Trudeau have confirmed that NORAD modernization is a joint priority.¹⁶

At least on paper, the government does appear to be committed to North American defence modernization as a priority. Following the 2019 Federal Election, it was emphasized in the Prime Minister's mandate letter to the Minister of National Defence in 2019 and 2021. In addition, DND's policy shop was reorganized to create a Director-General Continental Defence policy division, with two directorates dedicated to NORAD and to domains and technology policy respectively. Even so, past government defence investment commitments have been de-railed by economic downturns, such as was the case of the 1987 and 2008 Defence White Papers which ended anticipated, expensive new defence equipment and infrastructure. With the final architecture and the myriad technological, infrastructure and command and control decisions still to be confirmed, neither government can really know yet. This, in part, may explain the absence of a very specific monetary commitment by the Canadian government. Regardless, as past and current major procurement projects, such as the ongoing naval combatant vessel clearly indicate, the first, initial, estimate and investment will be significantly less than the final, full cost.

Beyond the threat-technological drivers for modernization, the Canadian government's commitment is also a function of developments in the United States. Raised by successive US

¹¹ Michèle Flournoy "America's Military Risks Losing Its Edge: How to Transform the Pentagon for a Competitive Era", *Foreign Affairs* (May/June 2021): 76-90

¹² Government of Canada, "Strong, Secure, Engaged: Canada's Defence Policy", (Ottawa: Department of National Defence, 2017). See especially pp:43,57,79,83 and 90.

¹³ Government of Canada, Defence Plan 218-2023 (2018) found at <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/defence-plan-2018-2023.html>. Update 2019:Defence Investment Plan (2019). Found at <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/defence-investment-plan-2018/2019-dip.html>

¹⁴ SSE: p. 43.

¹⁵ Budget 2021 p. 289: "proposes to provide \$163.4 million over five years, starting in 2021-22, with \$111.1 million in remaining amortization, to support NORAD modernization. This investment would lay the groundwork for NORAD's future, including through research and development of cutting-edge technologies that can detect and defend against

threats to the continent. Budget 2021 also proposes to provide \$88.8 million over five years, starting in 2021-22, with \$48.7 million in remaining amortization and \$0.6 million per year ongoing, to sustain existing continental and Arctic defence capability”.

¹⁶ Roadmap for Renewed US-Canada Partnership. 23 February 2021. “Bolstering Security and Defense” <https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/02/23/remarks-by-president-biden-and-prime-minister-trudeau-of-canada-in-joint-press-statements/>

Administrations over time, and most virulently by Trump, has been the call for allies to take on more of the shared defence burden. The US priority attached to homeland defence and the recent American strategic pivot to the Arctic are important factors. If Canada provides only the bare minimum in terms of anticipated North American defence and security investment, it risks not unwanted US assistance, but rather, being cut off from vital intelligence, opportunities in training and exercises and, what is often the clarion call of successive Canadian Generals for “a seat at the console” which guards against US unilateral decisions. Signalling to the Biden Administration of Canada’s commitment to invest in North America, as evident in the Prime Minister raising the issue in his first phone discussion with President Biden and a subsequent meeting on 23 January 2021, is an important step forward on the path to the ‘purse’.

Defending Canada and North America in cooperation with the United States will neither be cheap, nor just a simple upgrade to the outdated NWS ground-based radars. As part of NORAD modernization, the United States wants a system of systems to create joint all domain command and control (JADC2). According to the NORAD Commander (Gen.VanHerck USAF), this will allow for all domain awareness and facilitate information dominance and decision superiority. In Canada, this is referenced as pan-domain integrated operations. NORAD modernization will be expensive, but this has never been nor should it remain a “discretionary” budget item. The most recent meetings with President Biden and PM Trudeau suggest NORAD modernization is a priority.¹⁷ We will have to wait and see how much money will be invested and whether or not DND can spend the money given cumbersome and partisan procurement systems.

Finally, the continual COVID-19 fiscal situation thanks to multiple variants and increasing number of devastating climate change events couple with future economic recovery plans remain the ‘elephants-in-the-room’. The current DND stratagem seeks to defend the government’s long-term defence investment commitment in terms of its positive economic impact on economic recovery and its consistency with the government’s economic commitment to innovation. Even so, with a ballooning deficit and debt, it is hard to imagine that DND will escape entirely unscathed. If this is the case, then DND will confront difficult decisions regarding investment priorities relative to the 2018 investment plan. Whether the government will intervene to ensure NORAD modernization remains **a**, if not **the** investment priority relative to other existing internal investment preferences thereby pushing these further down-the-road, remains to be seen. If history is a guide, governments have left such decisions to the Department and its functional experts. Regardless, perhaps the government’s signals to the US, as well as to the Department of Defence, will suffice to protect NORAD modernization. Of course, this will likely also depend on the politics surrounding

NORAD modernization and unexpected world events that can eclipse planned spending, such as the war in Ukraine.

Politics

Canada-US defence relations in general, and NORAD in particular, tend to fly above or perhaps it is below the political radar of both nations. As noted above, both nations have tended to concentrate on overseas requirements and commitments. In the case of Canada, NORAD

¹⁷ Prime Minister's Office, "Prime Minister Justin Trudeau speaks with the President of the United States of America Joe Biden" (22 January 2021) <https://pm.gc.ca/en/news/readouts/2021/01/22/prime-minister-justin-trudeau-speaks-president-united-states-america-joe>

especially, is reflexively pointed to as proof of a strong allied relationship with few having a robust understanding of how NORAD functions. On the one hand, flying below the radar is an advantage for NORAD. The NORAD command team is often left on its own to continue to evolve and adapt, and is the major driver behind new North American defence initiatives, as evident by its lead role in the EvoNAD futures study. This is especially the case given that the Permanent Joint Board on Defense (PJBD), charged with advising both governments on how best to defend North America, meets only once a year.

On the other hand, a NORAD overlooked is a NORAD that can be forgotten and marginalized. As long as evolution and adoption can largely be undertaken internally to NORAD with few implications relative to other Departmental and government interests and preferences, and at low cost, then it can proceed. Once evolution and adoption begin to directly impact these other interests and preferences, and demand significant new investments, then NORAD lacks the political capital to move forward. It is no accident, for example, that among the wide-ranging options presented by the NORAD Binational Planning Group (BPG) in its 2005 Final Report on future North American defence cooperation, the one with the fewest implications and lowest cost – maritime warning – was adopted rather than the Group's more provocative recommendations, such as also adopting a maritime control mission. A similar fate may well await the NORAD-led multi-faceted EvoNAD study, unless of course NORAD's message related to the new threat environment and North American vulnerability truly takes hold.

Whether viewed as an independent assessment or a parochial NORAD message, the geopolitical flux facing the world and North America appears to call for more, not less defence integration. The functional logic that led to the creation of NORAD in the 1950s – i.e., the understanding that the airspace of both states was indivisible and should be defended jointly – remains and should be extended to other domains including the maritime, space, cyber and even land domains (in the case of assistance to the civil authorities) because they are merging and no longer stovepiped.

But at the Departmental level, since the creation of USNORTHCOM and CJOC in 2002 and 2012 respectively, NORAD is often referenced as a middleman to be cut out. At the governmental/political level, proposals for more defence integration raise the spectre of a public backlash concerning Canadian sovereignty and selling out to the Americans, especially in the context of the Arctic components of NORAD modernization.

In many ways, the functional logic of further integration is confirmed by the 100s of MOUs and agreements between Canadian and US government agencies, customs, police, intelligence, coast guard, and the armed services working together, is already evident. However, these partnerships are in separate domains or are focused on discrete issues and are coordinated in parallel (and therefore bilaterally) rather as part of a truly concerted binational effort to ensure the security of North America. It is bilateralism, not binationalism, that has dominated the CANUS relationship. A modernized NORAD may result in greater bilateral efforts in the maritime, cyber, land, and space domains, which is likely to extend beyond the tactical level into the operational level as a function of the requirement for all-domain information dominance. Deepening bilateralism, as evident in the roughly decade-long process leading to the establishment of NORAD, contains the seeds of incremental, unforeseen expanded defence integration and binationalism. This incremental process, and final outcome evolving from domain to domain could be the product of a functional logic of cooperation and political indifference and inattention or it could be driven by concerted political action which comes with its own challenges. NORAD may need the latter but has more decision-making control under the former.

For NORAD modernization to come to fruition, likely in parts and piecemeal, the binational agreement will need revisiting. The current terms of reference can only be stretched so far to accommodate the changes that are envisioned. This, in turn, will demand considerable political support on both sides of the border. For the time being, neither defence departments nor governments likely possess any interest to do so. For the departments, it is probably seen as premature given the lack of a detailed architecture for NORAD modernization. For the governments, there are other pressing, albeit different, political priorities in the wake of the COVID-19 pandemic, amongst other things, that will trump modernization, even with the agreement of the President and Prime Minister of its importance. Even so for the Canadian government, the Biden Administration, in contrast to the former Trump Administration, has generated a more favourable climate for NORAD modernization and deepening North American defence cooperation.

Paradigms

The internal culture of NORAD or the paradigms under which it operates both potentially aid and frustrate different visions and mandates for NORAD. Born of the success of the USAF and RCAF working together during WWII, the indivisibility of the North American air space in a Cold War context was the impetus for the creation of NORAD.¹⁸ It began under air force initiative and leadership (almost all of whom were pilots or “operators”), and thus NORAD is steeped in air force

culture. Even when the NORAD commander was twinned as the Commander of US Space Command in the 1980s and 90s, the air forces exclusively dominated its culture (although space would not formally be assigned to the RCAF until 2016).

With the stand up of the Binational Planning Group following 9/11, mandated to examine a full range of options for future North American defence cooperation, and NORAD's acquisition of a maritime warning mission in 2006, NORAD's monolithic air force culture was shaken.¹⁹ In particular, naval personnel, including the US Coast Guard (USCG), entered into the organization. In addition, the establishment of USNORTHCOM, its marriage to NORAD and the creation of an integrated NORAD/USNORTHCOM Command Centre (N& NC) exposed NORAD's air force culture to US Army and US civilian security cultures as a function of the latter's defense support to civilian authorities (DSCA) mission. Reflecting a degree of cultural change accompanying these developments, NORAD and USNORTHCOM has had a US Army General (General Jacoby 2011 - 2014) and three US Navy Commanders (Admirals Keating (2004 – 2007; Winnifield (2010- 2011); and Gortney (2014 – 2016)). Since then, NORAD has returned to USAF commanders, although, it should be noted, that NORAD does not appoint its own commander; Congress approves the pick for USNORTHCOM which is then blessed by Canada as the NORAD Commander.

¹⁸ For authoritative insight into the beginnings of NORAD, see Richard Goette, *Sovereignty and Command in Canada-US Continental Defence, 1940 – 1957* (Vancouver: UBC Press, 2018) and Joseph Jockel, *Canada in NORAD 1957 – 2007* (Kingston ON: McGill/Queen's University Press, 2007).

¹⁹ In fact, NORAD's air force culture was first directly exposed to other organizational cultures in the 1990s when it provided support to US civilian security and policing for the war on drugs.

This service diversity at the Command level, however, has not been replicated on the Canadian side. All of the Canadian Deputy Commanders, as per the NORAD agreement²⁰, (26 as of 1 January 2022) have been RCAF officers, always a pilot, all men and most have stayed for the majority of their careers in the air force world. On the one hand, NORAD requires air battle management experts, which, given the two, enduring aerospace missions, makes sense. On the other hand, in a new world with new threats and new domains, this may prejudice the NORAD Command leadership to remain focused on the air element, and conceptualize other domains strictly in air force terms. At the same time, other military service leadership will question the value and utility of air force leadership and culture in their respective domains, as occurred when NORAD acquired its maritime warning mission.

Regardless of these developments, NORAD remains an air force dominant organization despite its maritime warning mission, and will confront significant cultural changes when, or if NORAD's mission suite expands into other domains. In addition, NORAD, like the armed forces on both sides of the border, remains male dominated. Certainly, more female personnel have been posted to NORAD over time, but to date there has only been one female in the top three positions (NORAD Commander, NORAD Deputy Commander or NORAD Director of Operations). General Lori

ACTIVITY REPORT



Robinson was not only the first female NORAD leader (2016-2018) but the first female US Combatant Commander²¹ and yet the USAF remains adamant that members are “airmen” regardless of gender. On the Canadian side, despite many talented female leaders in many occupations, including pilots, none have been promoted to a command position within NORAD headquarters, or the NORAD regional commands for that matter, nor does it appear that this is likely in the near future.

Another important aspect of the NORAD paradigm is the double, triple and even quadruple hatting of duties among NORAD commanders. For example, the Commander of the Canadian NORAD Regional headquarters (CANR) based in Winnipeg, MB, is also the 1 Canadian Air Division Commander, and the Joint Force Air Component Commander (JFACC) for the Canadian Joint Operations Command (CJOC). As such, the individual is simultaneously responsible for force generation and operational command and control of Air Force assets, including those tasked to CANR by NORAD command (except for 427 Special Operations Aviation Squadron which is an integral element of the Canadian Special Operations Forces Command). The US commander of NORAD Continental Region (CONR) is simultaneously an operational commander and a force generator in his capacity as the commander of the 1st US Air Force.

At the top, the NORAD Commander is dual hatted as the USNORTHCOM Commander as well. As the former, the commander is responsible for the North American aerospace and maritime warning, and air control (defence) missions. As the latter, responsibility extends to the land and maritime approaches to North America, the ballistic missile defence mission for the continental

²⁰ The agreement only specifies that the Commander and Deputy Commander cannot be from the same country. In practice, the US has always held the Commander position, and Canada the Deputy-Commander.

²¹ General Robinson was also the first United States female four-star commander of combat forces (Pacific Air Forces in Hawaii in 2014). A second female combatant commander assumed command of USSOUTHCOM in the Fall of 2021. Gen. Laura Richardson (USA) replaced Navy Adm. Craig Faller.

US, and defense support of civil authorities (DSCA) missions (think hurricanes and other nature disasters). In addition, as a binational command, the Commander reports to two national lines of authority - the Canadian Chief of the Defence Staff (CDS) and the US Secretary of Defense (SecDEF). As USNORTHCOM, the Commander also reports to the Joint Chiefs of Staff for strategic guidance especially when it comes to force readiness.

Also facing the Commander is the fact that NORAD has a global area of operations whereas USNORTHCOM has an area of responsibility (AOR). Whereas NORAD has only NORAD personnel assigned to it, USNORTHCOM has 60 plus agencies and liaison representatives (including from Mexico, which is part of its AOR). Both, however, are housed in the same building at Peterson Space Force Base and both can be dealing with crises (increased Russian bomber activity approaching North American airspace for NORAD and a major hurricane for USNORTHCOM) at the exact same time. Both are no fail missions.

From a unity of command perspective, single, integrated commands are valuable. Yet, at the same time, the different command responsibilities and reporting lines are very different requirements. It takes extreme discipline to ensure that one command responsibility and/or reporting line is not sacrificed for another, which is more likely during a crisis and war, than in peacetime.

Partially in response to this complicated structure and processes, beginning in 2015, successive NORAD commanders have tested new command and control arrangements to ensure that NORAD is able to keep pace with new technology and the new adversarial environment. Following these tests, NORAD, with the agreement of the CDS and SecDEF, tested a Combined Forces Air Component Command(er) (CFACC) co-located with CONR regional headquarters at Tyndall Air Force base in Florida, which following NORAD's terms of reference includes a Canadian Deputy Commander.²² Its objective is to resolve the immediate problem of too many details and demands for one NORAD and USNORTHCOM Commander to manage effectively. In so doing, this fundamentally changes the focus of the NORAD Commander from day-to-day operations to a strategic outlook. If the CFACC idea remains or is adapted, further structural and cultural changes at the regional command level are likely to follow as an outcome of NORAD modernization including making the N&NC an operations command centre for the NORAD J3 missions.

It is also time to reimagine the three NORAD regions – Alaska NORAD Region (ANR), Continental NORAD Region (CONR) and the Canadian NORAD Region (CANR). While they chop over assets to be used by NORAD, they operate within their regions. Until 1983 the NORAD regions crossed international boundaries. Since 1983, each region is expected to command and control the fight inside its boundaries, with NORAD HQ providing information, capabilities, and resources as needed and coordinating with neighbouring regions. This is

²² CANR, based at 1 CAD in Winnipeg, was ruled out largely because it lacked the size, resources and bandwidth. In addition, upgrading CANR would entail significant investments, which likely would have been borne mainly by Canada. The building of the NWS had a 60/40 cost split (US to Canada) but this is unlikely to apply to a retrofitted, multipurpose Canadian base building. All NORAD infrastructure costs in the US are borne entirely by the US. Of course, CANR remains an option as the backup command centre for the CFACC; a necessity brought into stark relief in 2018 when Hurricane Michael closed Tyndall. It is on this basis that US funding might be secured for future upgrades.

standard military practice. Especially in an Arctic context, it needs a rethink. And, increasingly and in light of JADC2 goals of all domain awareness, information dominance and decision superiority, demands a revisit of the boundary constraint. position at NORAD and NC command centre at Colorado Springs but to make the NORAD J3 side a true operations centre that can coordinate air tasking orders for the three NORAD regions.

The final paradigm element is the existence of a distinct NORAD binational perspective on North American defence that is different from Ottawa's and Washington D.C.'s perspective. Basically, NORAD thinks "North America", whereas Ottawa and Washington think nationally and bilaterally.

At the personnel level, it is euphemistically referred to as 'having drunk the NORAD koolade'. Once one is part of NORAD, one understands it intimately and thinks the 'NORAD way'. If not, and this includes the overwhelming majority of the Canadian and American military, then one doesn't know or understand NORAD. By default, then, in the context of NORAD modernization, only NORAD, and the relatively small number of personnel involved in NORAD over time (fewer than 150 Canadians are sent to the NORAD headquarters in Colorado Springs, a handful to CONR in Florida, a few to the Alaska NORAD region headquarters and the bulk to CANR headquarters in Winnipeg and the Canadian Air Defence Sector in North Bay at 22 Wing), can modernize NORAD. In other words, NORAD as a paradigm will seek to replicate a version of itself based on the understanding of a few rather than a bold new vision that reflects the multi-domain threat environment and the diverse occupations within the militaries involved.

Certainly, as a function of the limited attention paid to NORAD and North American defence in the past, NORAD has long been the driver of its own change as determined by its culture. These new geopolitically contested times suggests a dramatically different approach to change. Expanding NORAD mission suite into new domains, as many propose is necessary in the current threat environment, fundamentally means that NORAD cannot simply replicate itself, and NORAD no longer holds a monopoly on future visions of binational defence cooperation. In this sense, NORAD may be its own worst enemy unless it breaks out of its dominant culture. With the adoption of the CFACC position as noted above, maybe it's time for Canada to consider a non-air force Deputy Commander? Regardless, NORAD in this time of change portended by modernization, needs to remember that the ultimate decisions are made in Ottawa and Washington, not Colorado Springs.

Possibilities

NORAD has responsibility for Canada and continental United States. The agreement is signed only by Canada and the United States, but practically, neither the United States nor Canada can operate in the North American Arctic without accessing Thule and Nuuk in Greenland. Of course, Greenland is not a sovereign state and discussions need to be sensitive to both Demark and Greenlandic wishes and tensions. However, changes to terms of reference and potentially the agreement in the future may include Greenland (especially if a sovereign state) but also the need for Canadian civilian agencies to more directly connected to the Canadian Joint Operations Command and possibly a NAVCanada. Transport Canada and Maritime Security Operations Centre representative in Colorado Springs given expectations of increased vessels, commercial airlines and drone activity in the Arctic. Mexico has liaison officers in USNORTHCOM which includes Mexico as part of its AOR, but NORAD does not operate over Mexican airspace. The other option is a rethink of the USNORTHCOM/EUCOM seam to shift it east past Greenland and maybe even to include Iceland.

Finally, NORAD, in theory, can warn of an aerospace or maritime threats, anywhere, anytime. It does not have an AOR but a global area of operations albeit constrained by its defensive mandate

and the AORs of CJOC and USNORTHCOM and the combatant command plan which forgets about NORAD. NORAD could warn of illegal vessels sanctions busting off the coast of North Korea or warning of ships from Ebola outbreaks approaching North America or tracking aircrafts operating in another combatant command's AOR, but NORAD is often artificially limited in its warning functions. It is most certainly limited in its defeat options but given JADC2, should that be the case? The agreement is signed by Canada and the US, not CJOC and USNORTHCOM.

Conclusion

The perils facing North American defence and security in general, and Canada-US defence cooperation in particular, strongly suggest that deeper and broader defence integration will be the result. At the same time, purse strings, politics and paradigms indicate that an integrated, multi-domain binational North American Defence Command is one of only many possible outcomes, and perhaps less likely at least for the foreseeable future. Much hinges upon exactly how NORAD modernization is understood and conceptualized by the actors engaged in the definitional process and wider discussions about rethinking continental defence and security writ large. Canada's 2017 Defence White Paper, *Strong, Secure and Engaged*, may have referenced NORAD modernization multiple times, and National Defence officials, the President and the Prime Minister have set modernization as a priority, however, this does not mean any consensus exists, never mind an architecture, or what modernization fully entails, and how the technical elements will impact the command and control structures and processes both in Canada and the United States.

The basic technical requirements of NORAD modernization in the face of the new technological threats to North America will be the first step in what will be a relatively long, incremental process, with numerous off-ramps that may be taken, whatever the endgame, and probably ad hoc processes to this achievement, North American defence cooperation and NORAD will look significantly different from today. In his regard, the incremental process that led to the creation of NORAD is probably the best predictor of what will unfold.

The leadership of both countries have affirmed NORAD modernization as a priority, but this does not mean that the leadership will pay much attention to the process as it unfolds. Both Prime Minister Trudeau and President Biden, who especially faces the daunting challenge of mending four years of President Trump, have no shortage of priorities. The fact that the last Prime Minister and President to visit NORAD HQ in Colorado Springs were Pierre Elliot Trudeau and Richard Nixon is telling. NORAD's 60th anniversary in 2018 barely registered in both countries except among a very rare few. NORAD personnel alone, however, cannot, and should not be the sole champions of modernization.

The defence of Canada and North America is not discretionary. As part of the modernization process, a new Canada-US "black plan"²³ that considers a multi-domain, traditional and non-traditional attack on North America, developed and exercised at the strategic level, with a particular focus on institutional seams and gaps, appears necessary.

NORAD has managed to reinvent itself in the past, such as adopting an aerial surveillance role for drug interdiction efforts off the coast of Mexico and turning inward to confront the terrorist threat following 9/11. Never before, however, has the United States faced two state challengers in Russia and China simultaneously outside of war. Rather than worrying if NORAD might be marginalized, the real concern is that North American defence and NORAD could be overwhelmed. The defence of North America can no longer be dismissed as a nice to have and assume NORAD is a sufficient deterrent. Canada and NORAD must now be all in on homeland defence in conjunction with the other US combatant commands and NATO working in concert rather than in parallel. Canada must also be prepared for potential new partners, including Greenland, as part of the NORAD command. How Canada and Canadians would react to new partners within NORAD is predictable; Canada has always jealously guarded its special relationship with the United States via this Command. Might Canada then be the biggest obstacle to future NORAD development?

²³ During WWII, Canada and the US had a plan should the UK be defeated and North America attacked called the “black plan”. For an excellent discussion, see Richard Goette, *Sovereignty and Command in Canada–US Continental Air Defence, 1940–57*, (Vancouver: UBC Press, 2019). See Chapter Three on Wartime Planning for Command and Control.