



Commentary

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Missed Opportunities: Why Canada's North Warning System is Overdue for an Overhaul

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Introduction

Since 2017, following the release of its *Strong, Secure, Engaged* (SSE) defence white paper, the government has been conspicuously silent on two key elements of North American defence cooperation highlighted in that report: the modernization of the North Warning System (NWS) and the potential future expansion of North American Aerospace Defense Command (NORAD) missions (Canada 2017).

The government has apparently not budgeted for NWS modernization in either its 20-year Defence Investment Plan released in 2018 or the 2019 Update of the Defence Investment Plan. Yet NWS modernization is arguably the most immediate and pressing defence requirement for North American defence, and its final costs are likely to blow a hole in the investment plan. As for future NORAD missions, the government has really said nothing more. Of course, its decision to not reverse Canada's 'no' on ballistic missile defence (BMD) provides the only clear parameter for understanding possible NORAD expansion. Irrespective of the merits of missile defence, of which there are many, whatever may be on the table here does not include BMD.

Yet this silence was a bit upended in early August, with reports of a recent Canada-US Framework Agreement on NWS modernization requirements (Brewster 2019). There are no details on specifics, except that it emerged from the binational committee tasked with NWS modernization, likely driven by the functional military experts.

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Whether the agreement has been briefed to (or blessed by) the Permanent Joint Board on Defence (PJBD), which met in June 2019, or the political arms of both governments is open to speculation. Nor is it clear from what arm of government the information originated – the Prime Minister’s Office, National Defence, or the committee itself, or whether the source is American or Canadian.

Despite being provided the opportunity to respond formally, the government instead said nothing publicly. Silence on North American defence cooperation and NORAD is nothing new for this government or its predecessors. Silence can be simply related to Canadian political sensitivity to military cooperation with the United States in North America, specifically the perception of a loss of Canadian sovereignty.

From the initial agreement establishing NORAD, the institutional pillar of North American defence cooperation, through the irregular NORAD renewal process, each occasion has been accompanied in varying degrees by Canadian concerns about the loss of sovereignty – something noticeably absent on the American side of the equation. With indefinite renewal in 2006, NORAD slipped completely under the domestic political radar in Canada, and perchance the government simply wished to let this ‘sleeping dog’ lie.

Regardless, the government has missed several opportunities to inform the Canadian public of the significance and importance of North American defence cooperation, NORAD, and NWS modernization to the defence and security of Canada. These missed opportunities only serve to increase the probability that when these issues suddenly, and unexpectedly, emerge in the public domain, the subsequent debate will be attended by misinformation and a simple lack of knowledge and understanding. It increases the prospects for a misguided emotional debate, rather than a reasoned one, to the detriment of the government and Canadian defence.

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NWS Modernization

The basic logic behind NWS modernization is relatively simple. Built in the 1980s and completed shortly after the end of the Cold War, the system of long- and short-range radars across the Canadian Arctic and down the coast of Labrador is reaching the end of its life span. In addition, as noted in SSE, with the recent extension of Canada’s Air Defence Identification Zone (CADIZ) to cover the country’s far-north archipelago (Canada 2018), the radar line also needs to move north. However, the new political and strategic environment, somewhat similar to the environment which led to the NWS replacement of the Distant Early Warning (DEW) line, requires a much different approach. In effect, NWS modernization in terms of simple replacement one for one, and northern movement, is insufficient to meet the new threat environment.

The NWS itself was the direct product of the emergence of the air-launched cruise missile (ALCM) in the 1970s. ALCMs benefited from small radar cross-section and ground-hugging capabilities. As a result, a new radar system was needed to reach out, identify, and vector NORAD interceptors to the launch platforms (Soviet bombers) before they reached their ALCM launch points. In addition, although nominally not part of the NWS, forward operating locations were needed in the Canadian Arctic to deploy interceptors forward during a crisis in sufficient range of these bombers.

Today, following the resumption in 2007 of regular Russian bomber ‘training’ flights over the Arctic Ocean to the outskirts of CADIZ, Canada faces a new threat environment. Politically occasioned by Russia’s aggressive actions in Crimea, eastern Ukraine, and Syria, this threat entails a new generation of Russian ALCMs with a much longer range and capacity of flying at much higher speeds, which has made the existing NWS already obsolete. There exists a major gap in the defence of North America, and it is vitally important to move quickly to fill this gap in NORAD’s mission to detect, deter, and defend the aerospace in North America. In effect, the 2025 target date for NWS obsolescence actually has already passed; yet, the government appears to be in no rush.

Nor is it simply the case of Russian ALCMs. On August 2, the United States officially withdrew from the *Intermediate Nuclear Forces Treaty (INF Treaty)*, which had banned Russia and the US from developing and deploying intermediate-range ground-launched ballistic and cruise missiles. Admittedly, Russia had been accused of cheating on this treaty and critics of the *INF Treaty* had pointed to China’s rampant development of similar missile systems. Yet, irrespective of the merits of these complaints, one outcome of the demise of the *INF Treaty* will be no foreseeable restraints on Russian intermediate-range missile development.

As a result, North America now faces a potential long-range ground-launched cruise missile threat (GLCM), which will likely be deployed in the Russian Arctic and will be capable of reaching major North American targets. Thus, the NWS replacement will now have to be able to identify and vector fighters to intercept advanced ALCMs and GLCMs in flight.

In order to do so, the NWS replacement will likely require a multi-domain – meaning across the ground, air, maritime, and space domains – integrated system of sensors. This may include more powerful ground-based long-range radars with an over-the-horizon capability (i.e., able to detect targets beyond the limits of the typical radar horizon); dedicated aerial platforms, such as the current Airborne Warning and Control platform (AWACs; which are in short supply and which Canada does not possess); high-altitude stationary radar blimps or balloons (currently known as the experimental Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System – JLENS); maritime-based surveillance systems; and space-based systems.

While the final solution remains to be seen, and will be significantly determined by available technology, two important issues emerge. In contrast to the NWS as a single ground-based solution, a new, more complicated multi-domain solution environment raises the issue of whether one waits until all the components, and thus an integrated system, are identified, procured, and deployed at relatively the same time. Alternatively, certain technological solutions in one or two domains that already exist could be moved forward relatively quickly, and deployed to provide a viable interim solution, with the remaining components added on as new technology becomes available. In other words, there is the option to wait for the ultimate solution or accept an adequate solution for the time being. Regardless, the process of NWS replacement will be a long one, and stretch many years beyond the formal 2025 end date of the NWS. In this regard, it is important to note that the NWS itself took roughly over a decade from conceptualization to full operational deployment.

This may partially explain why the government did not include NWS replacement estimates in its 2018 Defence Investment Plan. It is difficult to estimate costs when the solution is largely unknown. Nonetheless, it is a 20-year plan, and a multi-domain solution will be much more expensive than a single-domain one. As noted

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above, sometime in the near future, the Canadian government will have to go public with cost estimates that will necessitate either additional increases in spending or internal re-allocation of spending priorities, or both, regardless of how long the project will take to conclusion.

Currently, one unofficial estimate places NWS modernization (or replacement) at roughly \$11 billion, although it is unclear whether this estimate is in American or Canadian dollars. Assuming the latter, under the current cost-sharing arrangement (originally established with the NWS), Canada will be responsible for 40 percent (Canada 1985), or \$4.4 billion (this does not include any infrastructure on US territory, which is entirely the responsibility of the US). Notwithstanding the likelihood that costs will significantly grow over time, for the US its share is not problematic, given the size of the American defence budget. For Canada, its share places a significant burden on Canadian defence spending, even if it is amortized over many years.

However, the cost-sharing arrangement is not necessarily as straightforward as it appears. While the Framework Agreement may include some detail, the actual scope of the arrangement remains to be seen. In other words, what is and is not included is open to speculation. Clearly the ground-based component would be part of the arrangement, reflecting the original shared investments for the NWS in the 1980s. But it is highly unlikely that the environmental cleanup costs will be. In the past, for example, the US refused to cover the cleanup costs associated with the closure of US bases in Newfoundland.

As for aerial, maritime, and space-based components, there are no past guidelines to follow. In this regard, one might consider shared costs for the specific sensor, but not for the platform housing the sensor. For example, a future add-on of an air-moving target indicator on the RADARSAT satellite constellation (Canada paid for an experimental ground-moving target indicator on the RADARSAT II satellite) might be covered, but not the costs of the satellite. It is also unlikely that the movement of Canadian forward operating locations further north would be covered by the arrangement, as they are not technically part of the NWS.

Compounding the cost side of the equation, and the politics that will eventually emerge around it, is the potential requirement for additional defences. The current fighter interceptor solution with the CF-18 replacement possessing anti-cruise missile capabilities, which itself is being pushed further into the future, may be insufficient. It may be necessary to acquire shorter-range, ground-based anti-cruise missile defences that are capable of defending against limited geographic areas (e.g., a point defence system). In NORAD's Vigilant Shield exercise in the fall of 2016, personnel from a US National Guard air and missile defence unit were deployed to North Bay.

Of note, SSE identifies ground-based air defence systems as an investment priority for land-based forces. Whether such defences include North America or just overseas-deployed forces is an open question. Also, whether a single system would be capable of defending North America and overseas forces and whether defending land-based forces where they are located in Canada suffices to defend Canadian cities are also open questions. Regardless, Canadian homeland point defences are not likely to be included in the NWS modernization cost-sharing arrangement, and their place in future planned investments is unknown.

Finally, NWS modernization/replacement is likely to face a long and arduous process. This goes beyond the problems long associated with the procurement of expensive systems, with the likelihood that the current government's proposals to streamline the process will not meet its expectations. It also raises difficult questions

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of how the government deals with its “buy Canadian” preference embedded in its Industrial and Technological Benefits (ITBs) policy regarding its 40 percent share under the NWS replacement cost-sharing arrangement and its implications for how the US government might respond relative to its 60 percent share.

The issues surrounding the CF-18 replacement competition may be indicative. The US government has made it clear that if ITBs are required in the competition, it may pull the F-35 Joint Strike Fighter out. The provision of ITBs or offsets are prohibited for the F-35 because it is based upon a multi-national (including Canada) consortium where companies from its members have access to F-35 contracts on a competitive basis, and several Canadian companies have been successful in these competitions. The outcome of the CF-18 replacement could potentially impact upon NWS modernization/replacement.

Even more, the approval process is no longer simply an internal government one. The NWS moved from the drawing board to implementation and deployment with no public attention whatsoever. This is no longer the case. If the tortuous state of pipeline projects is any indication, NWS modernization/replacement will likely entail a lengthy regulatory process with public scrutiny. Environmentalist groups are unlikely to remain silent. Moreover, the government will have to engage Indigenous communities in the Canadian Arctic in meaningful consultations, which will take time and become potentially divisive. The probability and willingness of this or future governments to drive the project forward on strict national security grounds is likely to be extremely low, not least of all in fear of a political backlash that would follow.

All of these issues and considerations related to NWS modernization/replacement, as well as the possible additional fear that a government response might come to the attention of President Trump and generate a repeat of the tortuous NAFTA re-negotiations on the basis of Canada failing to meet its 2 percent of GDP defence spending commitment, speak to government silence. Keeping the NWS off the public agenda relative to the complicated issues involved appears to make good short-term political sense. However, eventually it will emerge into the public domain, and when it does, the government will have failed to lay the groundwork for a reasonable debate, and will be immediately vulnerable to the charge of “misleading” the public. If this is the case for the NWS, it is even more pronounced when one starts to examine the meaning behind possible future NORAD missions.

NORAD and the Future

The origins of thinking behind the expansion of NORAD’s mission suite can be traced back to 9/11. Following the terrorist attacks on the twin towers in New York and the Pentagon in Washington, DC, one of the responses considered by US Secretary of Defense Donald Rumsfeld was the transformation of NORAD into an integrated, multi-domain (aerospace, land, and maritime) North American Defence Command. In so doing, he tasked NORAD to examine options. Following Canada’s initial response that an integrated command was premature, Canada and the US subsequently agreed to the creation of a binational planning cell, superseded then by the binational planning group (BPG). The BPG released its final report in 2005, which covered the full range of options, and partially informed the decision to add a maritime warning mission for NORAD in 2006, in conjunction with the indefinite renewal of NORAD.

Notwithstanding objections from the maritime world, military and civil, and fears that the new mission would place NORAD on the path to obtain maritime control (as opposed to just maritime warning) for North America, the new mission received no formal public attention, as the Harper government remained silent. Nor is the nature of the mission one that might have raised a “red flag” about the loss of Canadian sovereignty. As a warning mission, NORAD simply resided at the end of the information “food chain,” receiving the North American maritime common operating picture out of a process that began at the national level with military and civil input (Charron, Fergusson, and Allarie 2015).

In the case of Canada, the Canadian common operating picture – emanating from Canadian naval headquarters in Halifax – is transmitted to US Fleet Forces Command/US Navy North, which integrates the Canadian picture with the American one. This generates a North American picture that is subsequently transmitted to NORAD to provide another set of eyes and analysis. Importantly, maritime warning is distinct from a NORAD maritime control mission, which would result in existing maritime military commands being placed under the authority of the binational command.

Today and in the future, however, the need to expand NORAD’s mission suite to include maritime control/defence is pressing. Alongside the *new* ALCM/GLC, Canada and North America face a significant sea-launched cruise missile threat (SLCMs) that can come from both surface ships and submarines. Once launched from their platforms, they become an air-breathing threat, insofar as cruise missiles travel on a similar trajectory – through the air rather than space – as an aircraft. And this falls under NORAD’s existing air control mission. Moreover, defence against this threat extends beyond land-based capabilities, and includes possible naval air defence assets.

At a minimum, significant coordination between NORAD and Canada-US naval air defence assets is vital. Such coordination lays the foundation, in turn, for establishing a binational maritime command, and NORAD is the obvious choice for such a command. In effect, the same functional logic that led to the creation of NORAD is at play in the maritime domain.

This foundation also resides upon longstanding close bilateral cooperation between the Royal Canadian Navy (RCN) and United States Navy (USN), which dates back to World War II, the Cold War, and more recently the ability of RCN assets to seamlessly integrate into US naval battle groups. In addition, maritime control for the continental United States is a responsibility of United States Northern Command (USNORTHCOM), whose commander is also the commander of NORAD, with the USNORTHCOM and NORAD command centre integrated – except when it comes to operations, largely as a function of USNORTHCOM’s missile defence mission. In other words, all the pieces are in place for a NORAD maritime control solution to evolve in the future.

Besides the maritime domain, other existing areas of North American bilateral defence cooperation are also ripe for a NORAD solution and are part of the ongoing Evolution of North American Defence (EvoNAD) study. This study originated within NORAD and was subsequently blessed by the PJBD. Alongside air and maritime components, the study includes: cyber as a function of the integrated nature of the economies and critical infrastructure; outer space as a function of its vital military and economic significance; land relative to the provision of cross-border military aid and support in response to human-made or natural disasters; and aerospace as a function of the merging of air and space occasioned by the development of hypersonic glide vehicle (HGV), which exploits sub-orbital space (Charron and Fergusson 2018).

The merger of air and space as a function of HGVs also has direct implications for Canada’s policy on non-participation in BMD. HGVs, which can be launched by a ballistic missile, aircraft, and maritime vessels, are specifically designed to defeat ballistic missile defences. Upon launch, an HGV exploits the upper limits of the atmosphere and lower limits of outer space (hence sub-orbital) to reach hypersonic speeds and manoeuvre to the target. In so doing, they effectively share characteristics with cruise missiles, and are potentially able to manoeuvre at high speeds once they re-enter the atmosphere. In effect, they transition from an outer space threat

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to an air threat, which implies the potential utility of integrating ballistic missile and air defences into a single defence system. This, in turn, potentially brings NORAD into play, and the need to re-consider Canadian BMD policy.

Regardless, the path to a multi-domain North American Defence Command will be neither straightforward nor easy. Each of these missions will likely face significant organizational and political opposition in Canada, and land integration is likely to be the most sensitive issue because it is most clearly vulnerable to the loss of sovereignty argument. It is no wonder then that the government has kept its silence. Nonetheless, these are at the core of SSE's passing reference to future NORAD missions.

Conclusion

The failure of the government, no different from its predecessors, to lay the groundwork for an informed debate on North American defence requirements is not surprising. With the public largely uninformed and disinterested, the media paying only sporadic attention, a very small attentive public, and the military, National Defence, and the government more interested in overseas missions and secrecy, it is no wonder that the Trudeau government has remained silent. There is apparently nothing to lose with silence. Yet, repeatedly over time, silence backfires on government when the issue suddenly and unexpectedly explodes onto the public agenda.

One can only speculate how the CF-18 replacement project would have worked out if the governments involved prior to the 2010 decision to sole-source the F-35, followed by the damning report of the auditor-general in 2012, had laid the groundwork in advance. From the Chrétien government's decision to join the Joint Strike Fighter (JSF) project in 1998 and sign on to Phase 2 of the program in 2002, Harper's commitment to Phase 3 in 2006 and the announcement that Canada would purchase 65 next-generation fighters in 2008, to the 2010 decision, successive governments remained silent. The furor that followed entirely derailed the 2010 decision. As a result, a decision that would have seen the replacement largely completed by now remains at least a decade off - so much for silence.

The probability that history will repeat itself with the NWS and future NORAD missions is relatively high. When it does, there will be no one to blame but government silence. How much it might damage the vital Canada-US North American defence relationship remains to be seen. But if the current government fears Trump's attention now, imagine his attention if the NWS runs into trouble. While the US also tends to concentrate on overseas defence, homeland defence is still a vital priority, and a failure on Canada's part to move forward relatively quickly could prove disastrous.

Regardless, one can imagine the future ill-informed, emotional debate on the NWS, never mind future NORAD missions, beginning with critics questioning the costs and pointing out that the money could be better spent on other more important economic and social programs. This will be attended by misinformed debate around the nature of the threat to North America necessitating billions of dollars of spending on the NWS. Moreover, it is then a small step to arguments that the militarization of the Canadian Arctic is actually undermining Canadian security in posing a threat to Russia and its vital interests in its Arctic. Of course, this debate will also be attended by the

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argument that this is simply an American-driven initiative, embroiling Canada in aggressive US military plans and clearly indicating that Canada is simply a puppet of the United States. According to this line of argument, Canada has lost its sovereignty and independence.

This, of course, can be pre-empted by government officials, military, bureaucratic and political leaders getting outside of the Ottawa “bubble” and engaging and informing the public on the importance of NWS replacement not just for the defence of Canada and the defence of North America in cooperation with the US. It is also important to ensure that there is no capability gap in NATO’s overall deterrence posture, which could be politically exploited by Moscow (and in the future also Beijing). In so doing, officials need to make clear that North American defence cooperation, even with a fully integrated, multi-domain NORAD does not equate to a loss of sovereignty. Laying the groundwork for NWS replacement in this regard also lays the groundwork for the future NORAD.

Unfortunately, the probability that this or the next government will do so is very low. It appears that Canadian governments unconsciously prefer to repeat the past, expecting, it seems, that the outcome will be different.

About the Author



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