



ARCTIC SECURITY BRIEFING PAPERS

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July 11, 2023

US Strategic Ballistic Missile Defence: Why Canada won't join it

Two Parliamentary Committees have recently recommended that Canada “reconsider” its 2005 decision¹ against joining the US homeland Ballistic Missile Defence system. The Pentagon acknowledges the system has no capacity against Russian and Chinese ballistic missiles, and its operational design means it also has no capability against cruise and hypersonic missiles. With continental security concerns shifting to the latter, Canada is unlikely to seek direct involvement in strictly ballistic missile defence.

The recommendations come via two new Parliamentary (House of Commons and Senate) reports on Arctic security,² and as such calls go, these are rather muted – well short of a clear call to change Canada's current stance. The NDP, in a separate statement linked to the House of Commons report, was not so timid and issued a clear and welcome call for Ottawa to “strongly reject” direct involvement – and that is the position that is likely to prevail, though probably not “strongly” so.

In both reports, attention to missile defence is brief and that itself reflects declining enthusiasm in both the American and Canadian defence policy communities for continental ballistic missile defence as a discrete system. There is obviously still plenty of interest in and commitment to trying to protect the continent from strategic-range weapons and Washington is not about to abandon homeland missile defence, but the system is being moved to the margins of continental defence.

American ballistic missile defence (BMD) writ large now encompasses a broad range of ballistic missiles, from short-range battlefield weapons to strategic-range or intercontinental ballistic missiles (ICBMs) aimed at North America, and all the variations in between,³ including American elements of the NATO system.⁴ The North American or homeland element of that system is the ground-based midcourse interception defence system (GMD) designed exclusively to intercept nuclear warheads in space, after they have separated from their ICBM launchers, that are bound for the American homeland. It is participation in this GMD system that the Parliamentary Committees have asked the Government of Canada to reconsider.

From Star Wars to GMD

When Ronald Reagan first proposed, in his famous 1983 “Star Wars” speech,⁵ a system to protect the American homeland from nuclear attack, it could be seen, if you glossed over the largely absent technical details and strategic implications, as an optimistic, even welcome, although probably too good to be true, vision. He invited Americans to imagine their own invulnerability to nuclear attack: “What if free people could live secure in the knowledge that their security did not rest upon the threat of instant US retaliation to deter a Soviet attack, that we could intercept and destroy strategic ballistic missiles before they reached our own soil or that of our allies.”⁶

Reagan called on the American scientific community to make that dream come true. In a magnanimous gesture he even reached out to what he had earlier branded an “evil empire,” with an offer to share missile defence technology with the Soviet Union, then led by Mikhail Gorbachev.⁷ But the vision of a “Star Wars” shield to protect America steadily shrank to become the current and troubled ground-based mid-course interception (GMD) system, reduced to pursuing only uncertain protection from only North Korea's nascent nuclear threat.

Protection from the main threat, the Russian and Chinese nuclear-armed ICBMs, has been repeatedly acknowledged by the Pentagon as not feasible and no longer the objective of GMD. The Missile Defense Agency⁸ and the 2022 US National Defence Strategy,⁹ among other official statements, confirm that the GMD system is confined to trying to intercept a “limited attack from rogue nations.” As for the Russian and Chinese strategic nuclear threats, the US continues to rely on the same “threat of instant US retaliation” – that is, the threat of mutual nuclear catastrophe – that Reagan was imagining could be replaced by new technologies. Just weeks ago, the US Assistant Secretary for the Bureau of Arms Control, Verification and Compliance again told a retrospective conference on the 1980s Strategic Defense Initiative “that today’s US homeland BMD system is designed only to address ICBMs from rogue states such as the DPRK and potentially Iran.”¹⁰

No sure defence

In other words, the GMD system that the Government is asked to consider joining offers little protection from global nuclear threats. The potential North Korean threat will remain well below one or two percent the total warheads pointed at North America, and there is no assurance of comprehensive protection from even that small fraction of the total threat. Even moderately increased numbers of attacking North Korean missiles (and Kim Jong Un is busily demonstrating a capacity to increase its inventory of offensive ICBMs¹¹) would complicate interception enormously. The inconvenient truth is that some attacking warheads would inevitably get through to deliver devastating destruction. The threat of devastating retaliation remains Washington’s main defence

Protection from nuclear attack depends, as it always has, on preventing attack rather than intercepting it.

The conclusion increasingly drawn, based on GMD’s limited capabilities and the emergence of new strategic cruise and hypersonic missiles against which GMD has by design no capability, was clarified by the testimony of Gen. Wayne Eyre, Canada’s Chief of Defence Staff at the Defence Committee: “I think policies related to ballistic missile offence are becoming less and less relevant.”¹² Jody Thomas, as National Security and Intelligence Advisor to the Privy Council, concluded further that Canada needs “to take a broad view of what the missile threat is and what the North American response to that is going to be, as opposed to just focusing on BMD.”¹³

It is not the first time a major new weapons system has become marginal before ever becoming fully operational. In Canada, the Arctic-based DEW (Distant Early Warning) line was designed to provide early warning of air attacks and guidance for air defence operations against the early Cold War strategic bomber threat posed by the Soviet Union. The DEW line became operational in 1957, the same year that the Soviets launched Sputnik, signalling the arrival of the ICBM threat and the marginalization of the bomber threat. The DEW line continued to play its role and fighter aircraft were still mobilized in order to mitigate the bomber threat (though there never was a capacity to totally defeat a major bomber attack), but it had become clear that the Soviet bomber threat had dramatically given way to the threat of nuclear-armed ICBMs. Gradually, NORAD’s air defence role against military aircraft evolved to include support to civilian aviation control authorities by monitoring air approaches by civilian aircraft to Canadian airspace (that now being the joint Command’s main day-to-day mission), and after 9/11 patrolling domestic airspaces in North America “by responding to unknown, unwanted, and unauthorized air activity approaching and operating within these airspaces.”¹⁴

Emerging missile threats

So, once again, the threat profile has changed significantly. In addition to NORAD’s aerospace and maritime warning roles (and the ongoing air defence operations), the attention of defence planners has turned to those cruise and hypersonic missile threats. Cruise missiles have been gaining both range and speed to supersonic levels, while hypersonic missiles include variations on cruise missiles using specialized engines, or “scramjets” (HCMs),¹⁵ and hypersonic glide vehicles (HGVs) launched by rocket, and also boosted to hypersonic speeds by

special jet engines,¹⁶ before gliding to a target. Both varieties are highly maneuverable, unlike ICBMs which follow predictable trajectories.

Potential defences against such weapons are envisioned through layered and integrated air and missile defence systems. The primary American concern is focused on threats to American military installations overseas and at home, fearing that rival states could use cruise and hypersonic systems to threaten conventional (non-nuclear) attacks on key US military facilities anywhere in the world to try to deter Washington from conducting major military operations abroad.

Freedom of military action abroad is deemed to be key to Washington's global role, but if overseas operations expose key facilities at home to conventional attacks the calculations change. Nuclear threats to the homeland are viewed to be deterred by nuclear counter threats, but conventional threats to the homeland would be assumed by the attacker not to provoke a nuclear response because of the threat of it escalating to broader nuclear conflagration. Hence, much of the strategic defence focus has shifted to searching for defences against hypersonic and cruise missiles deemed not to be deterred by nuclear threats.

The elusive technology fix

Systems designed to defend against air and diverse missile threats will depend substantially on technologies and weapons systems that are still being developed or imagined. And it must be said that much of the same technology optimism that animated Ronald Reagan remains in play.

There is no denying extraordinary advances in technology and artificial intelligence, suggesting that even the more extravagant claims for AI-assisted weapons should not be easily dismissed. And the idea that "machine learning" can be mobilized to facilitate unprecedentedly "fast decision-making" must be taken as credible, but it is surely worth asking, what could possibly go wrong? Little of the Reagan Star Wars vision has survived, and it remains to be seen how much of the "hardened shield" now being imagined¹⁷ for North America will come to fruition. And what of its likely impact – will it yield a more secure North America or a more robust threat and more dangerous strategic environment?

That said, it is clear that the Canada/US North Warning System (successor to the DEW line) and more generally the ability to monitor northern approaches to North American land, air, and maritime territory need updating – a process that is now underway. Situation awareness across all domains in the Arctic is obviously not only important but essential.

It does not follow, however, that every military threat that is detectable can be defeated. For the better part of seven decades North America has had the capacity to detect and provide early warning of nuclear-armed air and ballistic missile attacks but has never had the capacity to defeat them. Indeed, the experience has been that even the pursuit of a defence capability against such threats has exacerbated them as Russia and China pursue new capabilities to get around the defences. And, of course, that is why the Pentagon is now at pains to assure Russia and China that America's homeland missile defence operation is not directed at their warheads.

An ABM irony

After decades of effort, and cost,¹⁸ strategic missile defence sponsors claim advances in "hitting a bullet with a bullet," but not in protection. What GMD has proven instead is the opening premise of the ABM Treaty of 1972,¹⁹ which Washington abandoned in 2002 – namely, that there is a link between missile defence and efforts to expand offensive missiles. New START makes the same link, "recognizing the existence of the interrelationship between strategic offensive arms and strategic defensive arms."²⁰ In other words, while strategic missile defence is not able to protect the homeland population, it still spurs the offensive efforts of adversaries.

Reagan imagined that strategic defence would “pave the way for arms control measures to eliminate the weapons themselves,”²¹ but what GMD has achieved instead is to exacerbate a technology driven arms race. Russia and China both now focus on new strategic systems that are designed to circumvent GMD, just in case some distant future might yet produce dramatically improved capacity against ballistic missiles.

To date, strategic defence has not managed to deliver actual defence, only the fear that it might. And in order to mitigate that fear, the US tries to assure Russia and China that the GMD system is definitely not aimed at their offensive systems.

And therein lies a major irony. The technical and strategic limits that now *de facto* constrain the GMD homeland missile defence system are remarkably close to the constraints that were operative under the ABM Treaty for three decades. The Treaty’s chief objective was strategic stability and to prevent a destructive offensive arms race, and so each of the parties agreed “not to deploy ABM systems for a defense of the territory of its country...” (Article II). The George W. Bush Administration pulled out of the Treaty to avoid those very limits, but now Washington openly declares that GMD is not at all about protecting its territory from Russian and Chinese nuclear attack. Furthermore, GMD now deploys fewer interceptors (44, to be increased to a total of 64) than the 100 allowed by the Treaty.

When the ABM Treaty was abandoned, confidence in strategic stability took a serious hit, as did US taxpayers, and in the end, there is still no protection. After the damage of abandoning the Treaty was done and a new missile race set in motion, the irony is that the Treaty’s basic provisions have in effect prevailed, but without the benefit of an international agreement that should be in place to institutionalize mutual restraint.

Arms control and diplomacy

All of that argues against Canada joining GMD and points to the need to work towards a credible arms control response to expanding missile threats. Experience tells us that strategic defence schemes are much more likely to exacerbate than allay such threats. Throughout the nuclear age there has never been a reliable defence against nuclear attack. Effectively responding to nuclear threats must necessarily come down to trying to reduce the threat through arms control, easing tensions through diplomacy, and preventing attack through deterrence. But, given that the threat of mutually assured mass destruction can never be a satisfactory foundation for long-term security, the urgent need is for arms control and disarmament, and for sustained strategic dialogue among adversaries – the only safe, durable solution to the existential nuclear threat.

Arms control and strategic dialogue are not options to be held in reserve and worked on once the threats are gone and the tensions have eased. The threats and tensions need urgent attention, and it is for Canada to be part of and promote an international arms control community that insists that arms control and disarmament measures, as well as strategic stability diplomacy, become the frontline responses to strategic missile threats.

Notes

¹ Donald Barry, “Canada and Missile Defence: Saying No To Mr. Bush,” *Journal of Military and Strategic Studies*, Vol. 12, Issue 3, Spring 2010. <https://jmss.org/article/view/57858/43531>

² “A Secure and Sovereign Arctic,” Report of the Standing Committee on National Defence (NDDN), April 2023, 44th Parliament, 1st Session. <https://www.ourcommons.ca/DocumentViewer/en/44-1/NDDN/report-3/>

“Arctic Security Under Threat: Urgent Needs In A Changing Geopolitical And Environmental Landscape,” Report of the Senate Standing Senate Committee on National Security, Defence and Veterans Affairs (SECD), June 2023. https://sencanada.ca/content/sen/committee/441/SECD/reports/2023-06-28_SECD_ArcticReport_e.pdf

³ Elements of the Current U.S. Ballistic Missile Defense System: Ground-based Midcourse interception; Aegis Ballistic Missile Defense, (including the European Phased Adaptive Approach - EPAA); Terminal High Altitude Area Defense (THAAD); Patriot Advanced Capability (PAC-3).

“Current U.S. Missile Defense Programs at a Glance,” Arms Control Association. <https://www.armscontrol.org/factsheets/usmissiledefense>
“Ballistic Missile Defense Elements.” https://www.mda.mil/system/aegis_bmd.html

⁴ Germany hosts the NATO BMD command centre; the United States contributes its European Phased Adaptive Approach (EPAA); Turkey hosts a US BMD radar; Romania and Poland host US Aegis Ashore sites; Spain hosts US BMD-capable Aegis ships; others maintain integrated air and missile defence systems.

NATO, “Ballistic missile defence,” 28 November 2022. https://www.nato.int/cps/en/natohq/topics_49635.htm

⁵ Ronald Reagan’s ‘Star Wars’ Speech (1983), Alpha History. <https://alphahistory.com/coldwar/ronald-reagan-star-wars-speech-1983/>

⁶ Quoted by Mallory Stewart, “The Strategic Defence Initiative in Retrospect: The Past, Present, and Future of Missile Defense,” 28 April 2023. <https://www.state.gov>

⁷ Reagan and Gorbachev: The Reykjavik Summit, Cold War History, Atomic Heritage Foundation, 07 August 2018. <https://ahf.nuclearmuseum.org/ahf/history/reagan-and-gorbachev-reykjavik-summit/>

⁸ <https://www.mda.mil/global/documents/pdf/bmds.pdf> (page 2)

⁹ <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF> (page 6 of Missile Defense Review Section)

¹⁰ Mallory Stewart, 28 April 2023.

¹¹ Carlotta Dotto, Brad Lendon and Jessie Yeung, “North Korea’s record year of missile testing is putting the world on edge,” CNN, 26 December 2022. <https://www.cnn.com/2022/12/26/asia/north-korea-missile-testing-year-end-intl-hnk/index.html>

¹² Reported in “A Secure and Sovereign Arctic.”

¹³ Reported in “A Secure and Sovereign Arctic.”

¹⁴ “NORAD Mission,” <https://www.norad.mil/About-NORAD/#:~:text=In%20close%20collaboration%20with%20homeland%20defense%2C%20security%2C%20and,provide%20aerospace%20and%20maritime%20warning%20for%20North%20America.>

¹⁵ Shannon Bugos and Kingston Reif, “Understanding Hypersonic Weapons: Managing the Allure and the Risks,” Arms Control Association, September 2021. https://www.armscontrol.org/sites/default/files/files/Reports/ACA_Report_HypersonicWeapons_2021.pdf

¹⁶ “Hypersonic Weapon Basics,” Missile Defense Advocacy Alliance. <https://missiledefenseadvocacy.org/missile-threat-and-proliferation/missile-basics/hypersonic-missiles/>

¹⁷ Terrence J. O’Shaughnessy and Peter M. Fesler, “Hardening the Shield: A Credible Deterrent & Capable Defense for North America,” *Wilson Center*, September 2020. <https://www.wilsoncenter.org/publication/hardening-shield-credible-deterrent-capable-defense-north-america>

¹⁸ “Observations on Ground-based Midcourse Defense Acquisition Challenges and Potential Contract Strategy Changes,” US Government Accountability Office, 21 October 2020 (setting these costs at that point at \$53 Billion). <https://www.gao.gov/products/gao-21-135r#:~:text=The%20GMD%20system%20aims%20to%20defend%20the%20U.S.,spent%20%2453%20billion%20on%20the%20system%20so%20far.>

¹⁹ Treaty Between The United States Of America And The Union Of Soviet Socialist Republics On The Limitation Of Anti-Ballistic Missile Systems (ABM Treaty). Text at https://media.nti.org/documents/abm_treaty.pdf

²⁰ Text of the Treaty Between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, 10 April 2010. <https://2009-2017.state.gov/documents/organization/140035.pdf>

²¹ The report of “The Strategic Defence Initiative in Retrospect: The Past, Present, and Future of Missile Defense,” 28 April 2023. <https://www.state.gov>