

Canada's Arctic Defence Capabilities

Insights from Inside the CAF's Cold Weather Operations –
Leader Course and 1 CAD/CANR HQ

Kate Todd | February 2025

Executive Summary

From January 22 to 23, 2025, the author was given a unique opportunity to learn more about the Arctic defence capabilities of the Canadian Armed Forces (CAF) by experiencing them first-hand. The CAF's Stakeholder Engagement team invited a group of Arctic experts to observe the Canadian Army's Cold Weather Operations – Leader course at Canadian Forces Base Shilo and tour the headquarters of 1 Canadian Air Division and the Canadian North American Aerospace Defence Command Region. Prior to the trip, stakeholders were given a pre-brief, detailing the Canadian Army's policies, strategies, directives, operations, and training pertaining to the Arctic. Throughout the pre-brief and visit, it was evident that the Canadian Armed Forces is serious about and working towards urgently bolstering its Arctic defence capabilities. Yet, Canada's procurement system, lack of trained personnel, and dated equipment continue to hamper these efforts.

Arctic defence is top of mind for the Canadian Armed Forces (CAF). As global warming continues to accelerate the melting of sea ice, the region is becoming increasingly accessible, garnering attention from state and non-state actors across the globe. For Canada, whose territory extends into the Arctic, the defence and maintenance of sovereignty in the region has never been more critical. Canada's current defence policy highlights this, declaring that “the most urgent and important task [Canada] [faces] is asserting [its] sovereignty in the Arctic and northern regions.” The policy aims to “[prioritize] the defence of Canada by investing in a ready, resilient and relevant Canadian Armed Forces.”¹

With this strategic backdrop in mind, the CAF invited stakeholders specializing in Arctic defence to spend two days in Winnipeg, observing the Cold Weather Operations – Leader (CWO-L) course at Canadian Forces Base (CFB) Shilo and visiting 1 Canadian Air Division (1 CAD)/Canadian North American Aerospace Defence Command (NORAD) Region (CANR) headquarters (HQ). Prior to the excursion, stakeholders were given a pre-brief to set the scene, explaining the Canadian Army's (CA) cold weather and Arctic policies, directives, operations, and training. The pre-brief

and trip provided invaluable insights into the CAF's ongoing efforts to improve its Arctic defence capabilities.

The scope and rigor of the training at CFB Shilo, the operational abilities of 1 CAD/CANR HQ, and the ongoing efforts to modernize the CAF are impressive, but significant obstacles stand in the way of the CAF rapidly improving its Arctic capabilities. Canada's complex and slow procurement system, lack of experienced military personnel, and dated equipment and systems plague the CAF's efforts. Despite the CAF's clear commitment to bolstering Canada's Arctic defence capabilities, the pace of progress is slower than what may be necessary given the region's increasing geopolitical importance.

Pre-Brief: A Bird's-Eye View of the CA's Arctic Operations and Training

On January 21, 2025, stakeholders were given a pre-brief, explaining what policies, strategies, concepts, and directives apply to the CA's Arctic operations, the current state of the CA's cold weather and Arctic operations and operational output, and the CA's individual and collective training. The message of this brief was that while there is significant ambition for Arctic readiness within the CA, there is also a lack of measurable direction. Although the CA conducts Arctic training, more must be done to generate Arctic readiness in order to achieve the Government of Canada's defence and foreign affairs priorities and goals.

In 2024, the Government of Canada updated its defence policy and released an Arctic foreign policy outlining the government's defence and foreign affairs priorities and calling for Canada to strengthen the CAF's presence, reach, responsiveness, cooperation with international and Indigenous partners, and efforts to protect the environment in the Arctic. However, the Department of National Defence's Strategic Joint Staff has yet to release a corresponding campaign plan distilling these goals into actionable directions the military can follow. It is expected that a CAF campaign plan will be published by April 2025. Beyond this campaign plan, the CA requires element-specific guidance. The army's concept of operations and directives for Arctic warfare are outdated. Moving forward, a new Arctic Land Strategy is needed to ensure the CA can meet its mandate in the North.

To meet the government's priorities set out in the defence and Arctic foreign policies, the CA needs to improve its readiness for and proficiency in contingency operations in the Arctic. A contingency operation is one that is "planned in advance of known events or events that could reasonably be expected."² In the Arctic, or sub-Arctic, the CAF has a limited ability to project sustained land forces. The CA's only dedicated Arctic capability is its four Arctic Response Company Groups (ARCGs), staffed mainly by reservists. Between these ARCGs, there is an absence of standardization and, as they are staffed by reservists who regularly rotate in and out of positions, a lack of experienced Regular Force soldiers with the expertise needed to sustain operations in the Arctic.

The ARCGs themselves are not designed or equipped to carry out contingency operations without augmentation from other groups. The groups that could augment the ARCGs include the Immediate Response Units (IRUs) from each of the CA's four divisions, the Surge Airborne Support Group for Major Air Disaster Response (Surge AB Sp Gp) based out of the Advanced

Warfare Centre in Trenton, or the Global Response Task Force (GRTF) run by the Canadian Joint Operations Command. However, if a contingency plan were to be activated, operational effectiveness and soldiers' well-being would be at risk, as CA members are not sufficiently trained or equipped for cold weather operations.

The crux of this issue is readiness. The CA does not have adequately resourced personnel capable of surviving and completing tasks within the timelines required for contingency operations. Cold weather training helps build capability amongst servicemembers but cannot create readiness on its own. The CA's ARCGs are trained for cold weather operations but do not have the equipment necessary to respond to security incidents in the North and face difficulty meeting timelines, as the churn of reservists staffing the ARCGs hinders their ability to remain in a high state of readiness. The IRUs are even less equipped, requiring new equipment as well as training, experience, and personnel to participate in Arctic operations. The Surge AB Sp Gp and GRTF operate at a high state of readiness but have no training specific to the Canadian Arctic or equipment such as cold-weather parachutes and vehicles. In sum, the CA needs to generate contingency readiness, but competing priorities, the need for new equipment, and issues surrounding training and force structure compromise Arctic readiness.

The CA's proficiency in Arctic and cold weather operations is developed and maintained through individual training, collective training, and joint and combined operations with the CA's partners, including the Royal Canadian Navy, Royal Canadian Air Force, special forces, other government departments, and allies. CA personnel are offered three levels of individual training: the Cold Weather Operations course, the CWO-L course, and the Arctic Operations Advisor course. In all three courses, the key to success is to get cold, stay cold, and gain experience in Arctic conditions. However, individual training on its own is insufficient. Collective training through annual exercises and operations solidifies what soldiers learn in courses and develops their ability to work together to survive in the Arctic while achieving operational goals.

To operate in the Arctic, all CA soldiers must complete individual training. The Cold Weather Operations course is the minimum qualification needed to operate in cold weather environments. The course is run out of division battle schools and reserve units across the country, open to any trade, consists of three days in the classroom and three days in the field, and teaches participants the essentials of how to dress, move, and maintain themselves and their equipment. The CWO-L course is designed for individuals who will lead tent groups or sections during cold weather operations. The course is run by the Advanced Warfare Centre once a year at CFB Shilo, is fifteen days long, qualifies approximately forty personnel (including up to ten soldiers from allied states), and teaches participants individual and group survival tactics, how to maintain and repair kits, and how to manage time, personnel, and resources. The Arctic Operations Advisor course is the most advanced of the three offered by the CA and prepares candidates to plan and execute operations in the Arctic. The course is run by the Advanced Warfare Centre once a year in Resolute Bay, is thirty-five days long, and qualifies approximately forty personnel, including up to ten soldiers from allied states. Soldiers who pass these courses can then operate, lead, plan, and execute collective training and operations in the North.

The CA participates in a variety of domestic and international exercises and operations in which soldiers can develop and verify their readiness. These include Cold Weather Foundation Training,

multi-domain US-led combat operation exercises in Alaska every six years, annual ARCG exercises, northern exercises, and Operation *Nanook* participation. Through these efforts, CA members regularly operate and complete battle task standards at the company and division levels. However, these training efforts are not enough to generate the Arctic readiness needed to conduct contingency operations.

The CWO-L Course: Comprehensive Training with Limitations

Observing the CWO-L course allowed stakeholders to gain first-hand experience interacting with the course and its instructors, participants, and equipment. Stakeholders were driven three hours from Winnipeg to the instructional facility used to run the CWO-L course at CFB Shilo. The facility included various classrooms, offices, washrooms, and a large garage that stored the equipment used to train participants. This ranged from camping gear to ‘pioneer tools,’ skis and toboggans, and clothing items. At the facility, stakeholders met the officers and senior non-commissioned members running the course, as well as two soldiers from Sweden who were also invited to observe the course. Stakeholders were given the opportunity to tour the facility and ask questions before being driven to a live fire exercise in one of the CAF’s main cold weather vehicles, the BV 206.

The BV 206, also known as the Bandvagn 206, is an all-terrain tracked carrier vehicle designed to traverse snow, ice, or water. It has four tracks that allow the vehicles to travel over almost any terrain in any climate. The vehicles are approximately seven metres long, two metres wide, and two and a half metres tall and are composed of a driving cabin and a cargo or personnel carrier, coupled by a central steering assembly. They can house six personnel in the cabin and carry up to eleven in the passenger area. The vehicles run on diesel fuel and can reach speeds of up to fifty kilometres an hour, with a range of 330 kilometres. The BV 206s are mainly used during individual training, such as the CWO-L course, but they are also used during collective training and domestic operations in winter and Arctic conditions.³ They are the Arctic and winter workhorses of the CA.



Canada first procured 108 BV 206s in 1983. It now has eighteen, after cannibalizing the others to maintain the current fleet. Their manufacturer has since discontinued the model, making it difficult to find parts and repair the eighteen BV 206s the CA still uses.⁴ These vehicles have been due to be retired since the mid-2000s, but little progress has been made towards finding their replacement. The project to replace the BV 206s is still in the Options Analysis phase, and replacements are only estimated to be delivered by 2030.⁵ The few remaining vehicles continue to serve their purpose but are no longer able to perform their full abilities, such as amphibious travel. The CAF has now rented three new BV 206 models to equip the CA while waiting for replacements. However, more should be done to refurbish the existing fleet to ensure that they can last until 2030.

When contemplating what to replace the BV 206s with, the CAF should consider purchasing a vehicle that is also used by allies, such as the BvS10 vehicle produced by BAE Systems,⁶ which is used by the United States, the United Kingdom, Sweden, the Netherlands, France, and Germany.⁷



Aboard one of the CA's existing BV 206s, stakeholders were driven fifteen minutes from the training facility to a range. At the range, the resilience of shelters built by CWO-L course candidates out of snow, sticks, and ice were being tested by intermittent, sustained, and rapid machine-gun fire. Targets were placed behind the shelters, and flares were positioned within them to indicate whether the gun's bullets would pierce through these barriers. The aim of the exercise was to demonstrate the ability of soldiers to quickly build protective shelters and the strength of such shelters in combat scenarios. The shelters

withstood much of the gunfire, and the ones made with more wood and ice than snow showed little damage.

This exercise was held at the end of the CWO-L course's outdoor survival phase. The survival phase is where candidates are left on their own in extremely cold temperatures with limited supplies. Each candidate is given a ferro rod (flint), knife, hatchet, block of ice, pot, snare wire, ground sheet, and rabbit. They are required to make a shelter out of wood and a fire, and they are assessed as they spend the night outside. After having passed this assessment, candidates built the shelters that were shot at. When discussing the fire exercise and survival phase with candidates, their morale was high. They had passed the hardest part of the CWO-L course and felt confident in their abilities to survive in the Arctic in both combat and non-combat scenarios. After this fire exercise, candidates were able to regroup and work alongside their wingers to pass the remainder of the course.

When the firing exercise was complete, stakeholders rode the BV 206 back to the instructional facility for a final equipment tour. The course instructors showed stakeholders the entirety of the kits used by instructors and candidates. Issued kits, including tents, toboggans, and camping stoves, showed obvious signs of wear. The most worn, yet important, items there were the camping stoves. Their rust was thick, but instructors insisted that this was the best model for the job. Stakeholders were able to suggest that parts could be 3D printed to fix the existing stoves, and it was conversations like this that made our visit feel impactful. The instructors also showed stakeholders items for which the staff had initiated procurement for the CWO-L course, including goggles, mid-layers, thermal blankets, gloves, hand-warmers, and balaclavas.

Like any procurement of materiel for the CAF, the process to purchase these items had been difficult. The staff had to prove that their issued kits were insufficient, then establish requirements for new equipment, allow for a bidding process to occur, and advocate for the selection of certain suppliers whose equipment was of sufficiently high quality for Arctic operations. One example of where this system struggled to get the staff what they needed was the procurement of hatchets. The staff had taken all the steps necessary to get the bids and advocate for their desired manufacturer. However, the person doing the ordering chose to purchase hatchets with plastic handles, instead of wood, because they were on sale. This is problematic because plastic, when it is cold, will break apart on impact. Yet, the instructors are now stuck with the plastic-handled hatchets until they decide to initiate the arduous procurement process all over again. This example highlights the need for the CAF's procurement process to be simplified and expedited. If the CA wishes to operate in the Arctic, they need the proper kit to do so and needs to do so quickly.

One striking observation I had while touring the issued and procured kits was that soldiers on the range were wearing other equipment. Almost every soldier wore different hats, gloves, scarves, balaclavas, socks, and thermal layers to stay warm in the harsh conditions at CFB Shilo. When asked, the instructor indicated that it is a command decision to let the soldiers wear these items and that most servicemembers spend hundreds of dollars on their winter kits. These purchases are not reimbursed and are entirely voluntary. This was baffling. The CAF has other reimbursement programs for brassieres, women's underwear, and boots, but no such program exists for winter gear.



Having been on the range at CFB Shilo wearing my winter best for only a few hours, I was uncomfortably cold. If the CAF wants to increase the number of personnel equipped to operate in cold environments, the organization should strongly consider procuring better winter clothing or reimbursing soldiers when they buy their own kits.

Overall, observing the CWO-L course, its staff, and its candidates left me impressed with the scope and rigor of training and highlighted some of the limitations facing the CAF when trying to increase cold weather training. A recurring theme in conversations throughout the day was the intent to scale up this course. Instead of running the CWO-L course at CFB Shilo next year, the CA intends to decentralize training and run various serials across the country. Yet, without more BV 206s, issued kits, and ambitious staff who are dedicated to improving the course, this will be difficult. Although the CAF is committed to expanding its cold-weather expertise, some of the equipment used in training is outdated, and the CA will be challenged to quickly procure new and better kits. If more of the CAF's soldiers are expected to be ready for and capable of executing Arctic operations, they need to be given all the tools necessary to be successful in the field.

Visit to 1 CAD/CANR HQ: Strategic Coordination but Enduring Challenges

On January 23, stakeholders made their way to 1 CAD/CANR HQ in Winnipeg for a tour of the Combined Air Operations Centre (CAOC) and an unclassified brief on Arctic operations. Upon arrival, stakeholders locked up their electronic devices before being escorted through the building. The tour was led by experienced Royal Canadian Air Force officers currently working in the CAOC. The brief was then given by the Deputy Commander of 1 CAD, with our guides sitting in



and filling in any information gaps. The visit revealed a well-coordinated, highly motivated team at HQ, keen for their equipment to be updated and aware of the potential complications involved in modernizing NORAD.

During the tour of the CAOC, stakeholders were told about what the operations centre is used for and were shown its layout. The CAOC is used by the air force and NORAD to track and monitor all aircraft in Canada's Air Identification Zone and protect against incoming and internal threats to Canada and the United States. If a threat were to be detected, the officer in charge of the CAOC would follow procedures or seek approval from a higher authority to engage and neutralize any dangers. Procedures like this were used when the Chinese spy balloon was shot down in Canada by United States fighter jets back in 2023.⁸

In the CAOC, four very large screens cover the backmost wall. These screens show maps and symbols indicating where all aircraft in North America are at any given moment. Below the screens are desks with their own computers, phones, and equipment. Four personnel typically staff the CAOC, but up to thirty can be seated in the room. During our visit, only unclassified map layers were shown on the screens. Additional layers are usually displayed, showing things like the tracks of 'friendly' aircraft, potential intercept points, and threat rings around potential adversarial aircraft. These layers are created using feeds from various radars and sensors, including the North Warning System.

On the tour, our guides pointed out that the equipment in the CAOC and the systems feeding into it are to be updated within the next twenty years through NORAD modernization. The current suite in the CAOC is twenty to thirty years old. New sensors and systems will allow for cloud-based command and control, better system integration, and the data processing capabilities needed to

operate fifth-generation weapons systems. Two hurdles Canada will have to overcome when modernizing the CAOC will be managing the vast amount of data that future systems will utilize and integrating artificial intelligence into the CAOC. Human-machine teaming will be essential when modernizing NORAD, but the legal, policy, technical, and staffing implications of this must be thought through and acted upon.

NORAD modernization was also the focus of the unclassified briefing on Arctic operations. Domain awareness is a challenge in the Arctic. New infrastructure, sensors, satellites, and radars will help build common operating pictures in the air, maritime, and space domains. The CAF aims to also bolster its command-and-control capabilities in the North, which are essential for protecting Canada's sovereignty. While there is a clear strategic imperative to enhance these Arctic capabilities, the pace of change is slow. NORAD modernization will be challenging for the CAF, but it cannot come fast enough.

Canada's Arctic Defence Capabilities: Progress, Challenges, and Future

Improving Canada's Arctic defence capabilities is of vital importance for the country. Canada must be able to defend its sovereignty and interests. To do this, the CAF requires domain awareness and Arctic readiness, with the ability to quickly detect and respond to security challenges. While the CAF has made impressive strides towards enhancing its Arctic capabilities, the road ahead remains fraught with challenges.

The CAF does not lack commitment to modernization, but it faces difficulty modernizing at a pace commensurate to the evolution of the Arctic security environment. Procurement delays, aging equipment, and a lack of trained personnel continue to hamper Arctic readiness. Canada must urgently invest to keep pace with growing threats in the region.

Canada should prioritize several key initiatives:

1. **Streamlining the Procurement of Interchangeable Kits:** Canada's defence procurement system must be sped up to ensure that the CAF can operate effectively in the Arctic. Critical assets, such as cold-weather vehicles, clothing, infrastructure, sensors, and systems, need to be purchased. Equipment that is purchased should be interchangeable with that of Canada's allies, such as the BvS10 vehicle. The current timeline for procurement is simply too slow.
2. **The Attraction and Retention of Specialized Personnel:** The CA is expanding its training but must also focus on retaining personnel trained to operate in the Arctic. In 1 CAD/CANR HQ, personnel will soon need new training and skills to operate updated cloud-based and artificial intelligence-enabled systems. Recruitment and retention strategies must be developed to attract this talent.
3. **Increased Training:** The CAF must perform more collective training in the Canadian Arctic. Training should be joint and combined, in combat and non-combat scenarios. By doing so, training more personnel, and procuring new equipment, the CAF can build its Arctic readiness and enhance its ability to respond to multi-domain challenges in the Arctic.

In sum, while the CAF is making significant progress towards improving its Arctic capabilities, this must be sped up to meet Canada's defence and foreign affairs priorities and goals. The CWO-L course and 1 CAD/CANR operations are clear examples of the CAF's dedication to excellence in cold-weather training and Arctic defence. However, procurement delays, the scarcity of experienced personnel, and the state of the CAF's assets must be overcome to advance Canada's Arctic defence capabilities.

As the security environment in the Arctic continues to evolve, the CAF must accelerate its modernization efforts to ensure that it can respond to security challenges in the region. By streamlining procurement, attracting and retaining specialized personnel, and increasing training, Canada can enhance its Arctic readiness and be better equipped to protect its sovereignty and interests in this increasingly contested part of the world.



Kate E. Todd serves as a Public Affairs Officer in the Royal Canadian Navy's reserves, is a fellow at Arctic360, the Canadian Maritime Security Network, the Canadian Global Affairs Institute, and the North American and Arctic Defence and Security Network, and is a member of the Canadian Maritime Security Network's Advisory Board and the Canadian Naval Review's Editorial Board.

Notes

¹ Department of National Defence, "Executive Summary: *Our North, Strong and Free: A Renewed Vision for Canada's Defence*," Government of Canada, last modified April 17, 2024, <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/north-strong-free-2024/executive-summary.html>.

² *Canadian Forces Joint Publication 5.0 (CFJP 5.0): The Canadian Forces Operational Planning Process (OPP), Change 2* (Ottawa: Government of Canada, April 2008), https://publications.gc.ca/collections/collection_2010/forces/D2-252-500-2008-eng.pdf.

³ "BV 206 Tracked Carrier," Government of Canada, last modified February 10, 2021, <https://www.canada.ca/en/army/services/equipment/vehicles/bv-206-tracked-carrier.html>.

⁴ Major John Doig, "Canadian Army Tactical Land/Littoral Vehicle Requirement," JCSP 47 Service Paper, Canadian Forces College, 2020–2021, <https://www.cfc.forces.gc.ca/259/290/23/192/Doig.pdf>.

⁵ Department of National Defence, "Domestic Arctic Mobility Enhancement," Government of Canada, last modified December 1, 2023, <https://apps.forces.gc.ca/en/defence-capabilities-blueprint/project-details.asp?id=938>.

⁶ "BvS10," BAE Systems, n.d., <https://www.baesystems.com/en/product/bvs10>.

⁷ "BAE Systems Wins U.S. Army's CATV Competition, Receives \$278 Million Contract," BAE Systems, August 22, 2022, <https://www.baesystems.com/en-us/article/bae-systems-wins-us-armys-catv-competition-receives-278-million-contract>; "Sweden, Germany, United Kingdom Jointly Acquire 436 BAE Systems BvS10 All-Terrain Vehicles," BAE Systems, December 16, 2022, <https://www.baesystems.com/en/article/sweden-germany-united-kingdom-jointly-acquire-436-bae-systems-bvs10-all-terrain-vehicles>; "FMV Procures 48 New Armoured All Terrain Vehicles," Swedish Defence Materiel Administration (FMV), January 13, 2012, <https://web.archive.org/web/20130927222620/http://www.fmv.se/en/News-and-media/Nyheter-fran-FMV/FMV->

procures-48-new-armoured-all-terrain-vehicles/; Hans de Vreij, “Nederlandse mariniers naar Tsjaad,” Radio Nederland Wereldomroep, March 28, 2008, https://web.archive.org/web/20080604221523/http://www.wereldomroep.nl/actua/vrede_veiligheid/080328_missietsjaad; David Robertson, “France Spurns Domestic Group for BAE Vehicles,” *The Sunday Times*, December 23, 2009, https://web.archive.org/web/20110612232501/http://business.timesonline.co.uk/tol/business/industry_sectors/engineering/article6965803.ece.

⁸ Tom Blackwell, “‘Things Got Really Crazy.’ The Shocking Untold Story of the Chinese Spy Balloon,” *National Post*, January 6, 2025, last modified January 10, 2025, <https://nationalpost.com/feature/untold-story-of-chinese-spy-balloon>.