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# **EMERGING CANADIAN PRIORITIES AND CAPABILITIES FOR ARCTIC SEARCH AND RESCUE**

**A Policy Update Paper**

By

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*“Part of the drill here is how quickly things can be moved up and deployed from the south as well. We have to be realistic. There is no possible way in the vastness of the Canadian Arctic we could ever have all of the resources necessary close by. It’s just impossible.”*

- Prime Minister Hon. Stephen Harper, August 23, 2011.

*“We are challenged more by operating in our own domain than in operating around the world. It is harder to sustain operations in our High Arctic than it is to sustain operations in Kandahar or Kabul because in the Arctic, it’s what you bring.”*

- Gen. Walt Natynczyk, November 3, 2011.

There are times when truth and fiction appear to play interchangeable roles in the Arctic. In March 2009, CDFAI issued a policy update that further championed the need for Canada to continuously expand and maintain robust Arctic air rescue capabilities.<sup>1</sup> Perhaps only the most creative imaginations could then have predicted that the Canadian North would endure, in just four months in 2011, a series of fatal air incidents.

On August 20, 2011 a *Boeing 737 200 C* chartered aircraft from First Air (flight 6560) crashed in fog on final approach to Resolute Bay, NU approximately 1.5km from the runway. Twelve of the fifteen on board were killed. Miraculously, three passengers survived: Nicolle Williamson (23), Gabrielle Pelky (7) and Robin Wylie (47). Williamson, herself injured, discovered Pelky among the wreckage and carried her to safety.

Tragically, among those lost was Martin (Marty) Bergmann (55), the Director of the Polar Continental Shelf Program (PCSP) of Natural Resources Canada. He was flying north to prepare for a visit by Gov. Gen. David Johnson and Prime Minister Stephen Harper who were to inspect a recent \$11 million expansion and renovation of the Resolute Bay PCSP facilities. Founded in 1958, the PCSP provides Canadian and international scientists with the logistical support needed for research in the High Arctic. Although PCSP consistently demonstrates outstanding results, since 1993 it has often been a casualty of federal program reviews pushing to downsize Arctic research programs. As PCSP Director, Bergmann successfully maintained operations at the PCSP Resolute Bay research facility. Notably, he had orchestrated a partnership between the PCSP and the Department of National Defence to support the Canadian Forces (CF) Arctic Training Centre in the community. As a result of Bergmann’s pioneering northern leadership the Resolute PCSP station is expanding steadily into a multi-purpose facility to include northern military training and operations support.

Perhaps the most astonishing aspect of this tragedy was the coincidental, and material, presence of the Canadian Forces in Resolute Bay at the time of the crash. In a scenario that would strain the credibility of even the most imaginative fiction writers, the CF under Canada Command’s Joint Task Force North (JTFN) was simultaneously conducting *Operation Nanook 11* in Resolute Bay from 4-26 August 2011. The two-part operation involved more than 1100 CF participants and approximately 100 personnel from the United States and Denmark. It included a ‘sovereignty and presence’ patrol operation on Cornwallis Island and at sea in the Davis Strait, Baffin Bay and Lancaster Sound with a subsequent ‘whole-of-government’ exercise which, ironically, was planned to simulate a major air disaster. Following the First Air crash, the Operation was suspended out of respect for the community as the CF responded to the real-life incident unfolding before them by providing search, rescue and recovery support at the crash site. Two *CH-146 Griffon* helicopters from 438 Tactical Helicopter Squadron and one *CH-124 Sea King* helicopter attached to *HMCS St. John’s* were reported to be first on the scene. The three survivors were provided medical care and subsequently evacuated south to Iqaluit in a *CC-117 Globemaster III*. The fortunate

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<sup>1</sup> Wallace, R. (2009). CDFAI Policy Update Paper: “*Why Canada Needs a Robust Arctic Air Rescue Capability*”.

timing of the CF exercise provided a near-miraculous, simultaneous presence of significant CF assets and crews in immediate proximity to the crash scene. This enabled an effective emergency response and the efficient, safe recovery of the three injured survivors, which included immediate coordination with investigators from the Royal Canadian Mounted Police and the Transportation Safety Board of Canada.

Prime Minister Harper delayed his planned sixth annual tour to Canada's North but, in acknowledging these tragic circumstances, noted: "Once again, I want to extend my gratitude to all those involved in the rescue efforts, including the Herculean efforts by Canadian Armed Forces personnel."

No matter how tragic the circumstances that enveloped the relatively few passengers and crew of Flight 6560, it could have been much worse: Circumstances could have involved many more passengers in a crash during the frigid Arctic winter night at a significant distance from CF rescue capabilities. One might recall the nightmarish realities that have stymied or delayed other Arctic winter rescue attempts, such as the October 30, 1991 "Operation Boxtop 22". In that case, four people perished when a *CAF CC-130 Hercules* crashed 30km short of the runway at Alert, NU. It took 30 hours for valiant search and rescue teams to reach the site from their military post located only a few kilometres away, as they struggled through the darkness of the polar night beset by howling winds, whiteout conditions and a wind chill reaching -70°C.

Other air incidents followed the Resolute Bay crash in quick succession. On September 22, 2011, two pilots<sup>2</sup> died and seven passengers were injured when an Arctic Sunwest Charters Twin Otter float plane, attempting to land while returning from a mining exploration site near Thor Lake, NT, clipped power lines and crashed at Yellowknife, NT. Then on October 4, 2011 a small aircraft crashed 200km south of Yellowknife, approximately 32km from Lutselk'e at the eastern end of Great Slave Lake, killing the pilot and one of three passengers on board.

These tragedies were followed by the news that, on October 27, 2011, Sgt. Janick Gilbert (34) was killed during an Arctic rescue mission. Gilbert was a SAR team member who departed 8 Wing CFB Trenton on a *C-130 Hercules* aircraft in response to a distress call received from near Igloolik, NU in aid of Inuit walrus hunters David Aqciarug and his son. Three rescue technicians elected to parachute down in heavy weather after communications with the boaters broke off. It was at that point that Sgt. Gilbert lost his life. Nonetheless, the rescue team succeeded in transferring the boaters to a life raft to wait three hours in freezing conditions while a *Cormorant CH-149* rescue helicopter from 103 SAR Squadron made its way to the scene from Gander, NL.

Following this incident, Prime Minister Harper noted:

Canada's landscape is one of the most challenging in the world in which to conduct search-and-rescue operations, and the area in which search-and-rescue professionals work is the largest in the world – it extends over 15 million square kilometers of land and sea and encompasses the world's longest coastline." Gov. Gen. David Johnson also commented that: "(Gilbert) has demonstrated tremendous courage in circumstances of great peril. His sacrifice will not be in vain; we will forever be grateful to him.

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<sup>2</sup> Trevor Jonasson (36) and co-pilot Nicole Stacey (26), who was also a CF Reserve master corporal originally from Inuvik, perished in the accident.

Given these events, it is gratifying to note that all three Canadian military branches are actively wrestling with the challenges posed in dealing with the Harper government's enhanced attention to, and policies for, the Arctic. While CF inter-branch coordination and cooperation will be required to achieve these policy objectives, many consider that much more will be needed. Although little reported by the southern media, *Operation Nunavut 10 (2010)* and *Operation Nanook 11 (2011)* were marked by a developing Arctic collaborative approach between Canada and Denmark: Notably, the operations have attracted the attention and participation of senior defence officials from Canada and Denmark. Danish Ambassador to Canada Eric Vilstrup Lorenzen has described as 'particularly fruitful' the developing relationship with Canada on the issue of Arctic stewardship.

Notwithstanding these successful CF operations, there is a continuing need for Arctic air search and rescue capabilities. Heightened civilian access due to ever-diminishing summer ice season has thrown related Arctic rescue capabilities into the spotlight. Several ships encountered misadventures while plying the Arctic waters of Nunavut in 2010, including groundings of a cruise ship (*MV Clipper Adventurer*) near Cambridge Bay, NU and a tanker (*MV Nanny* that carried nine million litres of diesel fuel) near Gjoa Haven. These events illustrate that enhanced access and transportation through the High Arctic require ongoing, heightened attention to Canadian Arctic rescue capabilities. The *MV Nanny* was successfully re-floated after some of its fuel was pumped into a sister tanker and, with the active participation of the Canadian Coast Guard ship *Sir Wilfrid Laurier*, four commercial tugboats worked from September 11-14, 2010, to free the *MV Clipper Adventurer*. Although there were no injuries or serious spillages as a result of the groundings, most of the passengers on the *Clipper Adventurer* had to be evacuated and flown to Edmonton.

Much to its credit, Canada and the CF have pressed forward with initiatives that may ultimately contribute to expanded search and rescue capabilities in the Arctic, including: an Army reserve company based in Yellowknife, NT; a planned naval refuelling facility at Nanisivik, Baffin Island, NU and a new Arctic training and operational centre in Resolute Bay, NU to be completed by 2013. In November 2011, DND Maj. Bill Chambré commented that: "the tragic event of this past fall highlighted the need for being able to have a facility that we can operate out of...My focus is mainly building a training facility but to also have a facility where we can conduct operations." While not intended to provide a permanent CF High Arctic search and rescue capability, the \$18 million expansion is unquestionably a step in the right direction.

Critics may argue that these incremental steps are necessary but insufficient for the growing needs of the Arctic. Nonetheless, the successful first deployments of a *CC-117 Globemaster III* from 429 (Transport Squadron) to CFS Alert on April 19, 2010 and subsequently to Resolute Bay during *Operation Nanook 10* in August 2010 gives credence to opinions that many of the objectives for the Canada First Defence Strategy may increasingly be within reach. These enhancements to Canada's Arctic logistic capabilities have important implications for search and rescue (SAR) capabilities. At the very least, the successful *CC-117 Globemaster III* deployments to the High Arctic should put paid to previous arguments by critics opposed to capital acquisitions for the CF of such strategic, heavy-lift air transport assets. These significant operational achievements, however, are dwarfed by the estimated long-term costs of an expanded CF presence in the Arctic. Some reports estimate that the annual logistical operating costs for widespread CF Arctic operations could approach \$843 million to \$1 billion.

The Joint Rescue Coordination Centre (JRCC) located at Trenton, ON is responsible for covering most of Canada's Arctic. Typically, the three JRCCs (Halifax, Trenton and Victoria) are involved annually with approximately 8000 air and marine SAR cases with CF SAR aircraft taking part in over 1000 missions per year. In 2008 alone, the JRCC responded to

9,097 cases across Canada. While economics and common sense may dictate centralization, one might ask if the Canadian Arctic is adequately served by locating vital Arctic SAR assets at such a distance. In response to these northern realities, the CF are examining alternative cost-effective solutions for Arctic SAR operations in considering Civil Air Search and Rescue Association (CASARA) type system in the north – capabilities that presently comprise approximately 25% of Canada’s southern air search capability. The CASARA-North concept could utilize civilian fixed-wing aircraft and chartered aircraft to bridge the gaps in time for SAR aircraft to arrive from the south in emergencies. In December 2011 the CF announced a new agreement to provide an additional \$500,000 to CASARA to improve SAR capabilities in Nunavut, further noting that if these enhanced capabilities prove successful other improvements for the other Territories would receive consideration. However, even with this welcome new announcement, it does not do much to address the absence of vital rotary-wing CF-SAR aircraft in the Canada’s North<sup>3</sup>.

On May 12, 2011 during Arctic Council meetings held in Nuuk, Greenland, Canadian representative and Health Minister Leona Aglukkaq signed a circumpolar Search-and-Rescue Treaty<sup>4</sup> along with US Secretary of State Hillary Clinton and foreign ministers from Sweden, Norway, Finland, Iceland, Denmark and Russia. Cited as a possible model for future expanded cooperation among circumpolar nations, it is the first binding pact agreed to by the eight northern countries represented on the Arctic Council to commit each country to cooperate in cases of major Arctic disasters. Significantly, the pact also demonstrates the resolve of the nations on the Arctic Council to better cooperate, coordinate, and deal with governance issues in the Polar region. The pact divides the north into search-and-rescue regions so as to better coordinate international emergency response efforts between the council members. Nunavut Premier Eva Aariak subsequently commented that the Treaty was: “historic for the Arctic Council to agree today to a binding legal instrument. I look forward to the work of the next task force towards another potential agreement for 2013 on emergency response and preparedness.”

However, the Treaty should force Canada to carefully reconsider its northern SAR capabilities. While the CF’s four *CC-117 Globemaster III* aircraft have unquestionably enhanced Canada’s capabilities for northern logistical and emergency transport to remote sites, will they be available and sufficiently prepared to respond to a major disaster? Equally as important, obligations to the Treaty include matters related to maritime search and rescue which, by definition, may also bring into question the state and capabilities of Canada’s Coast Guard icebreaking fleet. Article 2 of the Treaty specifies that “Each Party shall promote the establishment, operation and maintenance of an adequate and effective search and rescue capability within its area as set forth in paragraph 2 of the Annex.”

Under the Treaty, Canada has committed itself for SAR responsibilities in the entire Canadian Arctic. Accordingly, Canada *shall* have the resources and capability to respond rapidly and effectively to major SAR incidents. Such events are all, apparently, to be overseen by JRCC Trenton which is located at 44°7’N latitude, some 16° south of the 60<sup>th</sup> parallel (the southernmost edge of the Canadian Arctic).

All is not entirely bleak, however, nor unpromising. The RCAF is slated, soon, to take delivery of 17 *C-130J* transports as a result of a sole-source 2006 order issued by the Harper government. These new aircraft have the potential to offset rescue requirements presently directed to older CF *H-Model Hercules* fixed-wing aircraft. The debate over the

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<sup>3</sup> Typically, a *CH-149 Cormorant* would require approximately four hours to transit, in good weather, the 1850 km route that extends from Gander, NL to Iqaluit, NU.

<sup>4</sup> “*The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic*”. The Treaty was signed by Canada at the Arctic Council meetings held at Nuuk, Greenland on May 12, 2011.

long-delayed \$1.55CDN billion Fixed-Wing Search and Rescue Project (FWSAR), designed to replace the twin-engine *CC-115 Buffalo* and the four-motor *CC-1130H Hercules* for SAR operations, has been refreshed with recent reports that indicate Lockheed Martin may approach Ottawa with a proposal to bid for a new SAR fixed-wing aircraft. Lockheed Martin presently builds the *HC-130 Hercules* variant for the US Coast Guard.

Canada is the second-largest country in the world (9,984,670km<sup>2</sup>) with three ocean borders (east, west and north) that comprise 243,791km of coastline. Nunavut alone accounts for approximately two million km<sup>2</sup>, or about 1/5 of the land area of Canada. In addition to the distances involved for those in the south who attempt to access northern communities and regions, the Canadian Arctic presents daunting challenges of topography, weather, seasonality, communications, access and logistics. The vast majority of Canada's population of 31,612,897 (census 2006) live well-south of the 60th parallel, indeed most reside close to the Canada-USA border. Must it necessarily be so for the great majority of Canada's northern SAR capability? Although the CF has based four *CC-138 Twin Otter* SAR aircraft in Yellowknife, NT, there presently are no other dedicated SAR air assets north of the Arctic Circle, and the 14 vital *Cormorant* SAR helicopters are based far to the south.

Other voices have also addressed the challenges that will be required if Canada is to achieve a realization of an integrated Northern Strategy, as expressed in the 2007 Speech from the Throne. As CF Maj. Tony Balasevicius has noted<sup>5</sup>:

As we have seen, the effects of global warming have begun to have a major impact upon the Arctic, with the two most important aspects being the increasing accessibility to the region's vast reserves of natural resources, and the shorter shipping routes between Asia and Europe. Although these issues will create a number of new opportunities for Canada, they also present challenges, specifically with respect to sovereignty, protecting the environment, and promoting the safety and prosperity of our Arctic peoples. In order to optimize its force structure to deal with these challenges, the CF will need to be focused upon providing a permanent capability to carry out routine activities, while having the capacity to quickly deploy additional assets in order to conduct rapid response operations to situations as they arise. However, in order for such a concept to work, the CF will need to focus upon enhancing several specific capabilities.....Defence must develop a greater capacity to operate in the Arctic for extended periods. This can be done by acquiring the necessary infrastructure in key locations that can be used as either a hub or temporary forward operating bases. Such a capability would allow the CF to better deal with rapid response operations, including such matters as Search and Rescue. Moreover, it would allow the government to have better situational awareness, and to protect key national elements anywhere within the Arctic region on very short notice.

In many ways Canada is unique among the eight Arctic, circumpolar nations (Russia, USA, Denmark [Greenland], Finland, Iceland, Norway and Sweden) whose territories extend north beyond the Arctic Circle. Although Arctic Canada comprises approximately 40% of Canada's landmass, including the 19,000 islands of the Arctic Archipelago, the Canadian north is very thinly populated, with just slightly more than 100,000 residents. A recent National Defence Canada Command Backgrounder<sup>6</sup> sagely notes:

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<sup>5</sup> Towards a Canadian Force Arctic Operating Concept. 2011. <http://www.journal.dnd.ca/vol1/no2/05-balasevicius-eng.asp>

<sup>6</sup> The Canadian Forces in the North. 2009. <http://www.canadacom.forces.gc.ca/nr-fp/bg-do/09-002a-eng.asp>

As the Arctic ice melts away, Canada's internal waters are becoming more navigable throughout the year. Free of ice, an Arctic voyage through Canadian waters could cut some 7,000 kilometers off the traditional shipping route between certain ports in Europe, Asia, and the east and west coast of North America. Along with the movement of goods, tourism is expected to grow, especially from cruise ship travel in the near term period. In 2003, seven cruise ships operated in Canadian Arctic waters; by 2008, this number had increased to 15. Air traffic is also increasing – annually some 115,000 commercial flights now transit the Canadian Arctic.

The increasing numbers of passenger and cargo flights transiting the Canadian North, including new Polar routes being planned and implemented to depart from Russian and Asian airports to more efficiently reach North America, present ever more challenges for Canada. Growing from humble beginnings in November 1952 when Overseas SAS (Scandinavian Airlines System) made its first exploratory commercial passenger flight into the High Arctic polar route using a *DC-6B* flown from Long beach, CA via Thule, Greenland and on to Copenhagen Denmark<sup>7</sup>, Polar air traffic has today reached to thousands of Polar transits over Arctic Canada. Although modern air navigation systems have demonstrated superb reliability, the Polar region presents notorious challenges of magnetic unreliability with extreme variability in magnetic headings.<sup>8</sup>

The tragic events of 2011 appear to have spurred the CF to a heightened recognition that more, and not just incremental, enhancements to a Canadian northern presence is, and will be, required to enhance Canada's stewardship of the North. The CF will contribute much if it continues to work actively to lead and promote partnerships between all Federal and Territorial departments and agencies in 'whole-of-government' initiatives that simultaneously, and carefully, consider possible supportive roles and opportunities for Canada's northern peoples.

In the past, Canada's ability to act 'above the ice' has played a pivotal role in maintaining our claim to Arctic sovereignty. Notwithstanding new international Treaty commitments, the future will demand expanding commitments to the North from Canada. In many ways, Canada's Arctic SAR capability was tested in unusual, unpredictable, and tragic ways in 2011. Largely due to the professional, indeed heroic efforts, of CF and other Arctic personnel, our SAR capabilities were not found to be wanting – this time. However, 'Lady Luck' is a fickle companion, especially in the Arctic. Although it is an historically distant example, one need only recall how harshly fate treated the Franklin Expedition and how that Arctic disaster acted to re-shape the course of British and Canadian history. In the immense Canadian Arctic we have seen, once again, that truth is often stranger than fiction. Is Canada playing catch-up with, or perhaps even taunting, fate?

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<sup>7</sup> An SAS *DC-6B* was the first commercial passenger aircraft to navigate the Polar region beginning May 23, 1953. That flight departed Oslo, Norway flying westward to circumnavigate the globe carrying 40 medical Norwegian Mobile Army Surgical Hospital (NORMASH) staff to Korea. In 1954 SAS was the first to offer a scheduled route using the "Polar shortcut" with service between Copenhagen and Los Angeles. The longer-range *DC-7C* acquired by SAS in 1956 allowed non-stop Polar operations to Tokyo, Japan. SAS trumpeted this service by proclaiming on their *DC-7C*'s: "First Over the Pole and Around the World."

<sup>8</sup> The US has recently used the Polar region over Canada as a test-bed for air civilian and military air navigation systems. In 2010 Boeing sent a *B-787 (ZA002)* to the North Pole to test a new Honeywell-developed navigation package. On October 27, 2011, the USAF sent a *B-2 Spirit* strategic bomber from 419 Flight Test and Evaluation Squadron based at Edwards Air Force Base, CA on an 18 hour test mission to the Pole to test hardware and software systems. *KC-135 Stratotankers* from Fairchild AFB, WA and Edwards AFB, CA provided aerial refueling support to the *B-2* while it transited over Alberta, Canada.

## **ABOUT THE AUTHOR**

**Dr. Ron Wallace** retired in 2005 as the Chief Executive Officer of Canadian-US international defense manufacturer and is a Fellow of the Canadian Defense and Foreign Affairs Institute. He has worked extensively throughout the circumpolar Arctic region, is published widely and has a keen interest in northern environmental, economic, military and community affairs. While accepting full responsibility for any errors or omissions, the author gratefully acknowledges editorial comments and reviews provided by Drs. D. Bercuson and W. Lackenbauer.



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