

Canadian
Forces
College

Collège
des
Forces
Canadiennes



THE ARCTIC SAR REGION: FROZEN IN TIME

Maj J.G.R. Leroux

JCSP 43

Exercise Solo Flight

Disclaimer

Opinions expressed remain those of the author and do not represent Department of National Defence or Canadian Forces policy. This paper may not be used without written permission.

© Her Majesty the Queen in Right of Canada, as represented by the Minister of National Defence, 2017.

PCEMI 43

Exercice Solo Flight

Avertissement

Les opinions exprimées n'engagent que leurs auteurs et ne reflètent aucunement des politiques du Ministère de la Défense nationale ou des Forces canadiennes. Ce papier ne peut être reproduit sans autorisation écrite.

© Sa Majesté la Reine du Chef du Canada, représentée par le ministre de la Défense nationale, 2017.

CANADIAN FORCES COLLEGE – COLLÈGE DES FORCES CANADIENNES
JCSP 43 – PCEMI 43
2016 – 2017

EXERCISE *SOLO FLIGHT* – EXERCICE *SOLO FLIGHT*

THE ARCTIC SAR REGION: FROZEN IN TIME

Maj J.G.R. Leroux

“This paper was written by a student attending the Canadian Forces College in fulfilment of one of the requirements of the Course of Studies. The paper is a scholastic document, and thus contains facts and opinions, which the author alone considered appropriate and correct for the subject. It does not necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence. This paper may not be released, quoted or copied, except with the express permission of the Canadian Department of National Defence.”

Word Count: 5484

“La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le ministère de la Défense nationale du Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse du ministère de la Défense nationale.”

Compte de mots: 5484

The best way to predict the future is to invent it.

-Alan Kay

INTRODUCTION

Participation is a common theme that has become a behavioral model across many facets of society. In an environment that encourages mere participation, making an attempt to do something or simply being present has become acceptable in most situations. One exception to this approach, however, is Search and Rescue (SAR). SAR is described by the Government of Canada as a “no-fail mission” – one that must be undertaken and to which resources must be assigned and actions taken to minimize injury and loss of life.¹ Public Safety Canada is the lead for SAR in Canada and dictates that “[w]hile Canadians can be confident that they have one of the most effective SAR systems in the world, the ‘no-fail’ nature of the SAR mission demands that program stakeholders remain committed to continuous improvement.”²

Global warming and increased human activity in the Arctic in recent years have made Canada and the northern American states pay attention to this unique region of the world. Unprecedented interest, fueled by economic opportunities and travel, has been on the rise in past few decades. This rising interest and subsequent increased levels of activity in the North have raised concerns by Canadians at many levels. One of the pivotal questions relates to the country’s ability to respond to emergencies in the Northern region.

¹ Canada. Office of the Auditor General. *Report of the Auditor General of Canada to the House of Commons, Chapter 7: Federal Search and Rescue Activities*. Ottawa: Office of the 100 Auditor General of Canada Distribution Centre, 2013.

² Department of National Defence, National Search and Rescue Secretariat. *Quadrennial Search and Rescue Review*. Ottawa: Department of National Defence ADM(PA), 2013.
<http://www.nss.gc.ca/en/quadrennial-review/quadrennialsarreview-report.page>, p. 7.

SAR in Canada has been an enduring success story based on the professionalism and dedication of the men and women that put their lives on the line every day to save others. The current SAR system as we know it today has evolved from a Good Samaritan principle in the early 20th century to a network of 21,000 people working under various SAR agencies.³ Canada is divided into distinct SAR regions to facilitate the coordination of resources. Three Search and Rescue Regions (SRRs) exist today: Victoria, Trenton and Halifax. The largest of these regions is the Trenton SRR, which includes the majority of the Arctic and covers more than 10 million square kms, stretching from the Canada-US border all the way up to the North Pole⁴, or nearly 5,200 kms as the crow flies.

The immensity and diversity of this area brings unique challenges to the coordination of resources from federal, provincial and municipal jurisdictions. The trust the population has placed in the state to conduct SAR has a solid foundation. It is comprised of committed volunteers and professional governmental agencies that respond to more than 15,000 calls for assistance each year and provides assistance to over 25,000 people annually in the most difficult conditions.⁵ The most effective way to bring improvement to such a system is to understand the details of the operation and use stakeholders' professional judgment to shape the present with an eye to the future. One key point of entry is to analyze how Canada divides the SAR regions and to gauge whether the current territorial divisions are optimized and reflective of Canadian policies.

³ Department of National Defence, National Search and Rescue Secretariat. *Quadrennial Search and Rescue Review*. Ottawa: Department of National Defence ADM(PA), 2013. <http://www.nss.gc.ca/en/quadrennial-review/quadrennialsarreview-report> /Page 7 (18000 volunteers, 950 DND dedicated to primary SAR, 2250 CCG working on ships).

⁴ Canada. Department of National Defence. "Trenton Joint Rescue Coordination Center." Last accessed 15 December 2016. <http://www.forces.gc.ca/en/operations-canada-north-america-current/trenton-sar.page>

⁵ *Quadrennial Search and Rescue Review*, p. 5.

This article challenges the status quo by looking at the current SAR region construct and proposing that a fourth region covering the Arctic be created. The thesis of this article is that the Federal Government's SAR regional divisions do not reflect current policies. A reorganization of the regions would increase the quality of the coordination and thus ultimately increase the potential for saving more lives in the Northern region. Hence, and based on predictive assessment, an Arctic Search and Rescue Region (Arctic SRR) is the next logical step in the SAR system evolution.

The Benwell model⁶ of complex estimate will be used to prove the thesis. The model consists of four steps, as follows: the problem first needs to be defined, after which the art of the possible is explored, followed by choosing the most effective and efficient course of action, until finally a solution is presented. Three principal themes will lead the argument for an Arctic SRR, namely sovereignty, Arctic population empowerment, and increased overall performance of the SAR mandate.

WHAT IS THE PROBLEM?

Before any attempt is made at defining a problem, a genuine question needs to be answered. Why are we doing this? Challenging the status quo is crucial for evolution, but the challenge needs to be anchored in the right reasons to be lasting and effective. Dr. David S. Weiss is a lead researcher and author on leadership and human relations solutions. He argues that the initial and most important step in change is answering the

⁶ The Benwell model has been elaborated by LCol Nigel Benwell of the British Army. LCol Benwell is a distinguished British Army Officer with an extensive academic background. Graduate of Southampton Solent University in the UK, he served as a directing staff at the Royal Military Academy of Sandhurst and the Canadian Forces College. He served in Northern Ireland, Iraq, Bosnia, Angola, Libya, and Afghanistan. Commanded multiple units in the British Army and occupied the role of senior staff for the Army HQ where he developed the Benwell model to analyze and conduct estimate on complex problems.

“*why*”. What our efforts are trying to accomplish is important, but why we are doing something is even more important. Before looking at the problem, two *why*'s need to be answered to set this effort on track for success.

Why is there a SAR mandate in Canada?

In general terms, most Canadians value human life above all else. Primary SAR in Canada is delivered by public institutions such as the Canadian Armed Forces (CAF), RCMP and Canadian Coast Guard (CCG). This framework presently provides the best services for Canadians. The training and readiness bill for such an elite force is arguably not sustainable by any organization other than state organizations. The CAF, for example, has a concept of unlimited liability, which means that the government can legally put the force in harm's way. This unlimited liability, when harnessed with sound risk management and solid thought processes, provides unparalleled capabilities. CAF, RCMP and CCG gauge their success according to lives saved, not shareholder profits. Why does Canada maintain and invest in the SAR system? Because Canadians consider even a single human life to be invaluable and thus worth saving.

Why do Canadians have such a vested interest in the North?

Interestingly, one of Canada's greatest internal threats is that it currently has no external threats. When a country has no perceived external threats it is hard to be proactive, but this does not necessarily prohibit foresight. Sovereignty for a country of Canada's size is not solved by borders and control but by an established responsibility of

its territory. Why should Canada care about sovereignty? Because it is currently Canada's biggest threat.

Now that the *why* is established for the creation of an Arctic SRR, let us now look at the *what*. The hardest part of any problem is not only establishing a narrative but making that narrative understandable to stakeholders. To genuinely understand search and rescue requirements, it is important to understand the details of the activities. The Arctic Area of Operation (AOR) is massive (over 10 million square km) and is characterized by a harsh climate, low population density, and lack of infrastructure. One of the Canadian particularities is purely demographic: the Canadian Arctic represents

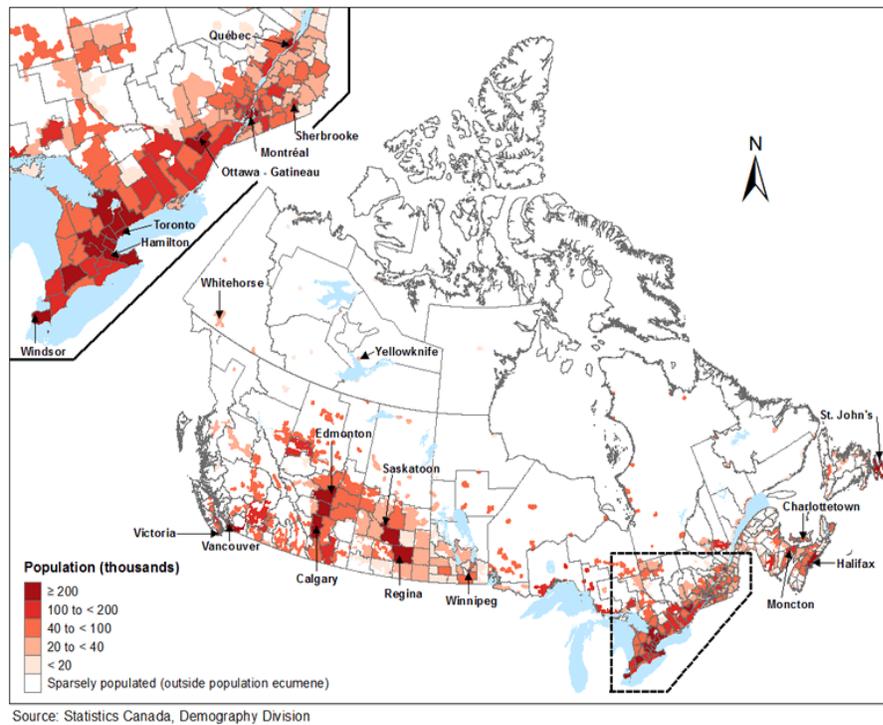


Figure 1: Population distribution as of July 1, 2014 by census division (CD), Canada
Source: Statistics Canada

40% of the country's land mass, but only 0.3% of Canadians live in the region. In terms of numbers, this represents approximately 110,000 residents located in Nunavut (NU),

North West Territories (NWT) and the Yukon (YK), or less than 0.1 persons per square km.⁷ Understandably, it is no surprise that most SAR cases occur in the southern portion of the country, where the level of activity and the population are the highest.

The map in Figure 1 showing the population distribution can be compared to the distribution of SAR cases between 2005 and 2011 shown in Figure 2. As suggested by this comparison, the current locations of primary RCAF SAR bases are justified in the statistics. In reality, though, one must take into consideration that having resources close

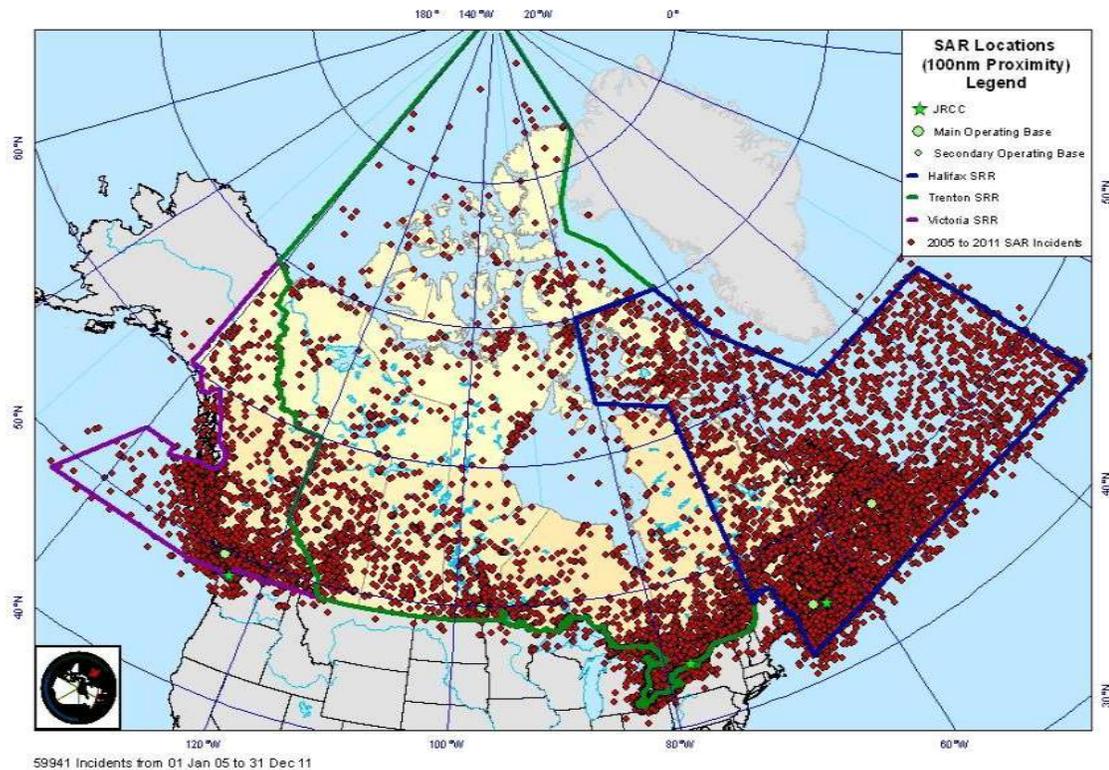


Figure 2: SAR incidents requiring CAF assets between 2005 and 2011.
Source: DND / RCAF 103 Squadron historical data.

to SAR bases will affect those numbers, since the close proximity of assets will prompt more dispatch of services. Those differences, however, would be too marginal to affect the current trend. Two different schools of thought (or approaches) emerge when

⁷ Statistics Canada, "Population and dwelling counts, for Canada, provinces and territories, 2011 and 2006 censuses," last accessed 25 February 2013.

considering SAR in the Canadian North. The first approach sees current inequalities in service provision but, more importantly, the potential for greater needs. Global warming is now a reality more than a theory. The David Suzuki Foundation states that “it has been almost a decade since climate change became widely recognized outside of scientific circles as a pressing global challenge.”⁸ Indeed, activities in the North have increased in the last decade and the warming of the region is making it more accessible for economic and tourism activities.

The main concern of this approach is the lack of permanent government SAR facilities in the Arctic. The situation has been the subject of many critiques and fueled numerous debates, leading to requests for establishing a CAF primary SAR unit in the North.⁹ Interestingly, however, SAR cases in the North are either crucially time-sensitive or, as explained later, not time-sensitive at all. Due to the generally cold weather and lack of medical care access, people who find themselves in trouble in the Arctic have less time for survival than those involved in a Southern incident. The fact that resources are located in the South has the potential to be a determining factor due to the lengthy time of travel required. This is especially true if the emergency is a plane crash or boating incident, both of which require immediate care and the removal of people from the elements.

Further research in 2011 by the standing senate committee looked at sovereignty and security in the Arctic. Two observations surfaced from their research under the SAR umbrella: first, that the requirement for the capability is on the rise; and second, the

⁸David Suzuki Foundation. “Focus Canada 2015 about climate change” The Environics Institute. 2015 p.1

⁹Danny Poitras and Canadian Forces College, "Search and Rescue in the Arctic: A Myth or a Reality?" Canadian Forces College, 2013.

current CAF/RCMP/CCG response times are potentially too slow.¹⁰ The Canadian Coast Guard found similar evidence in their 2007 SAR needs analysis, with “[a]n evaluation of future trends in each SAR area revealing that generally client activity will increase and that the current SAR system in many areas of Canada may not be able to meet the increased demand.”¹¹ The Coast Guard’s main area of concern was identified as the overall lack of SAR units in Northern Canada.

Some have also argued that not much progress has been made in the last two decades to improve Canada’s ability to respond to Northern SAR events.¹² This viewpoint is based on a comparison of available resources in the South compared with those in the North, and the need to make these resources equitable for all Canadians. This approach is, however, very costly and would require major infrastructure and personnel investments. The government has mitigated the risk by having multiple large-scale exercises in the North during the high-activity season to provide the area with SAR assets at hand. Exercises like Op Nunavut and Op Nanook last for weeks and include military SAR assets, RCMP, and Coast Guard vessels.

The second approach looks at the reality in the current statistics and rejects the idea of a large gap in Arctic SAR capabilities. A humanitarian mission is under the control of the RCMP and involves any incidents that are not maritime or aeronautical in nature. The RCMP can request the assistance of the military if required. While humanitarian cases are not the core responsibility of the military, they represent about 75

¹⁰ Senate, Standing Senate Committee on National Security and Defence, *Sovereignty & Security in Canada’s Arctic, Interim Report*, (Ottawa: Senate Committees Directorate, 2011), pp. 11-12.

¹¹ Department of Fisheries and Oceans (DFO), Canadian Coast Guard, *Search and Rescue Needs Analysis 2007* (Ottawa: Canadian Coast Guard, 2007).

¹² Tony Balasevicius, “Toward a Canadian Forces Arctic Operating Concept,” *Canadian Military Journal* 11, no. 2 (Spring 2011): 26.

percent of the missions north of the 60th parallel involving CAF aircraft.¹³ LCol Poitras is a military SAR veteran and Squadron Commander who wrote a thesis on Arctic SAR. He concluded that:

[t]he Arctic is vast, remote and thinly populated, and the harsh weather conditions require the best equipment available to support missions year-round. On the other hand, the current number of SAR occurrences in the Arctic is still exceptionally low. Less than 1 percent (typically under 60 per year) of all SAR incidents are located north of 60 N latitude.¹⁴ The facts and interpretations show that while the activity level is unquestionably increasing in the Arctic, the number of events prompting a SAR response has remained consistently low, and has not translated into a discernible trend. Resources are limited and accordingly, they must be positioned to best respond to the majority of SAR occurrences.¹⁵

Figure 3 illustrates this reality by showing that marine activities, for instance, have increased, but the number of distresses has not followed the trend. Better technologies and safer means of transportation could be influencing the trend toward a safer future.

¹³ DND, *Royal Canadian Air Force in the North...*, last accessed 22 February 2013, <http://www.rcaf-arc.forces.gc.ca/v2/page-eng.asp?id=1512>

¹⁴ Department of National Defence (DND), "Royal Canadian Air Force in the North," last accessed 22 February 2013, <http://www.rcaf-arc.forces.gc.ca/v2/page-eng.asp?id=1512>

¹⁵ Danny Poitras and Canadian Forces College, "Search and Rescue in the Arctic: A Myth or a Reality?" Canadian Forces College, 2013, p. 3.

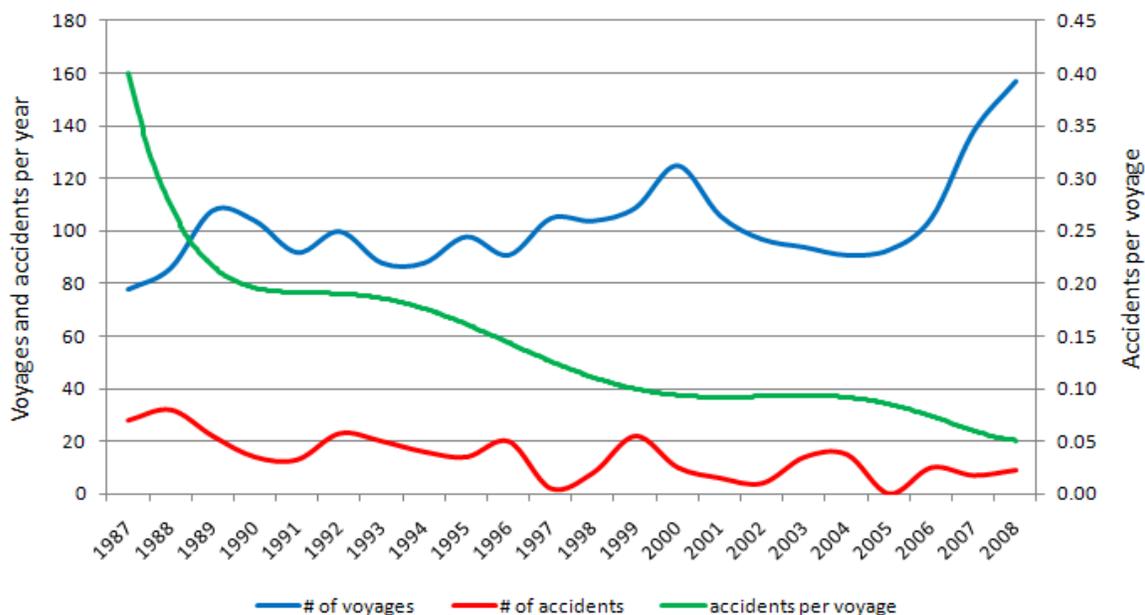


Figure 3: Voyage and accidents per year.

Source: Judson, Brad. "Trends in Canadian Arctic Shipping Traffic – Myths and Rumours." 2010.

In support of Poitras's argument, a study conducted by the Department of Fisheries and Oceans between 1996 and 2011 revealed that there was no increase in SAR incidents north of the 60th parallel that required the use of CAF resources. From a purely statistical approach, no significant increase in the number of SAR cases has been noted in 15 years. In addition to the debate on asset locations, the number of SAR incidents north of the 60th parallel represents less than 5% of all incidents prompting a CAF aircraft response, which is a very small fraction of all the cases in which CAF aircraft are involved.

Poitras concludes his thesis by suggesting that "the successful completion of the vast majority of the northern SAR missions is a testimony of Canada's ability to conduct Arctic SAR". Poitras sees room for improvement but due to the cost associated to SAR

operations, he support that “the quest for a solution herein entails a holistic approach to enhance the current program.”¹⁶

This article locates value in both of the approaches outlined above, but rallies behind the first approach of establishing a larger footprint for SAR services in the Arctic, even though it requires greater investment. Creating a permanent SAR base in the Arctic might not reflect needs that are grounded in current statistics, but such a base would represent logical foresight and equality of services across the Canadian population. Even without a permanent SAR base, there is still a need for better coordination of current and future assets. The SAR regions and their coordination in Canada have evolved over time. Initially from an RCMP bid to manage SAR, the CAF proposed an alternative that was adopted in 1947.¹⁷ Extensive research by Major James Pierotti on RCAF SAR history allowed the finding of Figure 4, which shows that Canada was initially divided into five regions with five JRCCs.¹⁸ The current system is depicted in Figure 5 and shows the current three regions. This provides evidence that the regions are not ‘set in stone’ and are subject to adaptation.

¹⁶ Danny Poitras and Canadian Forces College, "Search and Rescue in the Arctic: A Myth or a Reality?" Canadian Forces College, 2013, p. vi.

¹⁷ DHH, 112.3M2 (D340), May 1947, "Report of Interdepartmental Committee on Search/Rescue."

¹⁸ LAC, RG24-D-1-c, Vol. 33,825, File Part 7, 1700-27, Organization and Administration – ASR Services, Letter to Distribution List from A.T. Cowley, Director of Air Services, 6 August 1947, "Interim SAR Organization."

While the speed factor of the resources to reach the incident is important, it is not the main problem. The key in the North is information management and the ability to use the whole spectrum of available resources at the right location in a timely manner. The

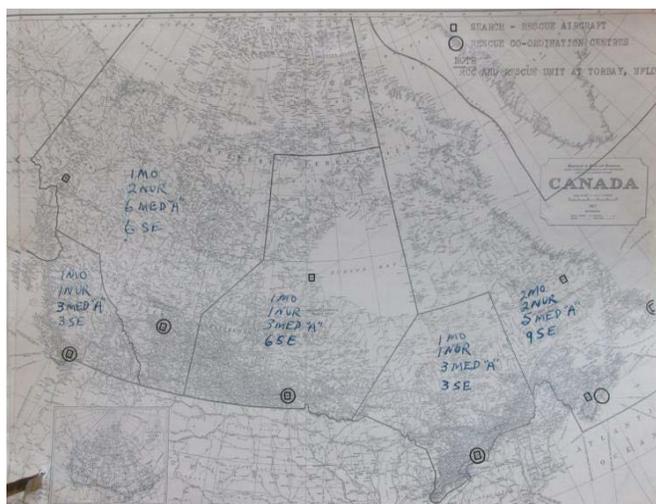


Figure 4: Original SAR regions allocation in 1947

Source: Organization and Administration – ASR Services, Letter to Distribution List from A.T. Cowley, Director of Air Services, 6 August 1947,

North has exceptional particularities that Canadians have thus far left untapped. The best asset in the North is its inhabitants. The Northern population has evolved in the Arctic over time and has developed a network of communication that is unique to them. The main aspect of the problem for SAR in the North is not about aircraft but about empowering the communities with access to a larger network for help. While aircraft like the newly announced acquisition by the RCAF of a SAR fleet of Airbus 295 will improve SAR in the North drastically, the numbers of planes and their reach is far less important than how we use them in the first place. Despite the resources debate, the Arctic SAR region and a dedicated rescue center is at the bulls-eye of the solution when the question “*Why*” is asked. The Northern population needs access to a professional center on their own territory that is able to tap into any and all resources that are available around them.

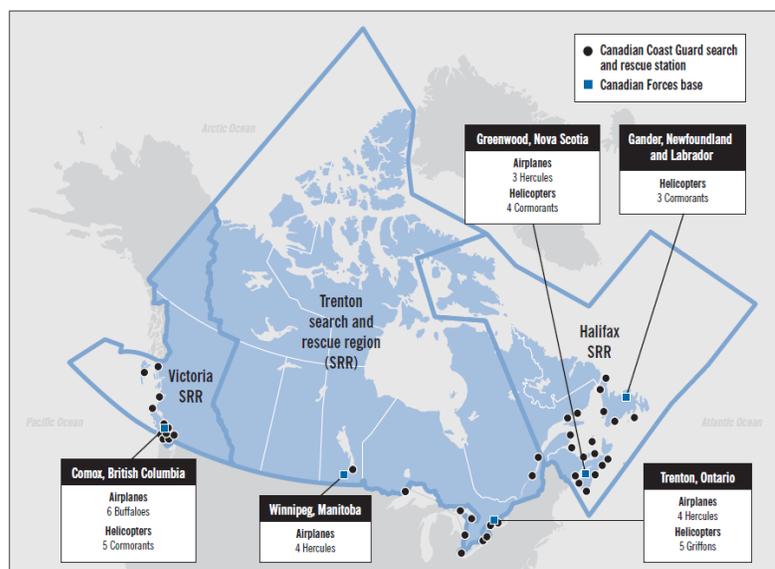


Figure 5: Current SAR regions allocation and associated RCAF resources.
Source: National Search and Rescue Secretariat - *Quadrennial SAR Review*

WHAT IS THE ART OF THE POSSIBLE?

When dealing with a government organization, the art of the possible is based on two main factors: money and policy. To make any proposal viable and realistic, SAR in the Arctic needs to take those two factors into consideration. Governance is about choices, but those choices need to respect public finances. Hence, what is required is an acknowledgment that any project put forth has been put in context of what Canadians can afford through a prioritization of Canadian ambition. Any capability needs to be matched with capacity.

The proposition of creating a fourth SAR region is based on a relatively low investment for the population. The Joint Task Force North (JTF(N)) is the military detachment in Yellowknife that oversees all defence operations north of the 60th parallel. Their mission is to “exercise sovereignty and contribute to safety, security and defence in the Canadian North.”¹⁹ They have the framework and current command structure to

¹⁹ Canada. Department of National Defence. “Joint Task Force North: about us.” Last accessed 22 December 2016. www.forces.gc.ca/en/operations-regional-jtf-north/about.page

assume similar responsibilities that other SAR regions enjoy. The Search and Rescue Region Commanders in other regions are military generals, and the JTF(N) is also led by a general officer. This existing command structure has the potential to absorb the SAR command structure required for an additional region without much increase in personnel.

The largest commitment financially is the creation of an Arctic Joint Rescue Coordination Center, which would be a physical place of duty to enable the coordination of SAR cases. Current JRCCs are located in Halifax, Victoria and Trenton. An ideal location for an Arctic JRCC would be Iqaluit in Nunavut Territories. As depicted in figure 2, the Nunavut region is the most active in Northern SAR incidents. Furthermore, most of the future Arctic activities would be based on the sea traffic enabled by the increasingly accessible North West Passage and the increase of Northern adventurers on Elsmere Island, both of which are located near Iqaluit. The cost associated with SAR resources like planes, helicopters and vessels is very high compared to a management organization. The concept of an Arctic SAR region is an inexpensive endeavor that can set the stage for a more extensive look at acquiring more governmental assets. The management and coordination of a SAR region does not necessitate new military or Coast Guard equipment. An Arctic JRCC would have access to Southern resources as required, just like is the case for current coordination by Trenton SRR for SAR incidents in the Arctic.

Second, and just as importantly, no change or investment in today's government organization is done without a clearly developed policy that supports the changes. The need for an Arctic SAR region finds its rationale through multiple policies already in

place, starting with the Prime Minister's published Ministerial mandate letters, which provide some key direction with regard to policy. The letters' first mandate to the Minister of DND is to ensure the Canadian Armed Forces (CAF) are equipped and prepared to protect Canadian sovereignty.²⁰ The equipment part of the mandate is not the focus of this paper but the *prepared* aspect is at its core. Having an Arctic SAR region truly enables Canada to be prepared to answer any incidents occurring in the Northern region. Indeed, the current system covers this part of the country, but having a dedicated Arctic JRCC and a network that comes with it can contribute to being better prepared. This preparedness will improve the trust of the Northern population. The current Commander of JTF(N), Brigadier General Nixon, would be well-positioned to play a central role into an Arctic SAR region, as he supports that "the most important factor is the credibility and relevance of JTF(N) to the people of the North"²¹.

Digging further into policies, the art of the possible truly finds its anchor into the Canada's Arctic Foreign policy. By detailing how Canada will "show leadership and work with others to demonstrate responsible stewardship and to build a region that is responsive to Canadian interests and values,"²² this policy is the core of any new ideas for the Arctic. An Arctic SAR region would fit into three of the four published policies. The first was talked about earlier (regarding the ability to ascertain sovereignty). The second guideline is promoting economic and social development, which can be defined as "ensuring sustainable development in the Arctic involves working closely with

²⁰ Office of the Prime Minister, "Mandate Letter to Minister of National Defense from newly elected Liberal Government 2016." Last accessed 21 December 2016. <http://pm.gc.ca/eng/minister-national-defencemandate-letter>

²¹ Canada. Department of National Defence. "Joint Task Force North: Commanders' intent." Last accessed 22 December 2016. <http://www.forces.gc.ca/en/operations-regional-jtf-north/jtf-north.page>

²² Canada, Global Affairs Canada. "Canada's Arctic Foreign Policy". Last accessed 20 December 2016. http://www.international.gc.ca/arctic-arctique/arctic_policy-canada-politique_arctique.aspx?lang=eng

territorial governments and Northerners to build self-sufficient, vibrant and healthy communities.”²³ This economic footprint of self-sufficiency would justify the investment in an Arctic JRCC in Iqaluit or elsewhere in the North. The policy goes further and dictates that the government needs to support improvement in indigenous skills and employment. A rescue center is a very stable employment platform that might not require a large number of people but the indigenous intellectual force developed through these opportunities can be an invaluable asset for the rest of the Canadian SAR Community as a whole. Much can be learned from the ingenuity and the adaptability of the Northern population. The Arctic policy supports a “creative, dynamic, sustainable Northern economy and improvement of the social well-being of Northerners as essential to unleashing the true potential of Canada’s North.”²⁴

The last aspect of the Arctic policy is where the Arctic SAR region shines: Improving and Devolving Governance: Empowering the Peoples of the North. The policy clearly states that “the Government of Canada is committed to providing Canadian Northerners with more control over their economic and political destiny.”²⁵ The status quo is not in line with this policy. Even though the communication network and today’s information era enables the control of assets from great distances, the empowerment of the people of the North is an important aspect of government service that is only fulfilled with them having their own coordinated SAR network. Dr. Wilfrid Greaves is a professor at the Department of Political Science and the Munk School of Global Affairs at the University of Toronto. He states that “in the contemporary Arctic, sovereignty is best understood by reflecting on the views of Arctic inhabitants, rather than focusing on

²³ Canada, Global Affairs Canada

²⁴ Canada, Global Affairs Canada

²⁵ Canada, Global Affairs Canada.

borders, bombers and battleships.” He also argues that “the perspectives of Arctic inhabitants must be included in policymaking. In particular, the voices of those who experience the most acute or chronic threats to their survival and well-being should be heard.”²⁶ Once again, the local knowledge of the Northern population in their unique environment is something that a Southern Ontario-based organization cannot compete with. For the First Nation communities, a sense of belonging to the Canadian SAR network is only possible through empowering them with their own center and by integrating them into the network. A governance devolvement from South to North in the SAR coordination business is an easy and significant step towards the fundamental basis of the Canadian Arctic Foreign Policy, which is the well-being of the people of the North.

WHAT IS MOST EFFECTIVE AND EFFICIENT?

The Arctic expands beyond Canadian territory and is a vast region shared by multiple Arctic states. An organization called the Arctic Council was created in 1996 to oversee this expanse. The Arctic Council is the leading intergovernmental forum promoting cooperation, coordination and interaction among the Arctic States, Arctic indigenous communities, and other Arctic inhabitants on common Arctic issues.²⁷ In Nuuk, Greenland, the representative ministers of the Arctic Council member states signed an agreement in May 2011 “on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic.” This was the first legally binding agreement ever negotiated under

²⁶ Wilfrid Greaves. “Re-thinking Sovereignty and arctic security” Last access 23 December 2016. <https://www.opencanada.org/features/re-thinking-sovereignty-and-security-arctic/>

²⁷ Arctic Council. “Search and Rescue.” Last accessed on 24 December 2016. <http://www.arctic-council.org/index.php/en/oceans/search-and-rescue>

the auspices of the Arctic Council. In the Nuuk declaration, the ministers recognized “the important role of the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic for safe transport and enhancing cooperation in assisting people in distress in the Arctic”.²⁸

As depicted in Figure 6, the Council divided the Arctic, with each country assigned to a region as leads. The members of the Arctic Council, which includes Canada, Denmark, Finland, Iceland, Norway, the Russian Federation and Sweden, highlight SAR as a priority and a means of linking the communities together. Dr Michael Desch is a professor specializing in international security at the University of Notre Dame. He theorizes that a state facing high external threats will produce cohesion among both civilian and military leaders and result in more stable civil-military relations. His theory is also applicable to a group of states which face the same threat.

SAR is a constant threat in the Arctic that enables the desire of all states to cooperate and act as a single unit and also brings political stability to the whole region. Amongst the example of success under the SAR Arctic Council, one stands out. In February 2016, a Cormorant helicopter SAR crew from the RCAF 103 Squadron out of Newfoundland was on a training exercise in Iceland. The entire Icelandic Coast guard helicopters fleet became unserviceable for a period of eight hours. The Canadian crew assumed SAR service for the whole country during that period under the SAR Arctic Council agreement. This unprecedented cooperation was a true testament of the countries’ trust and dedication toward each other. The current JRCC representing Canada

²⁸ Arctic Council, “Task Force on Search and Rescue,” last accessed on 24 February 2013, <http://www.arctic-council.org/index.php/en/about-us/task-forces/282-task-force-on-search-and-rescue>

on the council table is Trenton. While Trenton is meeting the objectives, a group of Arctic SAR professionals like the proposed JRCC Iqaluit and JTF(N) would be the ideal organization to provide leadership as subject matter experts for the entire international community.

In Canada, the focus is now on the strategic objectives of our military which provide an operational design to conduct operations. The operations set the stage for the use of a wide range of equipment. Realistically, there will always be better planes and

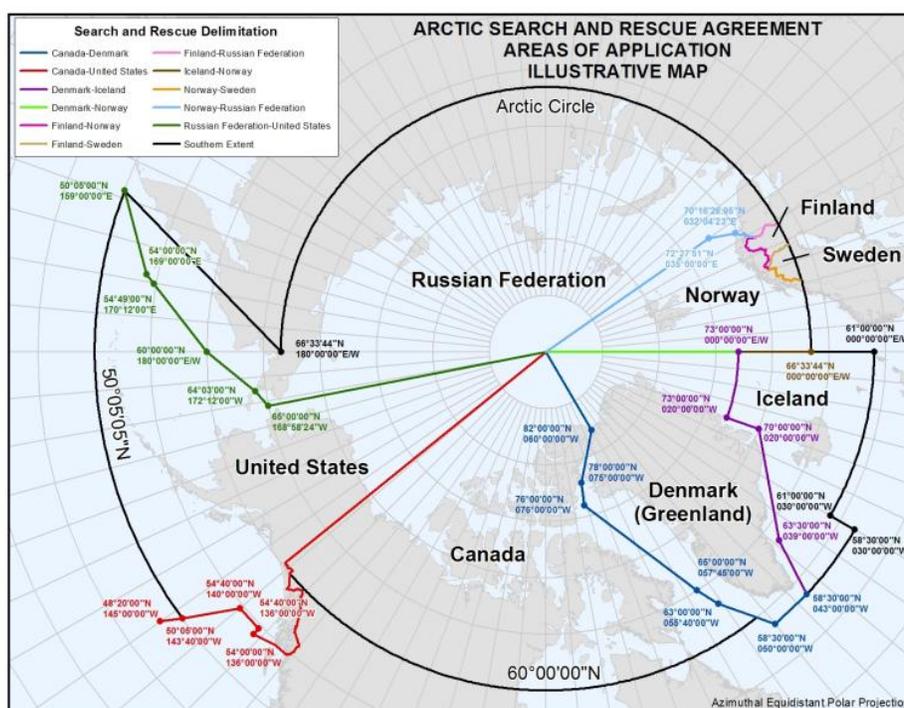


Figure 6: Arctic Council SAR Agreement Area of Responsibility.
Source: Canadian Forces Canada Command. *Search and Rescue (SAR) Overview*.¹

equipment, so the strength of SAR is more in how we use the equipment and resources rather than the strength of the equipment itself. This article argues that regardless of the equipment to which the SAR professionals have access, the key is how they are coordinated. This coordination is greatly influenced by the networking and local

knowledge of the Northern population. By empowering the Arctic with its own Rescue Center, the strength of those networks and local knowledge can be solidified.

One of the best resources in the Canadian North is the Canadian Rangers. The Canadian Rangers are a sub-component of the Canadian Armed Forces (CAF) Reserve and are the military's eyes and ears in the North. They provide patrols and detachments for national-security and public-safety missions in sparsely settled Northern, coastal and isolated areas of Canada.²⁹ P. Whitney Lackenbauer is an associated professor of the department of history at St-Jerome University and author of a book on the Canadian Rangers. Lackenbauer he argues that:

[t]he Rangers are a flexible, inexpensive and culturally inclusive way for Canada to show the flag in the North in a relationship that has been forged over half a century. The Rangers also encourage local leadership and capacity building in our community.³⁰

While currently used for land SAR when requested by the RCMP, the Canadian Rangers possess exceptional particularities that are untapped with regards to marine SAR in the Northern region. Properly equipped and trained Rangers in the marine sphere would improve the Arctic SAR dramatically. Canadian Senator Patterson proposed the idea that the Canadian Rangers expand their mandate to include the maritime environment instead of restricting it to land. The rangers would be well placed to integrate the Auxiliary Canadian Coast Guard forces.³¹

Even greater impact would be to integrate the Rangers into the Arctic JRCC to help coordinate SAR missions under the lead of the RCMP. The concept is based

²⁹ Canada. Department of National Defence. "Canadian Rangers." Last accessed 15 December 2016. <http://www.army.forces.gc.ca/land-terre/cr-rc/index-eng.asp>

³⁰ Whitney Lackenbauer, P. "The Canadians Rangers: A Living History" Toronto: University of British Columbia Press, 2013.

³¹ Dennis Patterson. "Defence Policy Review, 2016 Official submission – Senator for Nunavut" Last accessed 22 December 2016.

on incorporating Indigenous science and traditional knowledge into decision-making.

This approach of empowering the people of the North was articulated in March 2016, when Canada and the US made a joint statement on Arctic leadership:

Arctic communities rest on the territories of Indigenous peoples, who possess a wealth of knowledge, distinct ways of life, and a richness of cultural diversity. Canada and the U.S. are committed to collaborating with Indigenous and Arctic governments, leaders, and communities to more broadly and respectfully include Indigenous science and traditional knowledge into decision making processes.³²

SAR operation is a perfect platform to make this concept shine. The results of this empowerment will unequivocally create a sense of belonging to this vital mission in the eyes of the communities. Another organization that needs attention is the Search and Rescue Volunteer Association of Canada (SARVAC). The association represents 300 teams and 12,000 volunteers across Canada. SARVAC is an active player for Ground SAR in Canada, including the North. SARVAC is a registered not-for-profit and educational organization that supports, coordinates, develops, informs, promotes and implements approved search and rescue emergency response within the underlying principle of saving lives.³³ This group of trained volunteers has 34 SAR teams above the 60th parallel giving them a wealth of Arctic experience.³⁴ SARVAC also has a place on the proposed Arctic SRR to complement and assist the RCMP/Rangers complement.

The question regarding what is the most effective and efficient way of looking at SAR in the Arctic is answered by looking at current organizations, resources and

³² Office of the Prime Minister of Canada. "Us-Canada Joint Statement on Climate, Energy, and Arctic Leadership." March 2016. Washington DC.

³³ Search and Rescue Volunteer Association of Canada. "Welcome." Last accessed 13 December 2016. <http://www.sarvac.ca/>

³⁴ Search and Rescue Volunteer Association of Canada. "Welcome." Last accessed 13 December 2016. <http://www.sarvac.ca/>

international agreements and putting them into action in a more coordinated fashion. Furthermore, while there is no doubt that the level of activities in the Arctic is increasing, it has not yet translated in an increase of northern SAR incidents. It is important to acknowledge this reality as it favors a much more measured and gradual approach to solve the problem.³⁵

More aircraft and vessels and ultimately a permanent RCAF SAR base will be required to operate in this harsh environment, but the framework of an Arctic SRR will lay the foundation for the future increase of resources and activities and make the idea more acceptable to tax-paying Canadians.

³⁵ Danny Poitras and Canadian Forces College, "Search and Rescue in the Arctic: A Myth or a Reality?" Canadian Forces College, 2013, p. 6.

WHAT THE SOLUTION LOOKS LIKE

At the highest level, the coordination of SAR is a function of the Federal Government. The RCAF plays a leading role, with its officers heading each Joint Rescue Coordination Center. Canada's Armed Forces will assume a different role in the North over the next century, but one footprint that we can leave at the moment is a team approach – also called the whole Government approach – with other SAR agencies in order to develop and empower the Northern communities. While more planes, vessels, and people will be required as the Arctic develops, the current need is for a foundation that the population can trust to provide assistance for those in distress in this unique part of the country.

Joint Rescue Coordination Center (JRCC) IQUALUIT



Figure 7: Proposed construct for an Arctic Joint Rescue Coordination Center

Source: Major J.G.R. Leroux

The solution that encompasses Arctic policies and is a logical first step toward a fully developed SAR network in the North is the creation of an Arctic SAR region with the appropriate command structure.

The solution has eight key points:

1. Sovereignty: taking ownership of our environment.
2. Local knowledge: using the unique skillset of the communities to save lives.
3. Historical evolution: logical evolution with the increase of Arctic activities.
4. Non-resource-based: use of assets of Southern main bases.
5. First nation empowerment: integrating communities in SAR coordination.
6. Arctic SAR council participation: putting people of the North as leaders.
7. Inclusion: CAF, CCG, RCMP, SARVAC and Rangers in the JRCC team for a synchronized coordination of all SAR incidents in the North under one roof, as depicted in Figure 7.
8. Economics: this solution requires minimal capital spending.



Figure 8: Proposed Arctic SAR region boundary
Source: Major Leroux

The proposed solution has five critical steps:

1. Redefining the SAR regions in the CAMSAR. The current JTF(N) area of operation (AOR) is a logical border, as depicted in Figure 8.
2. Delegating authority to JTF(N) as the SRR Commander and associated command framework, as shown in Figure 9.
3. Creating a JRCC in a strategic location such as Iqaluit.
4. Increasing the traditional JRCC composition to reflect unique Northern requirements. This includes the RCMP, SARVAC, and the Canadian Rangers in the JRCC Ops room. This would become a 911 type center for all SAR incidents in the North.
5. Amending the Arctic SAR council document to reflect Arctic SRR as the lead SAR agency for Canada instead of Trenton SRR.

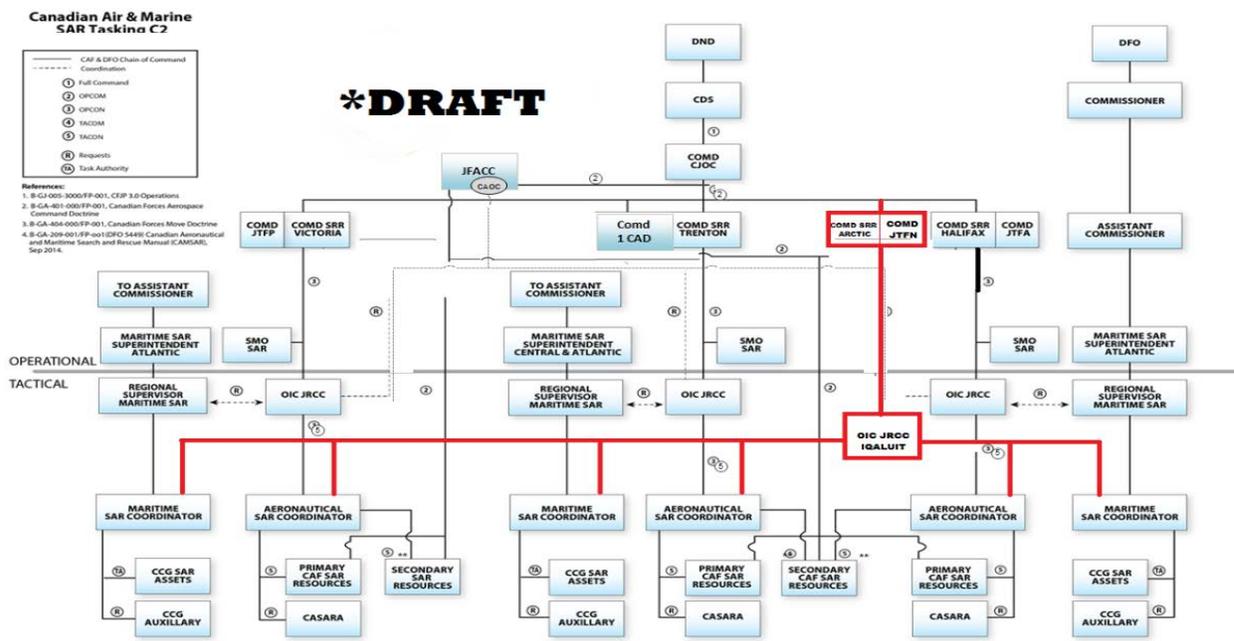


Figure 9: Draft for Canadian Air and Marine SAR tasking C2 including Arctic SRR Commander.
Source: Canadian Forces Advanced Warfare Center (modified by Major Leroux).

CONCLUSION

Canada's commitment to Northern economic and social development includes a deep respect for indigenous traditional knowledge, work, and cultural activities. Going forward, Canada needs to promote understanding of the interests, concerns, culture and practices of Northerners. Through our current Arctic foreign policy, we are also sending a clear message that Canada is in control of its Arctic lands and waters and takes its stewardship role and responsibilities very seriously. Canada continues to stand up for its interests in the Arctic.³⁶ SAR, on any land claimed by a state, is the responsibility of its government. The SAR layout in Canada is working but does not necessarily reflect current policies, and the goal of every system is to intelligently evolve with time. The historical evolution of the SAR regions in Canada is poised to redefine SAR involvement in the North. More resources, military and civilian will be required in the future to support Canada's preparedness to answer the call of duty in the Arctic.

However, those resources themselves are not the solution. An effective coordination of the Northern assets needs to be established, and the creation of an Arctic SRR is the first step toward Northern SAR empowerment. This solution's strength is that it proposes a solution that can plug and play into the current system, requiring no change in the way we deliver SAR. This is thus a value-added solution that improves the system with no negative consequences.

The article's whole foundation was based on the *why* regarding institutional presence in the North. The biggest shortfall when we talk about government involvement

³⁶ Canada, Global Affairs Canada. "Canada's Arctic Foreign Policy". Last accessed 20 December 2016. http://www.international.gc.ca/arctic-arctique/arctic_policy-canada-politique_arctique.aspx?lang=eng

in the North is that we concentrate our energy on what we should do based on statistical data instead of focusing on why we should do it. Instinctual answers such as sovereignty, population empowerment and trust building amongst Canadian population are all elements that were taken into consideration when developing the Arctic SAR region (SRR) model. SAR is a top priority for the Royal Canadian Air Force, the Canadian Coast Guard, the RCMP and many organizations at different levels of jurisdictions, but the SAR system needs an extensive coordination effort in order to be effective.

This article was a step towards the improvement of the SAR coordination of the system as a whole. The status quo is not an acceptable course of action, as the need for improving the current Arctic SAR capabilities has been made abundantly clear. The government should gradually set systems in place to ensure success and respect for Arctic policies. SAR is not a new phenomenon and will likely remain in place in the future. If the current statistics hold true, there will be 6,000 lives in danger in the Canadian Arctic over the next 50 years that will require coordinating efforts, and arguably this number will be much greater with the increase of Northern activities.³⁷ Logical and gradual changes like an Arctic SRR are a solution that will make Canada successful at lasting changes in the Arctic. One element that the Canadian Southern region can learn from the North is that time and evolution is not a race.

However, as has been the case with Arctic changes in the past, Canadians must work together through the needed transition phase in order to shape a new culture that understands and accepts our purpose in the Arctic. At the same time, we also need to think strategically about how the fundamental advantages of an increased presence in the

³⁷ Department of National Defence (DND), "Royal Canadian Air Force in the North," last accessed 22 February 2013, <http://www.rcaf-arc.forces.gc.ca/v2/page-eng.asp?id=1512>. (60 missions a year with an average of 2 people per mission times 50 years = 6000)

North will shape our sovereignty and protect our own citizens. Indeed, SAR is an effective and economical means of ascertaining sovereignty for Canada. Predicting the future context of Arctic strategies is a risky concern. Yet, if the ideas presented here begin a conversation about why Canadians care about our Northern communities, then the risk will have been worth it.

Aristotle had arguably no connections with the Arctic, but his insight on relations is very relevant to what Canada is attempting to develop in the Northern communities. He wrote that wishing to be friends is quick work, but friendship is a slow ripening fruit based on respect, rights, cooperation, trust, partnership, and equal efforts on the part of all involved.³⁸ The creation of an Arctic Search and Rescue Region must be an organic and joint effort on the part of the government and the people, utilizing the technical resources currently available as well as the human and cultural resources of the North that are thus far untapped. Only in this way can an Arctic SRR develop to its full potential and the lives of those in peril in Canada's North be saved.

³⁸Niagara at Large newspaper. "Prime Minister Justin Trudeau meet with Indigenous Chiefs" 2016 <https://niagaraatlarge.com/2016/01/27/canadas-pm-promises-to-work-with-inuit-for-more-prosperous-future/>

BIBLIOGRAPHY

- Arctic Council. "Search and Rescue." Last accessed on 24 December 2016. <http://www.arctic-council.org/index.php/en/oceans/search-and-rescue>
- Arctic Council, "Task Force on Search and Rescue," last accessed on 24 February 2013, <http://www.arctic-council.org/index.php/en/about-us/task-forces/282-task-force-on-search-and-rescue>
- Balasevicius Tony, "Toward a Canadian Forces Arctic Operating Concept," *Canadian Military Journal* 11, no. 2 (Spring 2011):
- Canada. Office of the Auditor General. *Report of the Auditor General of Canada to the House of Commons, Chapter 7: Federal Search and Rescue Activities*. Ottawa: Office of the 100 Auditor General of Canada Distribution Centre, 2013.
- Canada. Department of National Defence. "Trenton Joint Rescue Coordination Center." Last accessed 15 December 2016. <http://www.forces.gc.ca/en/operations-canada-north-america-current/trenton-sar.page>
- Canada. Department of National Defence. "Joint Task Force North: about us." Last accessed 22 December 2016. www.forces.gc.ca/en/operations-regional-jtf-north/about.page
- Canada. Department of National Defence. "Joint Task Force North: Commanders' intent." Last accessed 22 December 2016. <http://www.forces.gc.ca/en/operations-regional-jtf-north/jtf-north.page>
- Canada, Global Affairs Canada. "Canada's Arctic Foreign Policy". Last accessed 20 December 2016. http://www.international.gc.ca/arctic-arctique/arctic_policy-canada-politique_arctique.aspx?lang=eng
- Cowley A.T , Organization and Administration – ASR Services, Letter to Distribution List from A.T. Cowley, Vol. 33,825, File Part 7, 1700-27, Director of Air Services, 6 August 1947
- Danny Poitras and Canadian Forces College, "Search and Rescue in the Arctic: A Myth or a Reality?" Canadian Forces College, 2013.
- David Suzuki foundation. "Focus Canada 2015 about climate change" The Environics Institute. 2015
- Department of Fisheries and Oceans. *Canada's Arctic, Interim Report*, (Ottawa: Senate Committees Directorate, 2011), (DFO), Canadian Coast Guard, *Search and Rescue Needs Analysis 2007* (Ottawa: Canadian Coast Guard, 2007).

- Department of National Defence, National Search and Rescue Secretariat. *Quadrennial Search and Rescue Review*. Ottawa: Department of National Defence ADM(PA), 2013.
<http://www.nss.gc.ca/en/quadrennial-review/quadrennialsarreview-report.page>,
- Department of National Defence, National Search and Rescue Secretariat. *Quadrennial Search and Rescue Review*. Ottawa: Department of National Defence ADM(PA), 2013.
<http://www.nss.gc.ca/en/quadrennial-review/quadrennialsarreview-report> /Page 7
 (18000 volunteers, 950 DND dedicated to primary SAR, 2250 CCG working on ships).
- Department of National defence, DND, *Royal Canadian Air Force in the North...*, last accessed 22 February 2013, <http://www.rcaf-arc.forces.gc.ca/v2/page-eng.asp?id=1512>
- Department of National Defence. “Canadian Rangers.” Last accessed 15 December 2016.
<http://www.army.forces.gc.ca/land-terre/cr-rc/index-eng.asp>
- Department of National Defence (DND), “Royal Canadian Air Force in the North,” last accessed 22 February 2013, <http://www.rcaf-arc.forces.gc.ca/v2/page-eng.asp?id=1512>
- Department of National Defence (DND), “Royal Canadian Air Force in the North,” last accessed 22 February 2013, <http://www.rcaf-arc.forces.gc.ca/v2/page-eng.asp?id=1512>. (60 missions a year with an average of 2 people per mission times 50 years = 6000)
- Greaves Wilfrid. “Re-thinking Sovereignty and arctic security” Last access 23 December 2016.
<https://www.opencanada.org/features/re-thinking-sovereignty-and-security-arctic/>
- Lackenbauer, P. Whitney “The Canadians Rangers: A Living History” Toronto: University of British Columbia Press, 2013.
- Niagara at Large newspaper. “Prime Minister Justin Trudeau meet with Indigenous Chiefs” 2016
<https://niagaraatlarge.com/2016/01/27/canadas-pm-promises-to-work-with-inuit-for-more-prosperous-future/>
- Office of the Prime Minister, “Mandate Letter to Minister of National Defense from newly elected Liberal Government 2016.” Last accessed 21 December 2016.
<http://pm.gc.ca/eng/minister-national-defencemandate-letter>
- Office of the Prime Minister of Canada. “Us-Canada Joint Statement on Climate, Energy, and Arctic Leadership.” March 2016. Washington DC.
- Patterson Dennis. “Defence Policy Review, 2016 Official submission – Senator for Nunavut” Last accessed 22 December 2016.
- Search and Rescue Volunteer Association of Canada. “Welcome.” Last accessed 13 December 2016. <http://www.sarvac.ca/>

Senate of Canada, DHH, 112.3M2 (D340), May 1947, "Report of Interdepartmental Committee on Search/Rescue."

Statistics Canada, "Population and dwelling counts, for Canada, provinces and territories, 2011 and 2006 censuses," last accessed 25 February 2013.