

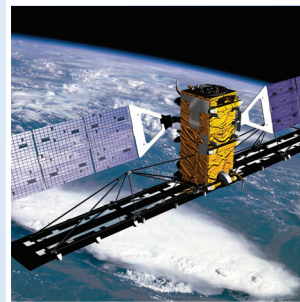
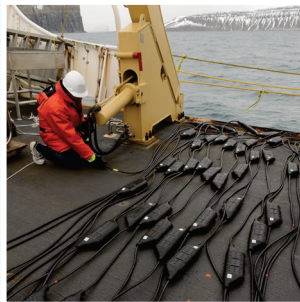


All Domain Situational Awareness (ADSA)

S&T PROGRAM



Climate change is making the North more accessible, thereby increasing economic activity and international interest in the Arctic, which is likely to continue to rise in the coming decades. Such increased Arctic activity brings additional responsibilities for the Department of National Defence (DND) and other government departments in search and rescue, emergency response and environmental monitoring. A greater awareness of the potential challenges posed by foreign military and commercial activities in the Arctic region is also essential for Canada.



Canada's defence policy, *Strong, Secure, Engaged*, launched in June 2017, commits Defence to increasing focus on the Arctic, including joint intelligence, surveillance and reconnaissance as a defence research and development priority, and identifies the need to produce innovative solutions to surveillance challenges in the North.

The current North Warning System (NWS) technology, used for providing situational awareness of Northern approaches to North America, will require replacement potentially as early as 2025. Starting work now to define cost effective solutions that would provide the situational awareness capabilities required into the future is critical for the defence of Canada, and the United States, against continuously evolving potential adversary systems and threats.

Through an investment of up to \$133M over five years in All Domain Situational Awareness (ADSA) S&T, DND will conduct research and analysis to support the development of options for enhanced domain awareness of air, maritime surface and sub-surface approaches to Canada, and in particular those in the Arctic. This research and analysis will be delivered through collaboration with other government departments (OGDs), academia, industry and allies. Surveillance solutions explored will support the Government of Canada's ability to exercise sovereignty in the North, and will provide a greater whole-of-government awareness of safety and security issues, transportation and commercial activity in Canada's Arctic.



The Assistant Deputy Minister (Science and Technology) organisation (ADM(S&T)) aims to provide DND with broad evidence-based advice to inform high-level decisions on future investments in surveillance solutions. Defence Research and Development Canada (DRDC) seeks to apply science and technology to identify, assess and validate technologies in support of situational awareness across air, maritime surface and sub-surface domains, particularly in the North, with a focus on the following areas:

- 1. Strategic surveillance of airborne traffic and aerospace warning;**
- 2. Awareness of maritime traffic in Canadian approaches and Arctic littoral regions;**
- 3. Awareness of sub-surface activity approaching or in Canada's North; and**
- 4. Analysis of sensor mixes and information integration and sharing for all domain awareness to enable detection of modern threats beyond the threshold of the current systems.**

The objective across the three identified domains (air, maritime surface and sub-surface) is to deliver assessments and advice on the performance and viability of existing and future concepts, technologies and methodologies that could contribute to improved awareness in these domains. The concepts and technology solutions to be considered for the Arctic must be suitable to a remote setting subject to limited power sources, limited access and re-supply, harsh weather, limited communications and vulnerability to capture. In a later phase, the aim is to analyse the sensor mix required for an effective, persistent, resilient, sensitive and cost efficient surveillance system within each and across all of the identified areas and domains of interest to the DND.

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