

Space and National Security: Canada's Sporadic Strategy, 1985-1999

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Security goals on Earth and in space used to be exclusive of each other, but as space capabilities continue to evolve in all directions, the political-military objectives of the two realms have become increasingly complimentary. Within ten years of the launch of mankind's first satellite, states began to seriously examine how space may affect national interests. Now, every nation and alliance on Earth has political, economic, military, social, and scientific interests in space. Nearly all of these interests have security implications, which if threatened, could deny a state physical security and freedom of action not only in space but on Earth as well. The issue of space support – access to space, and space control – freedom of maneuver in outer space, have become paramount concerns in modern day strategic planning. Traditionally one tends to think of space control in terms of the United States of America and Russia only, when in fact there are now many more potential players than that. In addition to the two original super powers, France, China, India, Israel, and Japan already operate completely autonomous space programs (i.e. the ability to build and launch their own satellites). Meanwhile Brazil, Canada, Italy, Spain, the United Kingdom and a dozen other countries all have non-autonomous space programs (i.e. have some or no launch capability and have independently owned military and/or civilian space applications in orbit). A further 143 countries are space users in one way or another. Almost every state in the world has some form of access to civil-military space assets or products. Increased access to space in the last fifteen years has created a whole new range of security concerns for Canada, whose own space strategy and capability waned drastically after an initial leading role in the 1960s. Though sometimes difficult and often sporadic, this paper will argue however that since 1985 Canada has developed a space strategy that is both reasonable and realistic, and has demonstrated the potential for re-establishing itself as a secure space state.

Though Canada was an early entry into the space realm, its participation was quickly overshadowed and lost within the greater space race between the United States and the Soviet Union. After becoming the third country in the world to orbit a satellite in 1962, the Canadian space effort quickly withered at the hands of the government of the day. Throughout the 1970s, Canadian space efforts were largely a privatized civilian affair with no cohesion or focuses, concentrating on niche industries rather than national priorities. Canada never realized any independent space control, and never achieved any sort of indigenous space launch capability beyond small rockets. In the 1980s Canada only reopened the issue of space and national security following the public announcement of the Strategic Defence Initiative (SDI) by the United States of America. Following President Ronald Reagan's famous "star wars" speech, Canada found itself having to react to an American initiative to dominate space control and discovered it had no mechanism with which even to passively monitor the issue. Though space policy and defence was politically highlighted in 1986, neither the government in general nor the 1987 Canadian White Paper on Defence showed interest in taking advantage of space as a security multiplier. In 1989, Canada finally created the Canadian Space Agency (CSA), only twenty-two years after it was first recommended to the government in the widely known Chapman Report. Following the

first space war (Persian Gulf War) in 1991, Canada began to seriously develop a military space policy and infrastructure to cope with the growing amount of exposure that the Canadian Forces was receiving in space-related operations, and the influence that space assets had on security in general. Eventually, various space working groups resulted in the formation of a dedicated space cell, the Directorate of Space Development (D space D) at National Defence Headquarters (NDHQ), Ottawa.

Characterizing Canadian Policy, 1962-1984

Canada has always had strategic interests in space, however the advancement of those interests has been sporadic at best. Canadian foreign policy and security policy decisions in the 1960s had a definite impact on the development of any national space assets, especially those that could have served a military purpose. The largest detriment was the misperception that a potential militarization of space automatically included the endorsement of a weaponization of space. Putting weapons in orbit was and still is anathema to Canadian societal values. In 1963 Canada had signed the Limited Test Ban Treaty that prohibited the testing or detonation of nuclear weapons in space. This was followed in 1967 by the United Nations Outer Space Treaty. The second treaty was an agreement by the signatories to place limits on a state's use of space. Among other limitations, it prohibited military installations in orbit or on other celestial bodies, and it prohibited the placing of WMD in orbit or on other celestial bodies.

Canada undertook no major national satellite projects outside of communications (mentioned above) during the 1970s, developed no generic launch capability, and disallowed any military effort to explore areas where the immediate commercial benefits were not identifiable. Canada's space effort was confined to highly selective and specialized, mostly ground-based niches. In 1971 (and renewed in 1975) Canada reached an agreement with the USA to receive limited terrestrial data from American spacecraft in return for a Canadian contribution of equipment and research. Such an agreement had to be made as Canada had no independent space means of securing data about its own country, let alone the rest of the world. The entrance of the USSR, France and Japan into space-based remote earth sensing, "ensured that these military and economic competitors of Canada also routinely had access to data about Canadian territory that Canada itself almost always lacked." The new Ministry of State for Science and Technology lacked influential ministers, operational programs, and secure funding to develop such programs. The new Department of Communications (DOC) forced space programs to compete with terrestrial alternatives and ensured that what few space projects did remain, focused mainly on communications technology and nothing else. The Department of Energy, Mines, and Resources (EMR) struggled to broaden the horizons of space assets to include remote earth sensing, but had limited success. The demise of the national military and scientific satellite program forced Canada to rely on external sources for meteorological data, remote earth sensing, international communications, aircraft navigation, and even maritime navigation. Also the lack of any such programs in operation weakened the case for establishing an indigenous launching facility, ensuring that Canada would continue its reliance of foreign services for its own civilian and military space program. It seemed that all Canadian success in space depended on the cooperation of other more capable space powers.

It is difficult to comprehend the bias against military space activity in Canada during this period. In fact, the top priorities in Canada's 1971 Defence White Paper – Canadian sovereignty and North American security could easily have been facilitated by the employment of military space-based resources. Canada's expanded claims to Arctic jurisdiction in 1970, for example, could have been more successful if the country had some way of keeping surveillance on its northern territory. Even if Canada lacked the physical means on the ground to arbitrate passage in the north, it could still have the information to seek justice by other means. Space-based assets could have also cheaply and effectively assisted other Canadian concerns such as peacekeeping missions and weapon disarmament verification.

The decision to blatantly ignore the potential of space assets in attaining security and defence aims remains something of an enigma, though one could easily attribute the poor policy making in this area to the practices of the Trudeau government. As Arthur Kroeger pointed out in his retrospective on Canada, he noted that, "the various ways in which policy has been developed and decisions made in any particular period has depended, to an extraordinary degree, on who was the head of government". Under the Trudeau government there was a concerted effort to adapt systematic approaches to government decision-making, by increasing the role of the Privy Council Office (PCO) in all matters. This "collective decision-making" occupied much of the minister's time and left them with less time to manage their own departments. No doubt those responsible for space policy were affected. If the centralization, which to some degree was necessary, had been less cumbersome there could have been a greater chance for development in a positive direction for both space and DND. The reality of the matter was unfortunately quite the opposite. Trudeau chose not to pursue space defence projects and this was to some extent a failure.

Canadian civil and military space operations changed dramatically during the 1980s for many reasons. The 1981 renewal of the NORAD agreement re-emphasized the growing influence of space technology in defence and exploration. The election of a new progressive conservative government in 1984 caused an abrupt halt of the swinging pendulum in Canada's declining national space program. In efforts to strengthen Canadian-USA relations Prime Minister Brian Mulroney initiated a series of national space projects, which were confirmed during his first meeting with American President Ronald Reagan. These initiatives were reinforced by voices raised in two government committees in 1985 calling for a renewed military space program in Canada. The decision was obviously influenced by the announcement of the American SDI, a comprehensive plan to establish a space-based weapon platform capable of defeating Soviet ICBMs during the booster phase of their flight. Though Canada chose to continue its prohibition of BMD, it did commit to formalizing both its military and civilian national space policy.

Building Space Security, 1985-1999

Prime Minister Mulroney promised to the USA in 1985 that Canada would construct a new chain of military radar stations, the North Warning System (NWS), across Canada's arctic. But despite this new military project Canada was still slow to develop any serious space-based assets for military use, instead preferring to concentrate on Earth-based installations such as the NWS. Indeed, when the government presented its new comprehensive space program in May 1986, there was practically no mention outside the Department of National Defence of any

consideration given towards issues of security and defence. Rather, there was an emphasis on commercial returns rather than long-term activities in space science or launcher development. All major projects revolved around the success or failure of the US space shuttle and space station programs, of which Mulroney had promised the Americans that Canada would take an active role in developing. The programs, it seemed, were still exclusively civilian, with no intention to develop, integrate, or even acknowledge military space requirements and potential activities.

In February 1986, a House of Commons report on the renewal of the NORAD agreement recommended that the government immediately investigate the establishment of a Canadian military space program. This was soon followed by the Senate Special Committee on National Defence hearings on air defence, who recommended the establishment of a solid military space program to concentrate on early warning, surveillance, and communication tasks necessary to the protection of national security. The latter committee concluded that DND would require eight to twelve satellites at least, and should have been allocated at least \$150 million per year for five years to build and launch them. Beginning in 1990 the annual allotment would have to be raised to \$350 million. The government response to these recommendations was predictably slow and only slightly positive at first. However, by September 1986 the first decision on renewing Canada's military space program had been taken. The Minister of Defence and the Chief of Defence Staff approved NDHQ Evaluation Directive E3/86 to study Canada's future military space requirements. The Chief of Review Services (CRS) was tasked to complete a comprehensive historical analysis, which he completed and tabled on July 31st, 1989. The resulting recommendations were approved, and implementation began on July 3rd, 1990. However, in 1989 the government also replayed a ghost of the past when it disbanded the National Defence Headquarters Directorate of Space Doctrine and Operations, right when the Chief of Review Services was finalizing a report arguing to increase military activity in the space field.

The new national space program focused on many non-military projects, including developing national space capability through co-operation with USA and Western Europe, a Mobile Servicing Center for the International Space Station, and commercial communications satellite system for mobile users (MSAT). Canada also initiated remote sensing development, space plane development, space station user development, technology development for remote sensing, space science, and a new Canadian astronaut program.

The overwhelming desire to satisfy short-term commercial goals rather than establishing long-term national focus was especially evident in the MSAT project. MSAT originally began in Canada with DND-sponsored field trials of a NATO program (TACSATCOM) – a military communications system using small lightweight earth terminals. Imperatives of commercialization sent the project to the Department of Communications, which designed a satellite for civilian mobile users that would be integrated with a similar USA satellite system. This decision pulled Canada's projected satellite orbit southward, closer to the USA border and away from areas of Canada's high north where the demand for additional reliable military communications was greatest. Further the entire system became dependent on the US's Federal Communication Commissions' willingness to allocate particular frequencies for the project, thereby practically subjecting the whole effort to foreign desires and control.

In the period of reawakening, however, the military component was mysteriously lacking. Canadian military projects loomed in the shadow of being related to the publicly unpopular SDI program, and with DND left to its own devices, it chose rather to spend what precious funds it had on terrestrial projects. Despite a DND space policy paper released on 13 July 1987, co-authored by Deputy Minister D.B. Dewar and General P. D. Manson, then the Chief of Defence Staff, the lack of physical developments in the late 1980s failed to enlarge the space consciousness of the Canadian military. Furthermore, the CF remained unimpressed by actions in the United States to increase its own military space activity and organization. It may be argued that the creation of an all civilian Canadian Space Agency reinforced the mindset that the military had no home in Canada's space program.

The primary stimulus for a revised space policy in the late 1980s was DND's concern about its access to data from the US in the NWS follow on. For while the NWS ground-based facilities located in Canada guaranteed Canadians access to US generated and controlled data a potential American satellite-based follow on would not. Such concerns about access to data were heightened by the 1990-1991 Gulf War. Using the 1992 policy directive as a base, The SDWG submitted proposals to be included in CF development plans and planning guidance documents, which advocated the requirement for an indigenous space-based capability. Within three years some of the recommendations were realized as projects. For example, the SDWG initiated the Canadian Military Satellite Communications (CANMILSATCOM) project, and the Joint Space Project (JSP), which included intelligence collection and space surveillance requirements.

The Chief of Review Services (CRS) report tabled in 1989 consisted of a detailed study of the rapid expansion of space activity and the use of space for military purposes by both the allies and potential adversaries. Even though the report was prepared prior to the end of the Cold War it adequately assessed the future needs of a fragmented and unpredictable world. Canada noted large changes in space activity between 1980 and 1989, and the increasing use of space assets in terrestrial military operations. The CRS report made a number of recommendations on policy, plans, projects, and management structure that were implemented by a newly established Space Defence Working Group (SDWG). The first document produced by the SDWG was a Space Appreciation with the purpose, "to provide an initial CF space development framework from which subsequent policy and program planning activities may be generated."

The end of the Cold War and the short yet dramatic Gulf War, along with other changes in the international environment, reinforced in Canadian government not only the need for military space assets, but also the need for the security of space itself. After half a decade of struggling with the idea of a military space capability for Canada, the government reevaluated its altruistic position on the peaceful use of outer space to meet a more realistic and increasingly dangerous multi-polar world. There was every interest in making Canada a truly space capable state, and the formation of the CSA proves this, however there was also the acceptance that Canada's space power would also include military assets and organization.

Between 1991 and 1996 the SDWG implemented the four core items of the CRS report. In 1992 DND tabled its first comprehensive space policy, approved by the Defence Minister and Chief of Defence Staff in June 1993. This in itself was something of an accomplishment, for the greatest hurdle that Canadian space policy planners faced was justifying the militarized use of space to

the Canadian public. The new space policy was based on national sovereignty and security, the establishment of a national defence presence in space, the possession of a national capability to monitor space activities in areas of interest, and the possession of a proper mechanism to develop appropriate policy and resource responses. The new policy was virtually a conceptual revolution in military space thinking in Canada. Fortunately DND chose not to trump up an overwhelming apocalyptic threat that required some form of big guns in space, instead focusing to a large part on more publicly tangible security requirements. Though its largest strategic concern still was guarding against the proliferation of Weapons of Mass Destruction (WMD) and ballistic missile technologies, no doubt influenced by Canada's role in NORAD, many other more easily legitimized potential threats were offered to justify a military space program. In its 1992 space policy document Canada identified concerns such as economic security; curbing the illegal importation of drugs and refugees, monitoring and ensuring the safety of our fishing zones, search and rescue (SAR), and economic exploitation (i.e. natural resource exploration). All of these areas were closely related to the civil-military sphere, and had a duality of purpose that the Canadian public could accept.

In 1996 the SDWG implemented the last of the CRS report requirements, management structure. Ironically, this led to the dissolution of the SDWG in December, replaced by a newly-formed Directorate of Space Development (D Space D) in 1997 under the Deputy Chief of Defence Staff (DCDS). That same year the DCDS was designated as the departmental space advocate. A Canadian military space program was finally established after ten long years and a very tenuous journey through Canadian public bureaucracy.

Conclusion: Into the 21st Century

Throughout its history, Canada's space program has displayed several enduring fundamental features. Canada's space endeavours were traditionally selective and specialized, oriented to terrestrially focused missions and to practical and ultimately commercially profitable purposes. They centered on needs directly related either to Canada's geography and/or political alignment.

The national policy on space was never clearly defined within the Canadian context until the 1990s, and as such Canada's space policy developed in a fragmented and unfocused manner. Being a middle and sometimes mediating power, especially during the Cold War period, the idea of a Canadian military presence in space was anathema to Canadian society values. Though the Canadian government conceded that there would be some military intrusion in space, it made every effort to retard anything that would advance itself too seriously in this realm.

Though pre-set goals both short and long term have been defined, and some experience in civilian applications has been gained over the past twenty years, will the CSA and D Space D be flexible enough to adapt to the rapidly and continually changing space security environment? More importantly are the two organizations even aware of what those security requirements may be? As a civilian organization, does the CSA have the ability to contribute to Canadian security needs in space, and can it participate without jeopardizing its commitment to the various treaties? Is such participation economically feasible, given the increasingly restrictive budgets of both the Department of National Defence and Industry Canada? The question now is how will Canada proceed?