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Canada's Airpower Multi-Tool: The RCAF's Need for Fighter Capabilities

Major Benjamn N. Switzer

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**CANADA’S AIRPOWER MULTI-TOOL: THE RCAF’s NEED FOR FIGHTER
CAPABILITIES**

By Major B.N. Switzer

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ABSTRACT

Why does the Royal Canadian Air Force (RCAF) need fighter aircraft? Some have suggested it does not. However, the RCAF will continue to require crewed fighter aircraft to fulfil its doctrinal core capabilities, enabling Canada's defence policy and international commitment fulfilment. This paper will demonstrate this requirement by examining Canada's international security commitments, defence policy, and RCAF doctrine in relation to actual CF-18 Operations. The first chapter will discuss Canada's United Nations, North Atlantic Treaty Organization (NATO), and North American Aerospace Defense Command (NORAD) commitments followed by current defence policy to demonstrate how fighters enable the RCAF to fulfil these obligations. Chapter 2 will examine RCAF doctrine and discuss two of its four core capabilities, Control of the Air and Air Attack, in the context of fighters. This discussion will show that fighters alone enable a large portion of the RCAF's core capabilities. Chapter three will explore previous, current, and ongoing fighter domestic and expeditionary operations. The examination of the Gulf War, Kosovo, Libya and Iraq/Syria combat operations, and NATO Air Policing and NORAD non-combat operations will demonstrate that fighters have contributed to Canada's commitments in ways no other platform could. Furthermore, those fighters have indeed executed the full spectrum of doctrinal roles they are capable of on real-world operations. Canadian governments from both sides of the political spectrum have chosen to commit fighters to fulfil Canada's obligations. The RCAF must retain multi-role fighter capability to provide governments the spectrum of capability they desire to fulfil Canadian defence policy and international security commitments.

CANADA'S AIRPOWER MULTI-TOOL: THE RCAF's NEED FOR FIGHTER CAPABILITIES

INTRODUCTION

The plan to replace Canada's ageing CF-18 fighter jets has generated significant media attention over the last decade due to the cost of the project. Naturally, Canadians want to understand where this large amount of taxpayers' money is going and why. The media and government debate have primarily focused on the procurement process rather than why fighter aircraft are required. There are, however, those who suggest that Canada does not need a fighter aircraft capability at all.¹ If that is the case, the Royal Canadian Air Force (RCAF) could do away with these platforms. Thus it begs the question, does the RCAF require fighter aircraft? If so, why? This paper contends that despite criticism of cost, the RCAF will continue to require crewed fighter aircraft to fulfil its doctrinal core capabilities, enabling Canada's defence policy and international commitment fulfilment.

Canada must replace its CF-18 fleet soon as it is nearing the end of its lifespan. The cost of the future fighter is estimated at 15 to 19 billion dollars.² Government spending of this magnitude rightfully draws attention and debate. One area of the debate has been whether Canada even needs a fighter aircraft. This discussion has generally stated that fighter aircraft are for combat which is a limited role. Even combat gets discussed as if it is a simple and repetitive experience from one to the next or that future

¹ Charles Nixon, "Canada does not need fighter jets, period," *The Globe and Mail* last modified 8 July 2017. <https://www.theglobeandmail.com/opinion/canada-does-not-need-fighter-jets-period/article19503129/>.

² Department of National Defence, "Future fighter capability project," last accessed 22 April 2021, <https://www.canada.ca/en/department-national-defence/services/procurement/fighter-jets/future-fighter-capability-project.html>.

combat environments are entirely predictable. Perhaps Canada's fighter aircraft are required for domestic defence missions only. Canada has no reason to need fighter aircraft for expeditionary operations. These debates, however, have failed to present an in-depth analysis of what fighter aircraft provide in terms of capability. Caution needs to be exercised to avoid oversimplifying fighter capabilities as just combat machines that drop bombs or shoot missiles. There is little discussion of what effects fighters provide at the tactical, operational, strategic, and even political levels. A deeper understanding of the fighter capability and its effects would better inform the discussion on the Royal Canadian Air Force's (RCAF) requirement of these platforms.

In order to understand the RCAF requirement for crewed fighter aircraft, an examination of Canada's security commitments, defence policy, and doctrine is needed. Chapter 1 will examine the commitments Canada has pledged to the United Nations (UN), North Atlantic Treaty Organization (NATO), and North American Aerospace Defence Command (NORAD). It will also discuss *Strong, Secure, Engaged* (SSE), Canada's current defence policy, to understand how these drive Canada's need for fighter aircraft. Next, a discussion of RCAF Doctrine will explain the core capabilities, roles, and missions fighter aircraft enable for Canada. Finally, examining historic and ongoing operations will demonstrate how these platforms have enabled Canada's security policy, fulfilled its international commitments, and enabled doctrinal core capabilities, which no other Canadian resource could have. In line with its current policy, this will highlight that Canada must retain crewed fighter aircraft to enable the capabilities required to fulfil its defence and international security pledges.

To start the discussion, one must understand what fighter aircraft are and the meaning of the term ‘fighter’ in this paper. Some common traits of these aircraft are that they typically have a limited a crew of one or two, may or may not be capable of supersonic flight, are highly manoeuvrable, employ lethal weapons, and have integral defensive capabilities. There are dedicated Air-to-Air and Air-to-Ground platforms. Dedicated Air-to-Ground platforms are often referred to as Attack aircraft but have otherwise similar characteristics as Air-to-Air fighters. There are also Multi-role fighters that can perform both air-to-air and air-to-ground missions. For the context of this paper, Fighter aircraft, Fighters, and multi-role fighters will refer to aircraft that are assigned ‘F’ or ‘A’ name designators in western militaries. Foreign fighter aircraft may not have the same ‘F’ or ‘A’ designation but share similar traits and capabilities. Throughout this paper, the focus will not be to debate what constitutes a fighter aircraft nor their capabilities or characteristics. The term ‘fighter’ or ‘fighter aircraft’ will refer to aircraft that would be broadly agreed upon by most personnel knowledgeable in aviation as a fighter-type aircraft. Further, because Canada currently intends to purchase multi-purpose platforms, this paper will use the term fighter as indicative of multi-role fighter aircraft.

CHAPTER 1 – THE COMMITMENTS AND POLICY

INTRODUCTION

In the quest to examine the RCAF's requirement for fighter aircraft, it is fitting to start at the top. What external influences drive the RCAF's need for fighters? Naturally, our national defence policy plays a role, but so do Canada's international defence and security commitments. Examining these will show that Canada's defence policy and international commitments drive the RCAF need for a fighter force.

It is apparent that the Canadian government recognises the interconnected nature of what happens globally and desires to be "...part of solutions to complex global challenges."³ Further, the government has expressed that its population expects it to be engaged and playing a positive role in global affairs.⁴ Ultimately this indicates the Canadian desire to actively participate rather than passively support global security.

Canada has chosen to remain a long-standing participant in the UN, NATO, and NORAD. As a nation wishing to take an active role internationally, each of these organisations allows it to participate at different levels. Canada's participation in the UN facilitates its engagement in global security. Participation in NATO enables engagement in the North Atlantic regional security issues. Finally, participation in NORAD allows for Canada to be engaged in North American security.

Participation in each of these organisation also brings different benefits, responsibilities and commitments. NATO, for example, provides Canada with the benefit

³ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 7.

⁴ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 7.

of collective defence.⁵ However, with that comes the responsibility and commitment to contribute to this collective defence capability. Similarly, NORAD has these same benefits and responsibilities but focuses on the mutual defence of North America with the United States (US).

SSE has reaffirmed Canada's stance on participation in global security and its desire to remain in these organisation. Chrystia Freeland, former minister of foreign affairs, stated in the opening portion of the document, "our commitment to collective security is reflected in our long-standing support for our core alliances, NATO and NORAD, and for the United Nations."⁶ There are no indications of dramatic change in Canada's policy towards participation or contribution to these organisations anytime soon.

Given that these security commitments are long-standing, they are a logical place to start. This chapter will examine how Canada's UN, NATO and NORAD commitments drive the need for the RCAF to maintain its fighter aircraft. An examination of Canada's latest Defence Policy, *SSE*, will highlight that the Canadian Government recognises the need for fighter aircraft with its commitment to purchasing new advanced fighter aircraft. This discussion will demonstrate that Canada's defence policy and its long-standing international commitments drive the RCAF need for fighter aircraft.

⁵ North Atlantic Treaty Organization, "Deterrence and defence," last modified 10 November 2020, https://www.nato.int/cps/en/natohq/topics_133127.htm.

⁶ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 7.

UNITED NATIONS

UN Mission & Policy

The UN's central mission, and the reason for its creation, was to maintain international peace and security. Chapter 7 of its charter highlights the desire to do this via peaceful means if able. However, if required, the United Nations Security Council (UNSC) can authorise the necessary force "...to maintain or restore international peace and security."⁷

To enable such force, the UN asks members to make their armed forces available to the UNSC when required.⁸ The UN charter does not state specific capability that members must provide nor does it state that members must contribute to all UN requests for forces. As each circumstance is unique, they must be evaluated individually. It is then at the discretion of individual nations to determine what contributions to provide to a UN request. Countries would consider the situation and their capabilities to best determine what to provide.

Canada and the UN

Canada was a founding member of the United Nations and maintained its desire to contribute to international security and recognises it contributes to its own security. The former Canadian Foreign Affairs Minister demonstrated Canada's intent, stating, "Canadians have always been ready to share the burden and responsibility of making the

⁷ United Nations, "United Nations Charter, Chapter VII: Action with Respect to Threats to the Peace, Breaches of the Peace, and Acts of Aggression," last accessed 28 March 2021, <https://www.un.org/en/about-us/un-charter/chapter-7>.

⁸ United Nations, "United Nations Charter, Chapter VII: Action with Respect to Threats to the Peace, Breaches of the Peace, and Acts of Aggression," last accessed 28 March 2021, <https://www.un.org/en/about-us/un-charter/chapter-7>.

world a safer place.”⁹ Furthermore, the government recognises the importance of a capable and flexible military as an instrument of foreign policy to fulfil Canada’s desire to contribute to global security.¹⁰ The Minister of National Defence, Harjit Sajjan, acknowledged that international defence engagement is critical to Canada’s security.¹¹ Ultimately, Canada wants to be an active participant in solving global security issues. It recognises that the military plays a role and that this approach is also of benefit to the security of Canada itself. Canada recognises the benefits of working through the UN to facilitate its desires.

For Canada, addressing challenges to international stability through United Nations-led or United Nations sanctioned structures presents a number of advantages: It facilitates burden-sharing; diffuses risk; reinforces the rules-based international order; and allows Canada and other countries to contribute based on their particular strengths and capabilities for collective benefit.¹²

Canadian Contributions

Canada has actively contributed to UN operations over the years. As suggested earlier, requirements for UN Operations will vary greatly, and each mission was evaluated and resourced based on their unique circumstances. For example, Canada contributed to the UN peacekeeping mission in Rwanda in 1994 with ground forces. In 1991 Canada contributed maritime and airpower, including fighter aircraft, during the Gulf War to assist in liberating Kuwait from Saddam’s Iraqi military invasion force. Each

⁹ Department of National Defence, *Strong, Secure, Engaged: Canada’s Defence Policy* (Ottawa: DND Canada, 2017), 7.

¹⁰ Department of National Defence, *Strong, Secure, Engaged: Canada’s Defence Policy* (Ottawa: DND Canada, 2017), 7.

¹¹ Department of National Defence, *Strong, Secure, Engaged: Canada’s Defence Policy* (Ottawa: DND Canada, 2017), 6.

¹² Department of National Defence, *Strong, Secure, Engaged: Canada’s Defence Policy* (Ottawa: DND Canada, 2017), 84.

circumstance is unique, and governments must analyse each individually to determine the most suitable Canadian assistance or contribution.

On numerous occasions, Canada has decided fighter aircraft are a suitable contribution to UN missions. Since acquiring the CF18, Canada has chosen to contribute them in support of United Nations Security Council Resolutions (UNSCR) to the Gulf War in 1991, Libya in 2011, and Iraq/Syria in 2014. A discussion on these missions will occur in greater detail in a later chapter.

Expeditionary Fighter Are Required

Despite Canada's previous international fighter contributions, some question the need for Canada to retain an expeditionary fighter capability. Defence policy analyst Steven Staples suggests removing expeditionary operations as a role for Canadian fighter aircraft. He states that contributions to these operations are optional, and since allies with larger militaries have these fighter capabilities, Canada can choose other ways to contribute.¹³ Others, however, feel there is a need to retain this capability. Dr James Fergusson, Deputy Director of the Centre for Defence and Security Studies at the University of Manitoba, argues that politicians should decide whether it is appropriate to commit fighters to an expeditionary operation. Removing this capability from the RCAF will limit Canada's list of options for politicians to consider. The government would not have any option to contribute fighters Canada does not possess.¹⁴ Not having CF-18s

¹³ Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 4. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

¹⁴ James Fergusson, "The Right Debate: Airpower, the Future of War, Canadian Strategic Interests, and the JSF Decision," *Canadian Foreign Policy Journal* 17, no. 3 (2011): 213, <https://www-tandfonline-com.cfc.idm.oclc.org/doi/full/10.1080/11926422.2011.638195>.

would have severely limited Canada's contribution to enforce the no-fly zone and protect civilians in Libya in 2011.

In support of UNSCR 1973, Canada chose to contribute CF-18s to enforce the No-Fly Zone over Libya and protect civilians. Following the operation, it was noted that "the CF-18 was the only Canadian Armed Forces (CAF) asset able to help enforce the no-fly zone over Libya to protect civilians."¹⁵ One key factor which affected Canada's contribution options in this circumstance was that the UNSCR specifically excluded the use of ground forces on Libyan territory.¹⁶ With ground forces removed as an option for Canada, this meant air assets would be the only way to protect civilians throughout Libya. In this instance, without a fighter aircraft, Canada could not have contributed directly to protecting Libyan civilians' safety.¹⁷ Given Canada's highlighted desire to actively participate in global security issues, the CF-18s were Canada's only asset capable of actively intervening with the effects required to protect civilians on the ground.

Summary

The UN's mission is to maintain international peace and security. When force is required to do so, it calls upon its members to contribute to that force to restore security. Canada as a member shares similar views as expressed in the UN charter. Former Minister of National Defence Peter MacKay sums up Canada's position on international

¹⁵ Public Works and Government Services Canada. *Summary Report: Evaluation of Options for the Replacement of the CF-18 Fighter Fleet*. Ottawa: 2014. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/245644>.

¹⁶ United Nations Security Council. *UNSC Resolution 1973 (2011)*. 17 March 2011. [https://undocs.org/S/RES/1973\(2011\)](https://undocs.org/S/RES/1973(2011)).

¹⁷ Fighter Capabilities and Libya will be discussed more thoroughly in later chapters providing a more in-depth analysis of why no other platform in Canada's inventory could have replaced the CF-18 in this situation

military commitment well. “We are a peaceful nation, but we will go to war when peace is threatened. In the future, Canada will continue to be there in times of need, as we have been in the past... we will continue [to] be a ‘go-to’ nation for international military engagements....”¹⁸

Canadian Governments have contributed fighter aircraft to expeditionary operations when deemed appropriate, as it was in Libya. A decision to divest in this capability would limit Canada’s options to fulfil its UN commitments. Furthermore, it may limit Canada’s future ability to fulfil its desire to actively contribute to global safety and security. Thus, the RCAF must retain fighter aircraft to provide Canada's government with the flexibility to decide if this capable air asset is required to satisfy future UN support requests.

NORTH ATLANTIC TREATY ORGANISATION

NATO Mission & Policy

NATO’s first Secretary-General, Lord Hastings Lionel Ismay, once said that NATO was founded initially to “keep the Soviet Union out, the Americans in, and the Germans down.”¹⁹ The world has changed dramatically since NATO’s creation in 1949. However, the original founding idea of collective defence remains a crucial part of NATO’s mission today.²⁰

¹⁸ Peter MacKay, “Minister of national defence marks the anniversary of D-Day,” *News Release*, 11.056, (Ottawa: Department of National Defence, 5 June 2011), <https://www.canada.ca/en/news/archive/2011/06/minister-national-defence-marks-anniversary-day.html>.

¹⁹ North Atlantic Treaty Organization, “Lord Ismay,” last accessed 29 March 2021, https://www.nato.int/cps/us/natohq/declassified_137930.htm.

²⁰ North Atlantic Treaty Organization, “Why was NATO founded?” last accessed 25 April 2021, <https://www.nato.int/wearenato/why-was-nato-founded.html>.

Like the UN and Canada, NATO prefers to prevent war but is prepared with collective defence to protect its members and uphold its principles and values. For NATO, collective defence is the most significant responsibility of the alliance which views deterrence as a key to its defence strategy.²¹

NATO leaders reaffirmed their commitment to defence and deterrence at a summit in Brussels in 2018. A readiness initiative was adopted to enhance the rapid-response capability to support deterrence and collective defence. This initiative specifically acknowledged the need for a rapid military response capability for crisis intervention and high-intensity warfighting.²² This rapid response capability not only provides credibility to NATO's defence capability but, in doing so, also boosts its deterrent effect. A specific initiative was put forth and adopted for rapid response capability, demonstrating the importance of rapid response for collective defence.

The North Atlantic Treaty is the foundational document for the organisation and lays out the responsibilities and benefits of membership. In it, two specific articles are most relevant to this paper. Article 5 is the primary agreement for collective defence. Article 3 discusses member's requirement for self-defence. A brief discussion of these articles will clarify the commitments nations make as signatories in this organisation.

Treaty Articles

North Atlantic Treaty Article 5 states that members will consider an armed attack against one NATO member as an attack against all members. By signing the treaty, each member agrees to assist each other in response to an attack. The treaty explicitly states

²¹ North Atlantic Treaty Organization, "Deterrence and defence," last modified 10 November 2020, https://www.nato.int/cps/en/natohq/topics_133127.htm.

²² North Atlantic Treaty Organization, "Deterrence and defence," last modified 10 November 2020, https://www.nato.int/cps/en/natohq/topics_133127.htm.

that this response may require armed force.²³ This pledge for cumulative defence allows nations to factor the entire NATO force into its defence considerations.

NATO's overall defence capability is derived from the sum of the parts each nation contributes. Nations must therefore maintain sufficient military capability in order for the whole organisation to have the cumulative ability to provide a capable collective defence. Nations can not relinquish their military entirely and rely solely on NATO defence. Doing so would weaken the collective defence, which would reduce its deterrent capability.

The combined military force of NATO members creates the deterrence to aggressors from attacking any member. It sends a strong message to aggressors that they will face a combined NATO response to an attack on any individual member nations. Once again, this deterrence is only credible if the combined force is. Thus, the individual members must maintain sufficient military capability to respond credibly to an Article 5 scenario.

Perhaps as a testament to the deterrent effect it provides, NATO Treaty Article 5 has only been invoked once. After the September 11th, 2001 terrorist attacks, the United States invoked Article 5 and called upon NATO to confront terrorism.²⁴ This attack was an asymmetric air attack not carried out by an adversary state but a terrorist organisation that turned civilian aircraft into weapons. This situation does present some relevant lessons. First, deterrence will not always be enough, and defence needs to be capable to

²³ North Atlantic Treaty Organization, "The North Atlantic Treaty," last modified 10 April 2019, http://www.nato.int/cps/en/natohq/official_texts_17120.htm.

²⁴ North Atlantic Treaty Organization, "Collective defence - Article 5," last modified 08 February 2021, https://www.nato.int/cps/en/natohq/topics_110496.htm#:~:text=On%20the%20evening%20of%2012,the%20principle%20of%20Article%205.&text=By%20invoking%20Article%205%2C%20NATO,attacks%20against%20the%20United%20States.

act when deterrence fails to prevent an attack. Second, individual nations must be capable of self-defence as NATO assistance may not be present to defend against an initial attack.

Members benefit from the collective defence capabilities and deterrence effect of the organisation as a whole. The collective capability allows for burden-sharing. Member nations can consider NATO deterrent and defence effects when planning their defence. This collective defence reduces their requirement to retain a large, expensive military. Each nation can thus benefit from reduced defence costs and smaller force requirements. However, a balance must be struck between retaining sufficient capability to contribute to NATO and benefiting from cost savings.

The September 11th example highlighted that immediate self-defence is one factor for nations to consider concerning individual defence capabilities. Participation in NATO does not alleviate the responsibility of individual member states from maintaining their defence capacity. NATO also stipulates the requirement for self-defence. This requirement is contained in Treaty Article 3.

North Atlantic Treaty Article 3 directs each member to maintain their capability to resist armed attack.²⁵ The intent of this is to ensure each nation can aid themselves in defence. Thus, nations should have the capability to provide deterrence and defence from an armed attack on their territory.²⁶ NATO does not specify how each nation should do this. Each member has unique considerations for their internal defence and how best to contribute to NATO, and Canada is no exception. If a state claims to take their NATO

²⁵ North Atlantic Treaty Organization, "The North Atlantic Treaty," last modified 10 April 2019, http://www.nato.int/cps/en/natohq/official_texts_17120.htm.

²⁶ Matjaž Kačič, "Commentary on Articles 2 and 3 of the Washington Treaty," *Emory International Law Review* 34, Special (2019): 53, <https://law.emory.edu/eilr/content/volume-34/issue-special/articles/commentary-articles-2-3-washington-treaty.html>.

membership seriously, then the implication is that they sufficiently invest in self-defence. Otherwise, they are simply a burden to the Alliance.

Canada, NATO and Fighter Aircraft

Canada signed as an original member of the North Atlantic Treaty Organization in 1949. Like all members, Canada benefits from NATO's collective defence and the deterrence it creates. However, like all members, it must contribute.

Canada has some unique consideration which factors into its defence requirements. Canada has a large territory and the Atlantic Ocean between it and the majority of its NATO allies. It also has a low population density and smaller economy than the US, resulting in a smaller military budget.

When Canada's unique factors are considered concerning its NATO commitments, it becomes apparent what fighter aircraft uniquely enable for Canada. NATO requires a commitment to collective defence with rapid response capability to high-intensity warfighting and military crisis, and nations to be capable of self-defence. Fighter aircraft enable the fulfilment of these NATO commitments in ways no other Canadian Armed Force capability can.

Having an ocean between itself and most of its NATO allies means Canada must consider how it can rapidly respond when asked. The RCAF CF-18s have demonstrated their ability to enable this. On 17 March 2011, UNSCR 1973 was passed on short notice to establish a no-fly zone over Libya and protect civilians. NATO took the lead on this operation within the first few weeks. Canada decided to contribute CF-18s to assist in the intervention of this military crisis. The CF-18s were able to deploy from Canada within

24 hours of the UNSCR passing and arrived in-theatre on 19 March. The aircraft were able to provide armed enforcement of the UNSCR within 48 hours of that arrival.²⁷

The rapid response to this military crisis by CF-18s demonstrates how effective these platforms are at enabling Canada to fulfil this portion of its NATO commitment. This expeditious global reach capability also demonstrates the credibility of Canada to rapidly contribute force if called upon in response to a NATO article 5 request. By providing Canada with the credible capability to contribute to NATO, the RCAF fighter force contributes to the NATO deterrent effect. The RCAF fighter capability contributes to Canada's fulfilment of its NATO Article 5 commitment, arguably the only physical CAF resource to provide a credible rapid defence capability, thus enabling deterrence.

Canada's extensive geographic expanse, which includes the Canadian Arctic, requires unique consideration for the fulfilment of its NATO Article 3 commitment. Government defence policy and academics alike have noted the requirement for aircraft with fighter capabilities to provide year-round defence to Canada's vast territory.²⁸ The RCAF, as Canada's airpower provider, fulfil this role primarily through NORAD and the armed response provided by CF-18s on Quick Reaction Alert (QRA). For Canada to continue to fulfil its NATO Article 3 commitment and maintain the capability to provide year-round defence coverage of its territory, it needs to maintain its fighter capability.

²⁷ Richard O. Mayne, "The Canadian Experience: Operation Mobile," in *Precision and Purpose: Airpower in the Libyan Civil War*, edited by Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 249.

²⁸ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 91.; J.D. McKillip, R.W.H. McKillip, and Colonel Kelvin Truss "Point/Counterpoint - F35s and the Canadian 'Military-Technical Condition,'" in *The Royal Canadian Air Force Journal* 3, no. 3 (Summer 2014): 58. http://www.rcf-arc.forces.gc.ca/assets/AIRFORCE_Internet/docs/en/cf-aerospace-warfare-centre/elibrary/journal/2014-vol3-iss3-12-f35s-and-the-canadian-military-technical-condition.pdf.

There are many ways in which Canada can provide support to NATO when Article 5 is invoked. The Canadian Armed Forces provide the armed military response Canada could contribute if the situation warranted. The speed and reach of air assets and the lethal capabilities of fighter aircraft contribute to the agility of this option to support NATO.²⁹ The Canadian Army would not have been able to mobilise, deploy and commence operations in a comparative timeframe to the CF-18 deployment to support UNSCR 1973 in 2011. The Royal Canadian Navy is limited to what it can access via waterways. Unlike the Navy and Army, air assets can deploy rapidly and operate over any terrain. United States Air Force (USAF) Retired Lieutenant General David Deptula, Dean of the Mitchell Institute for Aerospace Studies, expressed the need for air powers speed and reach in future warfare stating:

Speed and complexity have merged, and now permeate the conduct of warfare. Consequently, one implication for future warfare is that military forces must be able to respond rapidly and decisively anywhere on the globe at any time. Key security events can now unfold in a matter of hours and days, not only over months or years. The window to influence such circumstances is increasingly fleeting, and rapid response—lethal and/or non-kinetic— anywhere in the world is a primary characteristic of air power. This cannot be said of land or sea forces, both of which are subject to the tyranny of time and distance.³⁰

These considerations contribute to how the RCAF's fighter aircraft uniquely enable Canada to fulfil its NATO obligations and remain required into future warfare.

Summary

Canada and NATO mutually benefit from the RCAF fighter capability. Canada benefits from the collective defence and deterrence provided by its membership in

²⁹ Department of National Defence, B-GA-400-000/FP-001, *Royal Canadian Air Force Doctrine* (Ottawa: DND Canada, November 2016), 14.

³⁰ David A. Deptula, "Twenty-First Century Air Power: Future Challenges and Opportunities," *Air Power Review* 21, no. 3 (Autumn/Winter 2018): 161.

NATO. This collective defence only provides credible deterrence if the sum of its members' contributions is credible. NATO Articles 5 and 3 stipulate the defence commitments made by members to assist in collective and self-defence. Furthermore, NATO recognises the importance of rapid response capability by its members. The RCAF CF-18s provide a rapid and agile enabler to fulfilling Canada's Treaty Article 5 and 3 responsibilities. If the RCAF were to lose its fighter capability, it would reduce Canada's ability to expeditiously defend its territory year-round and reduce its rapid global defence capability. The result would be a reduced capability for Canada to meet its Article 5 and 3 commitments and negatively impact NATO's overall collective defence and deterrence capabilities.

NORTH AMERICAN AEROSPACE DEFENCE COMMAND

What is NORAD

Canada and the United States established the North American Aerospace Defence agreement in 1957 for the mutual benefit of defending their combined territories. At the time, Soviet Bombers were the primary concern.³¹ NORAD's stated mission today is to conduct "...aerospace warning, aerospace control and maritime warning in the defense of North America."³² Physical defence from air attack falls within these missions. Air defence operations are a specific subset of aerospace control, meant to use active measures to counter hostile air action.³³ NORAD provides not only the warning but also

³¹ North American Aerospace Defense, "A Brief History of NORAD" (31 December 2013): 4, [https://www.norad.mil/Portals/29/Documents/A%20Brief%20History%20of%20NORAD%20\(current%20as%20of%20March%202014\).pdf](https://www.norad.mil/Portals/29/Documents/A%20Brief%20History%20of%20NORAD%20(current%20as%20of%20March%202014).pdf).

³² NORAD <https://www.norad.mil/About-NORAD/Vision/> Last Accessed 28 Jan 2019.

³³ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 23.

the defence required from potential airborne threats. NORAD must therefore prepare for the full range of operations from peacetime air policing to wartime defence.

NORAD has structured itself to best divide the large airspace around North America into manageable regions to accomplish its mission. NORAD has divided North American airspace into three regions, the Continental US Region (CONR), the Alaskan Region (ANR), and the Canadian Region (CANR). While NORAD defends all of these combined, the RCAF is primarily responsible for the latter, CANR.³⁴ Air Defence Identification Zones (ADIZ) surround sovereign North American airspace. These zones are regions beyond Canada and the US's territorial airspace meant to provide a buffer and region to intercept unknown aircraft for identification before entry into territorial airspace.³⁵ NORAD operates through these structures to identify and manage threats to North America.

NORAD Remains Relevant

Despite the Cold War ending, there are still security risks to Canada and North America in the air domain. As demonstrated by the September 11th attack on the US, aggressors will exploit vulnerabilities within the air domain. However, there is no consensus outside the military regarding the most likely airborne threat to Canada. Paul Mitchell, a Canadian Forces College Professor, suggests, "The most likely avenue of attack from the air on Canada today is not from a lumbering Bear bomber, but rather a

³⁴ North American Aerospace Defense, "Canadian NORAD Region," last accessed 26 April 2021, <https://www.norad.mil/About-NORAD/Canadian-NORAD-Region/#:~:text=NORAD%20is%20the%20bi%2Dnational,to%20include%20peacetime%20alert%20levels>.

³⁵ Department of National Defence. "Canadian Air Defence Identification Zone now aligned with Canada's sovereign airspace," last modified 24 May 2018, <https://www.canada.ca/en/department-national-defence/news/2018/05/canadian-air-defence-identification-zone-now-aligned-with-canadas-sovereign-airspace.html>.

small privately owned commercial aircraft.”³⁶ Former Minister of National defence, Charles Nixon, wrote in a news column that “The only credible aerial threat to Canadian territory, sovereignty and populace is a copy-cat "9/11" attack....”³⁷ Bert Chapman highlights, “Canada also is confronting the problem of increasing aggressive aerial behavior by Russian military fighter aircraft including incursions into Canadian airspace.”³⁸ The fact is that all these are potential threats that NORAD must consider.

NORAD regularly responds to a variety of potential threats. Numerous times every year, Russia flies military aircraft into NORAD air identification zones, including long-range bombers and fighters.³⁹ Russian activity in the Arctic has increased recently with the projection of fighter aircraft over the North Pole, further than ever before out of their territory, and towards North America.⁴⁰ The air threats to North America are not just foreign military aircraft. The unfortunate events of September 11th 2001, now require attack from civilian platforms to be considered constantly. In 2001, NORAD’s focus was on external threats. This attack demonstrated the needed to consider air threats originating from within North America.⁴¹ Since then, NORAD has intercepted civilian

³⁶ Paul T. Mitchell, “How to Get More Air Force for the Dollar,” *The Ottawa Citizen*, 12 October 2010, <https://search-proquest-com.cfc.idm.oclc.org/newspapers/how-get-more-air-force-dollar/docview/758052153/se-2?accountid=9867>.

³⁷ Charles Nixon, “Canada does not need fighter jets, period,” *The Globe and Mail* last modified 8 July 2017, <https://www.theglobeandmail.com/opinion/canada-does-not-need-fighter-jets-period/article19503129/>.

³⁸ Bert Chapman, “JSF and Canada,” in: *Global Defense Procurement and the F-35 Joint Strike Fighter* (Cham, Switzerland: Palgrave Macmillan, 2018), 213. https://doi-org.cfc.idm.oclc.org/10.1007/978-3-030-01367-7_6

³⁹ Stephen Losey, “NORAD F-22s intercept Russian fighters, bombers near Alaska,” last modified 20 October 2020, <https://www.airforcetimes.com/news/your-air-force/2020/10/20/norad-f-22s-intercept-russian-fighters-bombers-near-alaska/>.

⁴⁰ David Cenciotti, “Two Russian Navy MiG-31BM Interceptors Have Flown Over The North Pole For The First Time Ever,” last accessed 31 March 2021, https://theaviationist.com/2021/03/29/two-russian-navy-mig-31bm-interceptors-have-flown-over-the-north-pole-for-the-first-time-ever/?fbclid=IwAR0pYelhE0_zzUJTE-8SGDXIkxgghAzOdZu2jzGTB8SroHX2hBNevvOFIp0.

⁴¹ North American Aerospace Defense, “In their own words - NORAD members recall September 11: William Glover,” last modified 07 September 2011, <https://www.norad.mil/Newsroom/Article/578479/in-their-own-words-norad-members-recall-september-11-william-glover/>.

airliners and small aircraft to evaluate if they are threats.^{42 43} Thankfully, there has not been another 9/11 style attack; however, this does not mean that defence against it is no longer warranted. NORAD defensive capability must counter all possible threats to ensure no exploitable vulnerabilities exist.

What Fighters do for NORAD

NORAD employs fighter aircraft to intercept potential threats. Fighter aircraft participate in Operation NOBLE EAGLE, which is specifically designed to counter a 9/11 style attack. NORAD fighter aircraft and command train for this scenario.⁴⁴ Fighters also intercept and deter potential air threats entering or within the Air Defence Identification Zone or sovereign airspace. NORAD fighters have intercepted and identified Russian military aircraft when they enter the ADIZs.⁴⁵ Fighter aircraft have the required performance and equipment to facilitate intercepts against a wide variety of aircraft. Fighters have sensors such as radar to locate their target and a broad operating altitude capability to reach anything from a low flying small commercial aircraft to a high altitude large airliner. The excess power, speed, and manoeuvrability advantage fighters have over their target, combined with the sensors and broad altitude capability, enable a successful intercept of all these various aircraft types.

⁴² Robert Fife, and Philip Ling, “Pilot error on Sunwing flight caused CF-18 fighter jets to scramble,” last modified 26 February 2013, <https://www.ctvnews.ca/canada/pilot-error-on-sunwing-flight-caused-cf-18-fighter-jets-to-scramble-1.1173510>.

⁴³ Donna Miles, *NORAD Fighters Escort Troubled Aircraft*, Washington: Federal Information & News Dispatch, LLC, 2009, <https://search-proquest-com.cfc.idm.oclc.org/reports/norad-fighters-escort-troubled-aircraft/docview/190373484/se-2?accountid=9867>.

⁴⁴ NAVCANADA, “NORAD’s Operation NOBLE EAGLE takes to the skies over Toronto,” last modified 19 August 2020, <https://blog.navcanada.ca/norads-operation-noble-eagle-takes-to-the-skies-over-toronto/>.

⁴⁵ Adrian Humphreys, “Cold War echoes as Canadian and U.S. fighter jets intercept two Russian reconnaissance planes over Arctic,” last modified 11 March 2020, <https://nationalpost.com/news/canadian-and-u-s-fighter-jets-intercept-two-russian-reconnaissance-aircraft-over-the-arctic>.

Canada and NORAD

As a committed partner in NORAD, Canada must do its part to contribute to this mutual defence. The air domain remains as relevant to Canada as it does to the US. Therefore Canada needs to defend itself in this domain. NORAD is its means of defence. Prime Minister Justin Trudeau reaffirmed Canada's continued commitment to NORAD by mandating the Minister of National Defence (MND) to reinforce its bilateral partnership to protect North America and defend Canadian sovereignty.⁴⁶ Like its NATO alliance, Canada benefits from the collective defence and deterrence offered by NORADs combined force.⁴⁷ Part of Canada's subsequent contribution to NORAD is RCAF CF-18s on constant alert as the primary responders to threats to the CANR region.⁴⁸ These fighters are currently Canada's platform of choice to patrol, intercept and deter air threats to Canada and the US. However, in the event the deterrence fails, Canada must be able to act. Dr McKillip, a former military member, put it nicely, stating, "Canada needs to have the ability to respond more or less immediately and independently to any intrusion into our territory with an unambiguous demonstration of resolve, a resolve backed up by real force."⁴⁹ Currently, the CF-18 provide this force for Canada. These fighters are capable of lethal air effects providing a credible deterrent to air attack. As highlighted in the

⁴⁶ Office of the Prime Minister, *Minister of National Defence Mandate Letter* (Ottawa: 13 December 2019). <https://pm.gc.ca/en/mandate-letters/2019/12/13/minister-national-defence-mandate-letter>.

⁴⁷ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 50.

⁴⁸ North American Aerospace Defense, "Canadian NORAD Region," last accessed 26 April 2021, <https://www.norad.mil/About-NORAD/Canadian-NORAD-Region/#:~:text=NORAD%20is%20the%20bi%2Dnational,to%20include%20peacetime%20alert%20levels>.

⁴⁹ J.D. McKillip, R.W.H. McKillip, and Colonel Kelvin Truss "Point/Counterpoint - F35s and the Canadian 'Military-Technical Condition,'" in *The Royal Canadian Air Force Journal* 3, no. 3 (Summer 2014): 58. http://www.rcaf-arc.forces.gc.ca/assets/AIRFORCE_Internet/docs/en/cf-aerospace-warfare-centre/elibrary/journal/2014-vol3-iss3-12-f35s-and-the-canadian-military-technical-condition.pdf.

discussion on NATO Treaty Article 3, fighter aircraft enable a rapid, year-round response to all of Canada's vast territory. The RCAF must retain fighter aircraft to fulfil its self-defence responsibility and its NORAD and NATO Article 3 commitments.

RCAF CF-18s are a relied upon contribution to NORAD, which could strain the binational agreement if removed. Lindsay Rodman, a former Senior Advisor in the Obama Administration, stated, "[w]e do depend on Canada's fighter capability in terms of how we've planned our North American defence, so making good on the promises that Canada has made is going to be more important than new promises that Canada could make in the future...."⁵⁰ Without fighter aircraft, Canada cannot provide any lethal organic defence to the Canadian NORAD Region. Any deterrent to an attack against Canada would result from the US choosing to continue its commitment to NORAD and solely being responsible for defending North American Airspace with lethal force. Elinor Sloan, a professor of international relations in the department of political science at Carleton University and a fellow at the Canadian Global Affairs Institute, also acknowledged this writing "Canada can either take an active part in its own security, or leave it to the United States."⁵¹ Historically, transferring this responsibility has been seen as an unacceptable forfeit of Canadian domestic air policing sovereignty to the US.⁵² If Canada does not retain and even update its fighter capability, "[t]his may cause a deep

⁵⁰ "How The United States Views Canadian Defence Policy," *The CGAI Podcast Network*, 08 January 2018, <https://soundcloud.com/user-609485369/how-the-united-states-views-canadian-defence-policy>.

⁵¹ Elinor Sloan, "Like it Or Not, the U.S. must be Part of our Next-Generation Jet Decision" (*Globe and Mail*, 14 May 2019), <https://search-proquest-com.cfc.idm.oclc.org/docview/2224216048?pq-origsite=summon>.

⁵² James Fergusson, "The Right Debate: Airpower, the Future of War, Canadian Strategic Interests, and the JSF Decision," *Canadian Foreign Policy Journal* 17, no. 3 (2011): 212, <https://www-tandfonline-com.cfc.idm.oclc.org/doi/full/10.1080/11926422.2011.638195>.

rupture in the NORAD relationship, a prospect that has never occurred in the organization's 60-year history."⁵³

Summary

NORAD is the binational agreement between Canada and the US that provides a mutual defence of North America from air threats. Foreign military and terrorist use of civilian aircraft remain relevant air threats to NORAD as adversaries will exploit any vulnerabilities available if they chose to attack. Fighter aircraft can intercept a wide variety of these platforms and provide a broad spectrum of air defence from peacetime to wartime operations. RCAF fighters are part of Canada's contribution to NORAD defending CANR, its primary area of responsibility. Canada remains firmly committed to NORAD and benefits from the mutual defence and deterrence this partnership provides. The US and NORAD rely upon the RCAF fighter aircraft. Without these capabilities, Canada would not fulfil its NORAD responsibilities, potentially resulting in grave damage to the relationship.

STRONG, SECURE, ENGAGED

Canada's long-standing international defence commitments influence the need for the RCAF fighter capability. However, government defence policy will drive how the Canadian Armed Forces equip itself to fulfil the government's desired direction. *Strong, Secure, Engaged*, Canada's latest defence policy published in 2017, reaffirms these international commitments and further states its desire for a military, combat-capable

⁵³ R. Shimooka, "NORAD, Tactical Fighter Modernization and the F-35: Operational Considerations, Process and Politics," in *North American Strategic Defense in the 21st Century: Security and Sovereignty in an Uncertain World*. (Cham: Springer International Publishing, 2018): 171. https://doi-org.cfc.idm.oclc.org/10.1007/978-3-319-90978-3_13

against near-peer adversaries in high-intensity conflict. Fighter aircraft enable Canada to accomplish its defence policy.

SSE provides the government's defence vision. It states that the defence of Canada and its people is the Canadian Armed Forces overarching priority.⁵⁴ As highlighted earlier, MND Sajjan recognises the relationship between domestic and international security, making both critical components of Canada's defence policy. SSE reaffirms Canada's continued commitments to the collective defence of NORAD, NATO and the UN.⁵⁵

Canada does not merely desire to be a passive member of these international defence organisations. SSE uses statements like "active participation," "value-added partner," and "doing its part" when describing its membership to international defence organisations and its desired role in global security.⁵⁶ Canada demonstrates a sense of responsibility to participate in global security due to its "natural wealth" and "capacity to help."⁵⁷ This language suggests that Canada values being an active contributor to international security. Canada's latest defence policy ultimately indicates its continued desire to be an active participant in both its own and global defence and security, working through its ongoing international commitments.

Canada recognises the importance of a credible military, with the capabilities required at the highest levels of conflict, to be an active contributor to global security.

⁵⁴ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 60.

⁵⁵ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 7, 59, 61.

⁵⁶ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 49, 59.

⁵⁷ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 49.

SSE highlights the changing world and ongoing great power competition, citing China's increasing economic power and Russia's testing of international security as reinvigorating the need for credible deterrence capabilities. The policy explicitly acknowledges the military's deterrent effect as an essential diplomatic tool in conflict prevention.⁵⁸ These factors drive the core missions mandated to the Canadian Armed Forces. The first three core missions are to deter threats and defend Canada, North America, and contribute to alliance and coalition efforts for global stability.⁵⁹ To be a credible deterrent and capable military, Canada expects its military to have advanced conventional capabilities comparable to allies which have an advantage over near-peer adversaries and emerging threats in high-level conflict.⁶⁰ The government does not just view the military as mere assistance to a civil authority or disaster response force. It mandates the CAF to be a fully capable military to provide effective deterrence, and when required, global defence and assistance.

SSE And Fighter Aircraft

The RCAF fighter aircraft specifically enable many of Canada's desires as laid out in its defence policy. Fighter aircraft provide a credible deterrent in the air domain, and advanced fighters provide it against near-peer threats. As highlighted in previous sections, fighter aircraft assist in fulfilling Canada's obligation to add credible deterrent value and defence capability to fulfil its NORAD, NATO and UN commitments. SSE acknowledges explicitly that the RCAF is critical for enabling short notice defence of the

⁵⁸ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 50.

⁵⁹ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 106.

⁶⁰ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 14, 50, 90.

vast North American territory and expeditionary and joint operations provided by air attack and control of the air.⁶¹ CF-18s currently enable much of the deterrent and defence capabilities for the RCAF. In the Government's own words, "The fighter aircraft fleet is a critical Canadian Armed Forces capability necessary to enforce Canada's sovereignty, enable continental security, and contribute to international peace and stability."⁶² SSE has stated that 88 advanced fighters will be purchased to replace the CF-18 to ensure the RCAF can continue to fulfil Canadian defence policy.⁶³ This purchase will enable the RCAF to meet the policy's intent to retain an advantage over emerging threats, counter near-peer and advanced adversaries and remain capable of contributing to high-level conflict with our allies. Furthermore, it demonstrates the government's commitment to retaining the required fighter capability and understanding of the requirement for these assets to fulfil its defence policy and international commitments.

Despite long-standing defence policy supporting fighter aircraft, some have suggested that inappropriate considerations inform Canada's policy. Ernie Regehr, a senior fellow at The Simons Foundation, suggests that defence planning needs to consider both intent and capability in determining the threats Canada considers. He states it is not feasible for Canada to have the capacity to counter all threat capability, and due to lack of threat intent, Canada does not need fighters. Like previous arguments, Mr Regehr highlights that fighter expeditionary deployments are discretionary; therefore,

⁶¹ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 38. *Control of the Air* and *Air Attack* are specific Doctrinal core capabilities that will be examined in the next chapter.

⁶² Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 38.

⁶³ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 13

Canada can be selective in which missions it chooses.⁶⁴ Dr Fergusson's point still stands that politicians should be the ones to decide if Canada deploys fighter aircraft on expeditionary operations.⁶⁵ Furthermore, Canada is also obligated to protect itself. SSE highlights it does so best through collective defence and deterrence, recognising this requires fair contribution. Through these alliances, Canada needs to counter or deter all threats to protect itself and participate in international security.

Additionally, Canada wishes to contribute actively to international security situations with capabilities to "...help those who live under the threat of violence...."⁶⁶ Again, Libya was an example that if Canada did not have fighters, it could not have actively protected civilians. Canada desires to have fighters at its disposal to be a "value-added" partner to alliances capable of acting when required.⁶⁷ As was stated following the CF-18 deployment to Kosovo, "If Canada, as a prosperous member of the First World wishes to make a meaningful contribution to the new world order, which has much more to do with peace enforcement than peacekeeping, a credible fighter force is essential."⁶⁸

Summary

Canada's latest defence policy has laid out its priorities of defence at home, in North America, and its contribution to international security. It reaffirms its commitment

⁶⁴ Ernie Regehr, *Fighter Aircraft (1): Threats and Priorities*, Disarming Arctic Security (Vancouver: The Simons Foundation, 29 May 2015), 4-5.

⁶⁵ James Fergusson, "The Right Debate: Airpower, the Future of War, Canadian Strategic Interests, and the JSF Decision," *Canadian Foreign Policy Journal* 17, no. 3 (2011): 213, <https://www-tandfonline-com.cfc.idm.oclc.org/doi/full/10.1080/11926422.2011.638195>.

⁶⁶ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 49.

⁶⁷ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 14.

⁶⁸ Lieutenant-Colonel David L. Bashow, *et al*, "Mission Ready: Canada's Role in the Kosovo Air Campaign," *Canadian Military Journal* vol. 1, no. 1 (Spring 2000): 59, <http://www.journal.forces.gc.ca/vol1/nol/index-eng.asp>.

to NORAD, NATO, the UN and its desire to contribute actively to these and global security writ large. Canada's policy has stated that it recognises that a top tier military is required to fulfil its mandate for the CAF. It expressly acknowledges the need for fighter aircraft and plans on purchasing a CF-18 replacement. NORAD relies on Canada having fighters, and they demonstrated their value to contribute rapidly to NATO obligations. Canada's internal desire to contribute to deterrence and defence drives the mandate for fighter capability as much as the pull of external commitment.

CONCLUSION

Canada's defence policy and international commitments drive the RCAF's need for a fighter force. The loss of fighter aircraft would leave the RCAF unable to fulfil its government mandate to protect Canada and contribute to international security effectively. Canada wants to participate in international security actively and recognises the value in doing so through the UN. Fighter aircraft are uniquely capable of fulfilling the government's desired objectives, and the RCAF must retain them to enable politician's ability to choose to employ them or not. Canada benefits from the collective defence and deterrence of NATO Article 5 and desires to provide value-added contributions. NATO has recognised that rapid response is critical. Fighters, especially, enable Canada's contribution due to speed and reach, contributing to credible defence and deterrence. Fighters also enable Article 3 and NORAD commitment fulfilment to defend Canadian airspace. NORAD defends Canada from air threats and again provides the mutual benefit of defence and deterrent. The US relies on Canadian fighters as part of NORAD, and divesting the fighter capability would undoubtedly damage Canada/US relations. SSE reaffirms these security commitments, acknowledges what fighters do

towards those commitments and announces a plan to purchase new advanced fighters to enable a capable military to participate actively as a partner in international commitments. It is clear that fighter aircraft are an essential contribution to the RCAF. They are an essential capability the RCAF provides the government of Canada to fulfil its international commitments and policy desires. The RCAF must retain fighter capability not just because the government specifically stated it would purchase advanced fighters, but because of the mandate of the government to the CAF to protect Canada and contribute meaningfully to our NORAD and NATO commitments as well as global security.

While these commitments and desires drive the fighter requirement, it is important to understand capabilities and what doctrinal roles these platforms execute. Chapter 2 will provide a more in-depth examination of what doctrinal capabilities fighter aircraft provide the RCAF. By understanding what fighters do, it will be clear what would be lost without them.

CHAPTER 2 – THE DOCTRINE

INTRODUCTION

The Royal Canadian Air Force requires CF-18s to fulfil the government's defence policy and international security commitments; however, what exactly is their role? SSE mandates the RCAF maintain its current capability and expand to maintain an advantage over threats, but what are those capabilities, and what do they entail?⁶⁹ While the previous chapter demonstrated the need for them from a policy and commitment perspective, it did not go in-depth into the doctrinal capabilities and roles they enable for the RCAF. A better understanding of what fighters do will enable a better understanding of why they are required. Fighter aircraft are dismissed by some as limited in the capabilities they provide.⁷⁰ Perhaps this is a misunderstanding of the broad spectrum of capabilities fighters fulfil for the RCAF, or an oversimplification of their roles. Alternatively, there may be limited knowledge on the nature of fighter combat and non-combat operations. While these are combat aircraft, the spectrum of doctrinal capability they enable for the RCAF is vast. By understanding the required doctrinal capabilities, it provides an understanding of what fighters enable for the RCAF. An examination of doctrine will demonstrate that the RCAF must maintain a Fighter Force to ensure retention of current doctrinal capabilities as mandated by defence policy.

The RCAF focuses on the capabilities it requires rather than airframes or assets specifically. In his *Foreword to RCAF Doctrine*, Lieutenant-General (LGen) Hood, former Commander RCAF, indicates in the most recent RCAF capstone doctrine manual

⁶⁹ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 39.

⁷⁰ Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 4-5. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

that the RCAF view capabilities and roles in a non-platform specific manner. The required effect is the primary concern, then subsequently the how to accomplish it. The intent is to remove constrained thinking of how the RCAF can achieve desired effects. The capability and role are the focus and what the RCAF needs to accomplish. How to, or what can accomplish the desired effect is subsequently determined. LGen Hood does, however, acknowledge that all platforms can not accomplish all tasks. “Most aerospace assets are capable of some degree of shaping; however, there are many missions and tasks within the *SHAPE* sub-function where specialised capabilities are required.”⁷¹ Fighter aircraft are an example of a specialised capability and uniquely capable for specific missions and tasks.

This chapter will examine the fighter-enabled capabilities. It will discuss each relevant RCAF doctrinal capability, its roles and missions and include a brief comparison of how fighters can enable specific capabilities more broadly than other assets. It will commence with a brief overview of RCAF doctrine and progress into the two most fighter relevant core capabilities, Control of the Air and Air Attack. The subsequent chapter will discuss actual CF-18 operations to demonstrate how those capabilities have been used to fulfil the RCAF's mandate. Combined, this will present a more thorough understanding of the breadth of operations and capabilities enabled by fighter aircraft for the RCAF.

It must be acknowledged at the outset that the RCAF is a relatively small air force compared to its closest allies, and its constrained budget does factor into its capabilities. While budget is not specifically part of the argument, it affects the discussion. One

⁷¹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), iv.

method to keep the cost down is through multi-purpose use assets. SSE mandates “...aviation capabilities must be multipurpose – equally relevant to domestic and international operations....”⁷² Scholars Justin Massie and David McDonough have noted this to be a long-standing defence policy of the government.⁷³ Multi-purpose assets are a cost-effective way to ensure capability is maximised for a small air force. The multi-purpose desire drives Canada’s use of multi-role fighters. These multi-role platforms enable the broadest fighter capability for the RCAF in a single platform.

OVERVIEW OF RCAF DOCTRINE

Capstone and keystone documents comprise RCAF Doctrine. The capstone document, aptly named *RCAF Doctrine*, providing overall guidance on airpower use.⁷⁴ *RCAF Doctrine* identifies capabilities as either core or enabling. Canadian fighter aircraft primarily execute roles and mission within core capabilities. The four core capabilities of *RCAF Doctrine*, displayed in Figure 2.1, are Control of the Air, Air Attack, Air Mobility, and Intelligence, Surveillance and Reconnaissance. The importance of these capabilities is notable. SSE specifically highlights these capabilities as being critical in enabling global joint action.⁷⁵ Dr. Alan Stephenson, a Fellow at the Canadian Global Affairs Institute, stated that “Each of these core capabilities is critical to ensuring Canadian sovereignty, defence of North America and contributing to international peace and

⁷² Department of National Defence, *Strong, Secure, Engaged: Canada’s Defence Policy* (Ottawa: DND Canada, 2017), 39.

⁷³ Justin Massie, “Bandwagoning for Status: Canada’s Need of the F-35,” *Canadian Foreign Policy Journal* 17, no. 3 (1 September 2011): 253, <https://doi.org/10.1080/11926422.2011.638197>; D.S. McDonough, “Canada and the F-35 procurement: An assessment,” *The Foreign Exchange* (online), *Canadian International Council*, 29 October 2010.

⁷⁴ Department of National Defence, B-GA-400-000/FP-001, *Royal Canadian Air Force Doctrine* (Ottawa: DND Canada, November 2016), ii.

⁷⁵ Department of National Defence, *Strong, Secure, Engaged: Canada’s Defence Policy* (Ottawa: DND Canada, 2017), 38.

security.”⁷⁶ Fighter aircraft primarily enable two of these critical core capabilities,

Control of the Air and Air Attack.

RCAF FUNCTIONS	CAPABILITIES		ROLES, MISSIONS, & ACTIVITIES
COMMAND SENSE ACT SHIELD SUSTAIN GENERATE	Core	Control of the Air	Counter Air (OCA, DCA, Air Defence)
			Area of Operations Management ³ (Airspace Control, Nav Systems, Air C2)
		Air Attack	Counter Land (CAS, Interdiction)
			Counter Sea (ASW, ASUW)
		Air Mobility	Airlift (Strategic and Tactical, Aeromedical Evacuation)
			Air-to-Air Refuelling
			Search and Rescue (Personnel Recovery)
		Intelligence, Surveillance and Reconnaissance	Collect, Process, Disseminate ⁴ (Early Warning, RAP)
	Enabling	Electronic Warfare	Electronic Attack
			Electronic Protection
			EW Support
		Command and Control	Monitor, Assess, Plan, Direct, Coordinate
		Force Protection	Security
			CBRN Defence
			Health Protection
		Force Sustainment	Aircraft Maintenance
			Logistics
			Engineering
		Force Generation	Readiness, Education and Training
		Force Development	Capability Development

Figure 2.1 – RCAF Capabilities, Roles, Missions and Activities

Source: Department of National Defence, B-GA-400-000/FP-001, *Royal Canadian Air Force Doctrine* (Ottawa: DND Canada, November 2016), 32.

Canadian Forces Aerospace SHAPE Doctrine, one of the keystone documents, provide specific detail on the roles and missions that comprise each core capability.⁷⁷

Control of the Air roles are *Offensive Counter Air* (OCA) and *Defensive Counter Air*

⁷⁶ Alan Stephenson, *The RCAF and the Role of Airpower* (Ottawa: Canadian Global Affairs Institute, 2016): 1. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/10094119>.

⁷⁷ Of note, there is a minor discrepancy between RCAF Capstone and Keystone documents on what are roles vs missions. RCAF *SHAPE* keystone doctrine is was published in 2014 and is 2 years older than the RCAF Doctrine Capstone manual. This is perhaps the cause of the minor inconsistency in role and mission delineation. Both documents are in agreement on the end tactical execution but just differ in their categorization of terminology for roles vs missions. This difference is semantic for the purpose of this discussion. As such the discussion will focus on the resulting bottom level missions as presented in *SHAPE* since these provide the greatest detail into what fighters enable.

(DCA), with subordinate missions displayed in Figure 2.2. Air Attack roles are Counter-Sea, Counter-Land, Special Air Operations and Strategic Attack, with their subordinate missions displayed in Figure 2.3. The following discussion will highlight that there are some common and unique aspects to each.

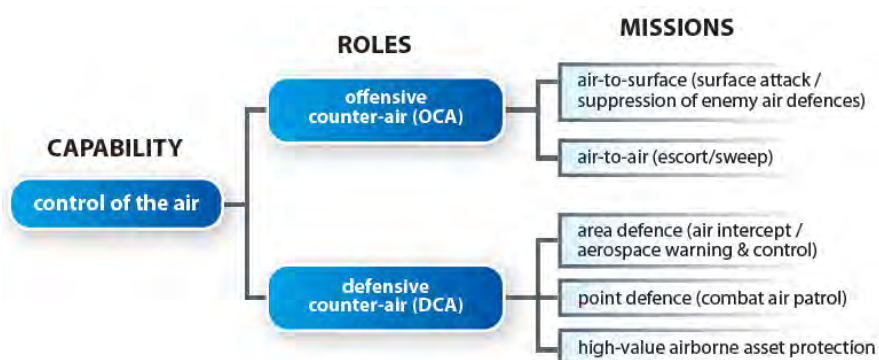


Figure 2.2 – Keystone Doctrine Control of the Air Capabilities, Roles and Missions

Source: Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 18.

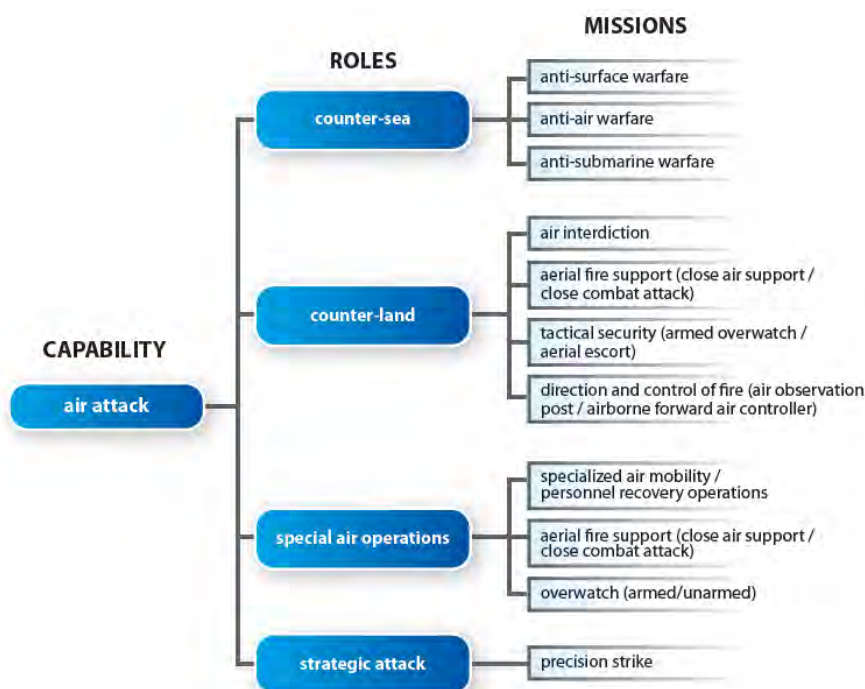


Figure 2.3 – Keystone Doctrine Air Attack Capabilities, Roles and Missions

Source: Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 42.

CAPABILITY: CONTROL OF THE AIR

Control of the air can be described along a spectrum from parity with an adversary to air superiority or supremacy for one side, as displayed in Figure 2.4. Air superiority vs supremacy denotes increased levels of air control gained by one side. Air superiority or supremacy may be localised to a defined area, provided for a period of time, or may persist over an entire battlefield, enduring for one side of the war. Gaining at least air superiority allows for the advantage of elevation, a characteristic of airpower, to be in one's favour.⁷⁸ In a conflict, commanders desire favourable control of the air to enable joint operations.⁷⁹ As previously mentioned, control of the air consists of OCA and DCA.



Figure 2.4 – Control of the Air Continuum

Source: Department of the Airforce, *Air Force Doctrine Publication 3-01 - Counterair Operations*, AFDP 3-01 (Maxwell AFB, AL: Department of the Airforce, 06 September 2019), 5. <https://www.doctrine.af.mil/>.

Role: Offensive Counter Air

Offensive Counter Air target an adversary's air capabilities offensively, as the name implies, typically meaning while still inside their territory. The intent is to engage

⁷⁸ Department of National Defence, B-GA-400-000/FP-001, *Royal Canadian Air Force Doctrine* (Ottawa: DND Canada, November 2016), 14.

⁷⁹ Department of the Airforce, *Air Force Doctrine Publication 3-01 - Counterair Operations*, AFDP 3-01 (Maxwell AFB, AL: Department of the Airforce, 06 September 2019), 5. <https://www.doctrine.af.mil/>.

the enemy's air capabilities before the enemy can use them to attack. Essentially, bring the fight to the adversary before the enemy can use it to attack. Targets can either be on the surface or airborne. Hence it is divided into *Air-to-Surface* and *Air-to-Air* missions.⁸⁰

The air-to-surface mission includes *Suppression of Enemy Air Defences* (SEAD) and *Surface Attack*. The air-to-air mission includes *Escort* and *Sweep*.⁸¹

Missions: Suppression of Enemy Air Defences and Surface Attack

SEAD and Surface Attack intend to target an adversary's air capability while still on the ground. SEAD, again aptly named, targets air defences such as surface-to-air missile (SAM) systems or Command and Control assets.⁸² Fighter aircraft specifically designed to execute this mission with purpose-built weapons and specifically trained crews, such as the EA-18G Growler and F-16CJ, typically carry out SEAD.⁸³ Surface Attack entails strikes against other enemy aerospace capabilities on the ground, including aircraft and infrastructure.⁸⁴ Aircraft executing Surface Attack missions are typically capable of lethal or destructive effects. Even though OCA targets an adversary's air capability, OCA assets may be exposed to them while carrying out their mission. Some modern militaries have integrated air defences systems (IADS) comprised of coordinated

⁸⁰ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 25.

⁸¹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 27.

⁸² Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 27.

⁸³ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 28.

⁸⁴ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 27.

warning radars, surface-to-air missiles, anti-aircraft artillery and air defence fighter capabilities. The proximity to these air defences makes these high-risk missions.⁸⁵

Fighter aircraft are well suited for OCA air-to-surface missions. The speed and reach of fighter aircraft enable them to conduct these missions well inside enemy territory. Fighters air-to-surface weapons capacity, both quantity and variety, enable them to strike a broad assortment of targets. Manoeuvrability and organic self-protection measures, such as electronic warfare and air-to-air weapons, increase the survival chances of fighters faced with surface and airborne air defences. Other platforms such as bombers, helicopters, and unmanned aerial vehicles (UAV) can contribute to these missions.⁸⁶ Bomber aircraft are particularly suitable due to their large weapons payloads. A B-1B bomber can carry eighty-four 500-pound bombs compared to an F-16 fighter which only has nine stations for weapons.⁸⁷ However, due to the reduced manoeuvrability of helicopters, UAVs, and bombers, they are more vulnerable against a modern IADS.⁸⁸ An F-16 can pull nine-G compared to a B-1's three.⁸⁹ The increased G capability of the F-16 means it can turn and manoeuvre more aggressively than the bomber enabling it to defend against surface and air threats. Commonly, fighters share this characteristic over

⁸⁵ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 27-28.

⁸⁶ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 26.

⁸⁷ Editors of Encyclopaedia. "B-1." *Encyclopedia Britannica*, April 29, 2020. <https://www.britannica.com/technology/B-1-bomber-aircraft>; Airforce Technology, "F-16 Fighting Falcon Multirole Fighter," last accessed 29 April 2021, <https://www.airforce-technology.com/projects/f-16-fighting-falcon-multirole-fighter/>.

⁸⁸ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 27-28.

⁸⁹ Rob Verger, "Everything to know about the bombers that flew over Super Bowl LV," *Popular Science*, last modified 8 February 2021, <https://www.popsoci.com/story/technology/super-bowl-lv-flyover/>.

bombers. Fighter aircraft have the best chance of success and survivability in high threat environments due to their characteristics and capabilities.

The CF-18 enable OCA Air-to-Surface missions for the RCAF. While the CF-18 is not specifically designed and optimised for Suppression of Enemy Air Defence missions, it can contribute to the SEAD capability with its strike capabilities. However, it is unlikely the CF18 would execute these missions in a high threat environment without purpose-built SEAD platform support. Canadian CF-18s are capable of the types of strike missions associated with Surface Attack OCA missions. The CF-18s did execute strike missions and faced enemy air defences during the Gulf War, as will be discussed in the next chapter. However, it is unclear if the CF-18s participated in specific strikes against the types of targets that correspond to Surface Attack OCA. Nevertheless, this demonstrates that the CF-18s are capable of providing this mission for the RCAF.

Missions: Escort & Sweep

Escort and Sweep OCA missions target an adversary's airborne assets. OCA air-to-air missions are required against an adversary with air defence fighters/interceptors. OCA assets executing an Escort mission provide air-to-air protection for other platforms, like strike or mobility, from an adversary's defensive aircraft.⁹⁰ On Sweep missions, OCA aircraft seek out and target adversary airborne aircraft as the sole focus to attain advantageous air control.⁹¹ As an analogy, Sweep goes into enemy territory by themselves looking for an air-to-air fight, Escort goes in as blockers or bodyguards

⁹⁰ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 31.

⁹¹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 32.

protecting and helping other assets accomplish their mission. Like the air-to-surface OCA missions, these air-to-air missions expose OCA assets to an adversary's air defences.

The fighter aircraft characteristics of reach, speed, manoeuvrability and self-protection measures retain their applicability from the air-to-surface missions. For sweep and escort OCA missions, the air-to-air weapons capability of fighter aircraft is essential. RCAF doctrine acknowledges that “traditionally, these missions have been flown solely by fighter aircraft.”⁹² It does, however, claim some helicopters and UAVs “...other platforms, including armed helicopters and UA, have also been equipped with significant OCA A/A capabilities.”⁹³ While there are some other aircraft with air-to-air missiles, this does not make them suitable OCA sweep or escort platforms. For example, the United States Marine Corps newest attack helicopter, the AH-1Z, can carry the short-range AIM-9 Sidewinder air-to-air missile.⁹⁴ However, long-range weapons are more suitable for offensive counter-air engagements. OCA air-to-air aircraft ideally want to destroy adversary aircraft before becoming vulnerable to adversary weapons. An attack helicopter does not provide significant OCA effects. Dedicated air superiority fighter aircraft like the F-22 Raptor and F-15C, with focused role-specific training, weapons, and characteristics, are the ideal platforms for OCA sweep and escort missions. These air dominance fighters are purpose-built aircraft designed for these missions. However, multi-role fighters suitably equipped can carry out OCA air-to-air. The CF-18 is the RCAF's sole platform equipped with purpose-built air-to-air weapons enabling OCA air-

⁹² Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 31.

⁹³ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 31.

⁹⁴ Army Technology, “AH-1W / AH-1Z Super Cobra Attack Helicopter,” last accessed 29 April 2021, <https://www.army-technology.com/projects/supcobra/>.

to-air missions, as it did during the Gulf War.⁹⁵ Ultimately, a beyond visual range air-to-air weapons capability makes fighter aircraft the only platform suitable for carrying out the Escort and Sweep missions for the air-to-air OCA role.

Role: Defensive Counter Air

SHAPE doctrine explains that Defensive Counter Air is the airborne air defence component that protects friendly forces from an adversary's air threats. It is commonly executed in friendly airspace but directly confronts the threats that target friendly force. Due to its nature, DCA is a vitally important high-risk, no-fail role that requires numerous assets to provide continuous support over a wide area.⁹⁶ DCA is subdivided into *Area Defence*, including air intercept and aerospace warning & control, *Point Defence*, and *High-Value Airborne Asset* (HVAA) protection.

Missions: Area Defence, Point Defence and HVAA Protection

Each DCA mission is intuitively named to denote their differences, but they also have some common characteristics. Area defence provides broad defence coverage for anything from a no-fly zone up to an entire continent. Air intercept and aerospace warning and control missions are commonly associated with air policing, domestic sovereignty enforcement, a non-combat no-fly zone and restricted airspace enforcement. Area Defence can also apply in combat when required to defend a wider area of friendly forces or territory. Point Defence missions defend smaller, more precisely defined locations.⁹⁷ HVAA Protection provides defence for airborne assets such as Airborne

⁹⁵ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 167.

⁹⁶ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 33.

⁹⁷ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 37.

Warning and Control System (AWACS), Air-to-Air Refueling (AAR) or others of high strategic value deemed vulnerable and in need of dedicated protection.⁹⁸ Common to these missions is that they are air-to-air centric, just like OCA.

The air-to-air nature of these missions once again makes fighter aircraft uniquely effective at these missions.⁹⁹ Similar to OCA, dedicated air superiority aircraft are preferable, but multi-role fighters are well equipped and capable of executing these missions. One difference to DCA from OCA is that the threat determines when and where they attack, and DCA must counter these attacks. In area defence scenarios, fighter aircraft have the speed to traverse large distances expeditiously and counter-threats over a large region. Fighter aircraft can provide 360-degree threat protection or focus on a specific threat attack direction in a point defence situation. In a HVAA scenario, fighter aircraft are flexible to rapidly reposition, providing an effective defence against threats despite a mobile HVAA moving.

The threats faced by DCA assets can vary widely, requiring different effects from interceptors. Fighters speed uniquely enable the intercept of adversary supersonic fighters and bombers, which may require lethal force in a combat scenario. Speed and reach of fighters provide defence against long-range strike weapons. Fighters can intercept the launch platform before it employs a long-range weapon. This capability has been referred to as targeting the *Archers*, launch aircraft, instead of the *Arrows*, weapons.¹⁰⁰

Furthermore, fighter aircraft can intercept small commercial aviation aircraft flying at

⁹⁸ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 38.

⁹⁹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 31.

¹⁰⁰ Andrea Charron, Jim Fergusson, "NORAD: Beyond Modernization" *Centre for Defence, and Security Studies*. Winnipeg: University of Manitoba, 31 January 2019, 30.

1,000 feet and airliners flying at 40,000 feet, which have already been used as weapons by terrorists. In air policing scenarios, fighter aircraft can provide visible presence and deterrence. An armed military fighter aircraft presents a strong visual message to any aircraft it intercepts. Air defence pilots can communicate with intercepted targets, either verbally, through radio or visually, with signals. Intercepting pilots can observe and report to enhance higher command situational awareness. An example of this occurred when a small general aviation plane was flying erratically and not responding to radio communications. NORAD fighter aircraft intercepted the aircraft and observed that the pilot appeared unconscious.¹⁰¹ This type of information would not have been attainable without an intercepting aircraft. Nor would determining if this aircraft was a threat or just in distress. The versatility demonstrated has led to the doctrinal recognition that “interceptor aircraft are the most flexible weapon systems available to the [Air Defence] commander.”¹⁰² Air superiority and multi-role fighter aircraft are uniquely capable as these interceptor aircraft.

Fighter aircraft in Defensive Counter Air missions are a required part of a layered air defence structure, ideally made up of different assets with complementary capabilities to create a robust defence.¹⁰³ *SHAPE* doctrine highlighted the use of helicopters as part of the layered air defence during the 2010 Winter Olympics in Vancouver to intercept small general aviation platforms. Likely this was useful for a Point Defence scenario with helicopters located close to the defended point. However, the limited speed and range of

¹⁰¹ Donna Miles, *NORAD Fighters Escort Troubled Aircraft*, Washington: Federal Information & News Dispatch, LLC, 2009, <https://search-proquest-com.cfc.idm.oclc.org/reports/norad-fighters-escort-troubled-aircraft/docview/190373484/se-2?accountid=9867>.

¹⁰² Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 36.

¹⁰³ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 39.

helicopters would challenge them to intercept a threat far from the defence objective. Furthermore, helicopters do not have the speed or altitude capability to intercept an airliner if it presented a threat. Therefore, helicopters can contribute to a layered defence but do not replace the broader DCA capabilities of fighter aircraft. Ground-based air defence (GBAD) also contribute to layered air defences. GBAD, such as the US Army's Patriot missile, provides excellent lethal effect for point defence from air threats. However, unlike a fighter aircraft, GBAD cannot intercept threats in an air policing scenario to provide visible deterrence or observe and report. Furthermore, the number of GBAD systems to provide area defence for a country as large as Canada, for example, would likely make it cost-prohibitive.¹⁰⁴ Only air superiority and multi-role fighter aircraft can provide broad effect over large areas against a wide array of threats in the defensive counter-air role. The CF-18 is a capable DCA fighter and regularly employed in this role for the RCAF. CF-18s regularly execute area defence air intercept as part of NORAD and Operation REASSURANCE in the NATO enhanced Air Policing mission. Canadian fighters have also executed this role during expeditionary combat operations during Operation MOBILE over Libya.¹⁰⁵ When considering options for the current fighter replacement, a Canadian Public Works study noted, “the role of an airborne interceptor is one that only a fighter capability can accomplish. No other Canadian

¹⁰⁴ Olivier Houle, “A Valuable Tool in the Crib: An Analysis of Canada's Need for a Fighter Capability” (Joint Command and Staff Program, Canadian Forces College, 2018), 10.

¹⁰⁵ Mark Iype, “Canada Conducts First Libya Mission; CF-18 Fighter Jets Patrol Coast; no Strikes,” *Star - Phoenix*, 22 March 2011, <https://search-proquest-com.cfc.idm.oclc.org/newspapers/canada-conducts-first-libya-mission-cf-18-fighter/docview/858993979/se-2?accountid=9867>.

Armed Forces assets can perform that role, either alone or in combination.”¹⁰⁶ Fighters fill a niche that no other platform can.

Control of the Air Summary

OCA and DCA roles comprise the RCAF's Control of the Air core capability. The missions subordinate to these roles are primarily air-to-air missions. While some purpose-specific platforms may provide different or even more effective capabilities in specific missions, multi-role fighters alone can enable all missions of this RCAF doctrinal core capability. The fighter force is the only fleet that currently enables a broad air-to-air capability for the RCAF. CF-18s effectively enable all OCA and DCA subordinate missions. Without fighter aircraft, the RCAF would lose the majority of its doctrinal Control of the Air core capability and be unable to provide these missions to the government of Canada to fulfil its international security alliance commitments.

CAPABILITY: AIR ATTACK

The Air Attack core capability is the use of airpower to strike surface-based targets. These targets can be of tactical, operational, or strategic significance. Depending on the mission, air assets can support ground or maritime forces or operate independently.¹⁰⁷ RCAF *SHAPE* doctrine details four roles of Air Attack: Counter-Sea, Counter-Land, Special Air Operations and Strategic Attack. Fighter aircraft are capable of executing mission from each of the Air Attack roles. As control of the air, there are

¹⁰⁶ Public Works and Government Services Canada, *Summary Report: Evaluation of Options for the Replacement of the CF-18 Fighter Fleet* (Ottawa: Canada Communications Group, December 2014), 10. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/245644>.

¹⁰⁷ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 41.

similarities across some mission sets within the Air Attack roles. Therefore, the discussion will group some missions to highlight similarities and point out differences.

Role: Counter-Sea

Tactical Air Support for Maritime Operations (TASMO) is the RCAF specific name given to RCAF fighter support to the maritime component. However, this term is not used to convey the missions that enable the counter-sea role. Doctrinally the RCAF counter-sea role is filled by three missions, two of which fighter aircraft can execute. The applicable missions for the counter-sea role are anti-surface warfare (ASUW) and anti-air warfare (AAW).¹⁰⁸ Aircraft carrier-based air support would have an advantage for any maritime support over land-based assets; however, since Canada does not possess any aircraft carriers, this discussion will focus on considerations pertaining to land-based fighters. One applicable consideration to both counter-sea missions is the limited ability for land-based fighters to provide support much beyond the littoral. The limited fuel capacity of aircraft and the size of oceans makes it unfeasible for land-based aircraft to support maritime operations well out at sea. That said, fighter aircraft can and have still supported these mission.

Mission: Anti-Surface Warfare

The anti-surface warfare mission employs air assets to target surface vessels. These could be offensive or defensive missions.¹⁰⁹ Similar to OCA missions, there can be surface-to-air threats present as adversary maritime vessels can have organic air defences

¹⁰⁸ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 48-49. The third missions is anti-submarine warfare, which will not be discussed due to inapplicability to fighters.

¹⁰⁹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 48-49.

or air support. Another challenge to these missions is that maritime vessels are mobile and require detection and locating. This task is not easy given that the earth's surface is 71% covered by water. Whether operating offensively or defensively, detecting adversaries could be challenged by the giant search area. While the doctrinal characteristics of speed and reach enable aircraft to search large areas, their impermanence from fuel limitations means it would become air asset-intensive to monitor large areas for extended periods.¹¹⁰

Fighter Aircraft are one of the platforms capable of these missions. On either defensive or offensive ASUW missions, the speed and reach of fighter aircraft enable them to search large areas for adversaries, albeit for limited periods. The onboard sensors like targeting pods and radar enable them to detect surface vessels. Air-to-surface weapons capabilities enable fighters to take both defensive and offensive action. Their manoeuvrability and self-defensive capability increase fighter's survivability against adversary defensive capabilities.¹¹¹ There are also dedicated maritime patrol air assets that execute this role. Long-range patrol aircraft have longer flight times than fighter aircraft and would be better suited for searching larger areas. However, fighter aircraft may be preferred to other less survivable air assets in a high threat environment.

The RCAF does have a few platforms capable of this mission. The CP-140 Aurora and the CH-148 Cyclone execute maritime support roles.¹¹² As a land-based long-range patrol aircraft, the CP-140's extended loiter capability make it excellent to search

¹¹⁰ Department of National Defence, B-GA-400-000/FP-001, *Royal Canadian Air Force Doctrine* (Ottawa: DND Canada, November 2016), 14.

¹¹¹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 43.

¹¹² Royal Canadian Air Force, "Aircraft," last modified 03 March 2021, <http://www.rcaf-arc.forces.gc.ca/en/aircraft.page>.

for maritime vessels along coastal regions. The CH-148 is a ship-borne maritime helicopter and provides excellent maritime support anywhere host ships operate, including the open ocean. CF-18s could either work separately or in concert with one or both of these platforms. The fighter's weapons capabilities and characteristics make them more lethal and survivable in certain circumstances during this mission. The CF-18 has contributed to an ASUW mission in combat operations during the Gulf War, demonstrating it is a mission CF-18s can execute and have executed.¹¹³

Mission: Anti-Air Warfare

The anti-air warfare mission is very similar to the missions of the Defensive Counter Air role. In AAW missions, aircraft provide defence from air threats to friendly maritime assets.¹¹⁴ One consideration for this is that the defended maritime assets may be stationary or moving. This consideration is similar to HVAA protection in which defended aircraft could also be moving. Like the various DCA missions, fighter aircraft are highly suitable for AAW missions given fighter characteristics, weapons and capabilities. For AAW specifically, though, the consideration of land-based fighter's inability to support much beyond the littoral is unique from DCA. Carrier-based fighters provide the ultimate support for this mission. Like DCA, other air defence capabilities can contribute; however, fighters again provide the broadest capability, which other defensive systems cannot duplicate. CF-18s executed this mission extensively during the Gulf War.¹¹⁵ While this mission is similar to DCA missions from an execution

¹¹³ Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, D.C.: U.S. Department of Defense, 1992), 261.

¹¹⁴ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 49.

¹¹⁵ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 175.

perspective, protecting maritime assets is its unique operational factor. Currently, CF-18s are the best suited to enable this mission for the RCAF.

Roles: Counter-Land, Special Air Operations, and Strategic Attack

Counter-Land, Special Air Operations, and Strategic Attack roles have some common characteristics. Due to the similar nature of some of their subordinate missions, they will be grouped for discussion. These roles are all composed of air-to-ground missions. Counter Land can be ISO land forces or independent.¹¹⁶ Fighter enabled missions of counter-land are Air Interdiction (AI), Close Air Support (CAS), Airborne Forward Air Controller (FAC-A) and Armed Overwatch. Fighters can also execute Close Air Support and Armed Overwatch for Special Air Operations. Strategic Attack is comprised solely of the Precision Strike mission. Figure 2.3 provides an excellent visual depiction of these roles and missions. It is notable that “special air operations and strategic attack have been separated from counter-sea and counter-land in order to emphasize their importance within the air-attack capability.”¹¹⁷ These roles hold importance in enabling this core capability but do not necessarily differ from the tactical execution of other missions. For example, while the results of a strategic attack may have a more significant strategic effect on an overall conflict, the tactical execution of that strike would be very similar to that of an air interdiction mission.

Missions: Air Interdiction and Precision Strike

The tactical execution of Air Interdiction and Precision Strike missions have a lot in common with each other and the surface attack mission of OCA. All three of these

¹¹⁶ Department of National Defence, B-GA-400-000/FP-001, *Royal Canadian Air Force Doctrine* (Ottawa: DND Canada, November 2016), 35.

¹¹⁷ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 42.

missions are essentially air-to-ground strike. The Air Interdiction mission of Counter Land targets an adversary's land-based capabilities diminishing their fighting ability. AI strikes are carried out solely by air assets with little coordination with other friendly forces.¹¹⁸ Precision strike missions of the Strategic Attack role target strategically significant components of an adversary.¹¹⁹ The difference between Precision Strike and Air Interdiction missions lies in the target and the level of effect gained from the strike. The tactical execution of each mission can be similar. Furthermore, these missions share a lot in common with surface attack OCA missions. All are deliberate surface-based target strike missions, generally in enemy territory and are likely to face enemy air defences. Once again, the effect obtained from prosecuting the intended target is the main difference between these missions.

There are a few subset missions to Air Interdiction. On-Call Air Interdiction (XINT), Armed Reconnaissance (AR), and Strike Coordination and Armed Reconnaissance (SCAR) are all variations of the traditional AI. These missions do not have a deliberate target at the outset but rather dynamically target once airborne. In XINT, targets are assigned dynamically rather than pre-assigned before the flight. On AR missions, platforms search for targets. SCAR coordinates AR assets and can also undertake the AR tasks during its mission.¹²⁰ Dynamic targeting in the manner undertaken during these missions can reduce the time to execute a strike. Having aircraft

¹¹⁸ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 55.

¹¹⁹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 65.

¹²⁰ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 56.

airborne and close to targets allows for a reduced time from finding the target to engaging the target.

Fighter Aircraft are well suited for these missions. The same considerations apply to AI and Precision Strike from OCA surface attack missions. The fighter's characteristics make these aircraft well suited for the dynamic nature of XINT, AR and SCAR. Onboard sensors and modern all-weather precision-guided munitions enable effective dynamic targeting on XINT, AR, and SCAR missions while minimizing collateral damage.

There are other aircraft capable of these missions. Dedicated bomber aircraft can also execute these missions with the same advantages and disadvantages discussed in OCA surface attack. Current UAV could contribute to these missions; however, due to the limited speed and manoeuvrability of current UAVs, they would be more vulnerable to IADS than fighters. The MQ-9 Reaper, for example, has a top speed of 240 nautical mph versus an F-16 of 1500 mph and nine-G manoeuvre capability.¹²¹ However, in a low threat environment, a UAV has some advantages over fighters for dynamic missions such as AR. The USAF indicates that the MQ-9's sensors and endurance capability make it well suited for dynamic targeting missions such as AR.¹²² The speed limitation may again put UAVs at a disadvantage to fighter aircraft for XINT. UAVs would not be able to traverse as quickly as a fighter to a target outside of their immediate vicinity. Helicopters have some of the same considerations as UAVs. The slower speed and shorter-range

¹²¹ United States Air Force, "MQ-9 Reaper," last modified 23 September 2015, <https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104470/mq-9-reaper/>; United States Air Force, "F-16 Fighting Falcon," last modified 23 September 2015, <https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104505/f-16-fighting-falcon/>.

¹²² United States Air Force, "MQ-9 Reaper," last modified 23 September 2015, <https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104470/mq-9-reaper/>

capabilities compared to fighters limit Helicopters on these missions. For example, they would be unable to carry out any deep strike missions well inside enemy territory. A helicopter's lighter weapons capacity would also limit the targets they can affect. Bomber aircraft, UAVs, and helicopters can all contribute and, in some cases, have advantages over fighter aircraft in these strike missions. However, only multi-role fighters provide the broadest capability to strike targets, big or small, whether deep inside an enemy's territory or not, with increased survivability, even in a high threat environment.

The CF-18 is the only platforms currently in the RCAF inventory specifically designed for and capable of executing Air Interdiction and Precision Strike in high threat environments. Canada's fighters have conducted these missions in Kosovo, among other combat operations, and against formidable airborne and surface air defences.¹²³ The RCAF would lose the majority of its capability in these missions without fighter aircraft. Missions: Close Air Support, Airborne Forward Air Controller and Armed Overwatch

The final group of mission sets discussed are Close Air Support, Airborne Forward Air Controller and Armed Overwatch. These missions fall within the roles of Counter Land and Special Air Operations. One main differentiating factor between these and other air-to-ground missions is that these missions are conducted in proximity to and coordination with friendly ground forces. CAS requires a Forward Air Controller (FAC) or Joint Tactical Air Controller (JTAC) to coordinate the air elements with land forces in real-time to ensure the desired effect is achieved and avoid any risk of fratricide.¹²⁴ The

¹²³ Lieutenant-Colonel David L. Bashow, *et al*, "Mission Ready: Canada's Role in the Kosovo Air Campaign," *Canadian Military Journal* vol. 1, no. 1 (Spring 2000): 59, <http://www.journal.forces.gc.ca/vol1/nol/index-eng.asp>.

¹²⁴ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 58.

FAC can be ground-based, or airborne called an Airborne Forward Air Controller (FAC-A). There are also subset missions of airborne alert CAS (XCAS) and ground alert CAS (GCAS), sometimes referred to as Push or Pull CAS. These variations of CAS enable rapid response and on-call air support but do not have unique execution procedures during the CAS itself. Similar to CAS, Armed Overwatch requires close coordination with ground forces. Armed Overwatch is closely coordinated air assets providing sensors and weapons to support and defend ground force operations.¹²⁵ The coordination procedures are so similar to CAS that the more recent USAF Doctrine states that Armed Overwatch is not a unique mission. “Armed overwatch should not be considered a new or independent counter-land mission area distinct from CAS....”¹²⁶ It highlights that it may be a non-doctrinal task in some theatres but that it is just a different application of CAS or AI.¹²⁷ Due to this similarity then it will be discussed with CAS.

Fighter Aircraft are well suited for CAS and Armed Overwatch missions. Fighters have a sufficient weapons payload and air-to-ground sensors, such as targeting pods and laser designators, making them extremely valuable to support ground forces. As previously highlighted, the all-weather precision-guided weapons capability enable effects precisely on targets minimizing collateral damage and risk of fratricide, critical with ground forces nearby. The speed and reach characteristics enable fighters expeditious response for alert CAS, XCAS and GCAS, allowing them to traverse large

¹²⁵ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 59.

¹²⁶ Department of the Airforce, *Air Force Doctrine Publication 3-03 - Counterland Operations*, AFDP 3-03 (Maxwell AFB, AL: Department of the Airforce, 21 October 2020), 13. <https://www.doctrine.af.mil/>. Of note, RCAF *SHAPE* is six years older than the USAF Doctrine and this may be the cause of the discrepancy.

¹²⁷ Department of the Airforce, *Air Force Doctrine Publication 3-03 - Counterland Operations*, AFDP 3-03 (Maxwell AFB, AL: Department of the Airforce, 21 October 2020), 13. <https://www.doctrine.af.mil/>.

distances rapidly, assisting in emergencies such as friendly forces engaged with the enemy. The speed and reach capability enable fighter aircraft to be on-call over a large region with an adequate response time. Fighter aircraft are suitable FAC-A platforms. The AV-8B, A-10, F-16 and F-18 are all currently used as FAC-A platforms.¹²⁸ CAS and Armed Overwatch are missions well provided by fighter aircraft.

UAVs, Helicopters and dedicated bomber aircraft can provide CAS and Armed Overwatch. These platforms are all capable of employing precision weapons to minimize collateral damage and the risk of fratricide. Different platforms bring different advantages and disadvantages similar to those previously discussed in other counter-land missions. UAVs have the advantage of long loiter times increasing their on-station time for CAS. However, UAVs are slower, possibly hindering them in alert CAS scenarios. Helicopters may be closer to ground forces or integrated with them, enabling embedded support. However, they typically have decreased range and speed as well as different weapons payload capability. Bombers typically have a significant weapon payload capability and similar speed and reach characteristic to fighters.¹²⁹ Dedicated attack aircraft like the A-10 are highly valued CAS platforms due to their focused training and purpose-built air-to-ground nature. The slower speed and increased loiter time UAVs or embedded nature of Helicopters significantly benefit these platforms to provide Armed Overwatch. Fighter aircraft can extend coverage with air-to-air refuelling; however, UAVs are known to have dramatically longer on-station times than fighter aircraft can provide. While each

¹²⁸ Mike Benitez, “21st-Century Forward Air Control: The Roots To Rebuild,” *War on the Rocks*, last modified 1 March 2017, [https://warontherocks.com/2017/03/21st-century-forward-air-control-the-roots-to-rebuild/#:~:text=Today%20there%20are%20four%20main,a%20FAC\(A\)%20qualification](https://warontherocks.com/2017/03/21st-century-forward-air-control-the-roots-to-rebuild/#:~:text=Today%20there%20are%20four%20main,a%20FAC(A)%20qualification).

¹²⁹ Joint Chiefs of Staff, *Close Air Support*, Joint Publication 3-09.3 (Washington, D.C.: Joint Chiefs of Staff, 25 November 2014), I-4 – I-6.

platform has different strengths and weaknesses, it is evident that multirole fighters can capably enable CAS missions.

The RCAF does have capable CAS platforms. The CF-18 and its pilots are trained and equipped to conduct CAS.¹³⁰ RCAF CH-146 Griffon helicopters can also provide CAS effects and armed overwatch with their door gun.¹³¹ While these RCAF helicopters do have the advantages described above, their limited weapons options mean they can not replace the effects delivered by the CF-18. The RCAF is currently intending to purchase UAVs with its Remotely Pilot Aircraft Systems (RPAS) project. These UAVs should be capable of CAS and Armed Overwatch missions. However, the CF-18 is currently the RCAF's most capable CAS platform.

Air Attack Summary

Counter-Sea, Counter-Land, Special Air Operation, and Strategic Attack roles comprise the RCAF Air Attack core capability. While the tactical execution of some missions may be similar, the RCAF recognizes that each mission delivers unique effects. The CF-18 enables eight of the eleven missions that make up this core capability. In most cases, no other RCAF platform can contribute significantly to these missions in all potential combat environments. Without fighter aircraft, the RCAF would lose the majority of its doctrinal Air Attack core capability and be unable to provide these missions to the government of Canada to fulfil its international security alliance commitments.

¹³⁰ "Close Air Support Canadian CF-18," YouTube video, 5:15, posted by "ccncm," 23 March 2008, <https://www.youtube.com/watch?app=desktop&v=9afjpS8VA0w>.

¹³¹ Department of National Defence, B-GA-403-000/FP-001, *Canadian Forces Aerospace SHAPE Doctrine* (Winnipeg: Canadian Forces Aerospace Warfare Center, March 2014), 60.

CONCLUSION

The government of Canada stated in SSE its desire for multipurpose platforms to enables its many commitments. Some argue that fighter aircraft are not broadly capable.¹³² However, this examination of doctrine has shown the broad core capabilities that fighter aircraft alone enable for the RCAF and Canada. RCAF doctrine does not arbitrarily state that fighter aircraft, nor any platform is specifically required. Rather, it views requirements from a capability perspective. The RCAF's identifies *core capabilities*, the naming convention inferring the centrality of these specific capabilities. Dr Alan Stephenson stated the critical nature of these core capabilities to defend Canada, North America and contribute to Canada's international security alliance.¹³³

Control of the Air and Air Attack are two of the four RCAF core capabilities. OCA and DCA roles comprise Control of the Air and are largely air-to-air centric. Counter-Sea, Counter-Land, Special Air Operations, and Strategic Attack comprise Air Attack and are largely air-to-surface centric. These missions can support the land forces, maritime forces, or solely serve the air force. Missions can be conducted either in close proximity to friendly forces requiring tactical coordination or deep within enemy territory. Missions can be offensive or defensive in nature. Desired effects may be lethal or non-lethal and result in attaining objectives ranging from tactical to strategic. These are complex, multi-faceted missions that could be carried out in combat or peacetime situations.

¹³² Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 4-5. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

¹³³ Alan Stephenson, *The RCAF and the Role of Airpower* (Ottawa: Canadian Global Affairs Institute, 2016): 1. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/10094119>.

Multi-role fighter aircraft almost exclusively enable these two core capabilities for the RCAF. An examination of keystone doctrine demonstrates that the CF-18 enables five of five Control of the Air missions and eight of eleven Air Attack missions. While some missions can have common characteristics, such as threat level or tactical execution, they are acknowledged as distinct and required to enable each core capability. For many cases, such as air-to-air roles and strike missions in high-threat environments, fighter aircraft are currently Canada's only platforms providing significant effects. While other platforms can perform some of these, none can enable the full range of capability provided by multi-role fighter aircraft. Fighter aircraft have the speed, reach, manoeuvrability, sensors, defensive self-protection, air-to-air and air-to-ground weapons capabilities to provide a broad range of effects from deterrence to lethal force needed for these missions. There is no other single platform that can execute the majority of Control of the Air and Air Attack missions, across the spectrum of conflict from peace to war, with the highest probability of survival in all threat environments. The RCAF gains significant capability from a single multi-role fighter platform in line with the government's desire for multipurpose airframes. Without fighter aircraft, the RCAF would not maintain its current capability as mandated by the government and would have gaps in its ability to fulfil its core capabilities.

It has now been demonstrated what capabilities fighter aircraft provide the RCAF. Previously it was discussed how defence policy and international commitments are the impetus for their need. To this point, however, there have only been brief examples of their use. To gain a complete picture of the requirement for these platforms, not only should the political drivers and doctrinal capabilities be examined, but also how they

have been employed. The next chapter will examine previous, current and ongoing operations to demonstrate that fighter aircraft have provided their capabilities to fulfil government policy and the international commitments discussed.

CHAPTER 3 – THE REALITY

If there is one attitude more dangerous than to assume that a future war will be just like the last one, it is to imagine that it will be so utterly different we can afford to ignore all the lessons of the last one.

- Sir John C. Slessor, *Air Power and Armies*

INTRODUCTION

Since its acquisition in 1982, the CF-18 has been deployed into combat four times and supported numerous other expeditionary and domestic operations. However, at least one critic of potential replacements for Canada's fighter has asked: "Do the roles currently assigned to the CF-18 reflect Canada's true security requirements?"¹³⁴ The previous chapter examined the roles and missions Canada's fighter aircraft enable. The result showed that no other RCAF platform could fulfil these roles. However, if these roles are not required, does Canada even need to fill them? Understanding the roles provided by CF-18s and examining historical employment can determine if these roles are a reflection of Canada's security requirements. This chapter will examine the historical, current, and ongoing CF-18 operations to demonstrate that Canada must retain fighter aircraft to enable the historic and ongoing roles required to fulfil its defence and international security commitments.

The CF-18 operations for discussion are combat deployments to Iraq (1991), Kosovo (1999), Libya (2011), Iraq/Syria (2014/5), non-combat NATO Air Policing deployments and NORAD domestic operations. This examination will be related to the first two chapters. For each operation, the political or international security commitment it supported will be highlighted. The roles or missions conducted by CF-18s will be

¹³⁴ Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 2. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

demonstrated. The examination will conclude that Canada's fighter force is not just a token capability but rather one of action which has carried out the doctrinal roles assigned to it in support of Canada's policy and international commitments.

GULF WAR

Overview

Operation FRICTION was the Canadian contribution to the US-led Persian Gulf War in 1991. In response to the Iraqi invasion of Kuwait, United Nations Security Council Resolution (UNSCR) 678 authorized the use of all means necessary to remove Iraqi forces. This conventional state versus state military conflict followed diplomatic efforts to find a resolution, but ultimately military force was necessary to remove the Iraqi invaders from sovereign Kuwaiti territory.

The Progressive Conservative Party government of Canada elected to deploy military forces to support UNSCR 678. The lengthy diplomatic attempts to resolve the Iraqi invasion allowed time to prepare and deploy forces before combat operations commencing. Once the UNSCR passed, the coalition had to act. One part of Canada's military contributions to this UN mission were CF-18s. This operation was the first combat deployment of the CF-18s since their acquisition. The RCAF fighter aircraft executed a wide variety of mission sets, demonstrating the versatility of the RCAF multi-role fighter.

The RCAF Fighter Contribution

Initial missions flown by CF-18s were in the Counter-Sea Role of the Air Attack core capability. Canadian fighters coordinated with the maritime fleet to provide Anti-Air Warfare support missions to protect the fleet. The CF-18 support was significant in this

role. CF-18s "...bore the brunt of fleet defence during the critical period of 16-19 January, the transition to war, when Iraq's pre-emptive or counterattack intentions were unknown but a very real threat."¹³⁵ As part of these missions, CF-18s had to visually identify aircraft approaching to confirm if they were friend or foe. These intercepts, with closing speeds of approximately Mach 2, require interceptors to position themselves to visually see and identify aircraft and markings to confirm who they were.¹³⁶ The necessity to execute these procedures demonstrates the fog of war that can exist even in modern combat. Fighter aircraft are well suited to carry out these types of tasks day and night.

The Canadian fighters were also called upon to provide Anti-Surface Warfare.¹³⁷ This capability was demonstrated on one particular occasion when the coalition identified an Iraqi fast attack vessel and targeted the nearby Canadian Fighter jets to strike. At the time, the CF-18 had been conducting an anti-air warfare mission and armed with air-to-air weapons. The fighter's 20-millimetre gun is a capable weapon for air-to-air and air-to-surface missions, and the CF-18s were able to employ rounds on multiple strafe passes.¹³⁸ The Iraqi vessel was later "located in an Iranian port with substantial strafing damage to its superstructure."¹³⁹ In this situation, the CF-18 demonstrated its agility to rapidly

¹³⁵ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 175.

¹³⁶ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 164.

¹³⁷ Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, D.C.: U.S. Department of Defense, 1992), 261.

¹³⁸ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 169-170.

¹³⁹ Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, D.C.: U.S. Department of Defense, 1992), 266.

switch from an air-to-air to an air-to-surface mission, providing effective maritime support in both counter-sea roles on one mission.

As the conflict progressed, Canada's fighter force expanded mission sets, demonstrating their broad capability in both Control of the Air and Air Attack core capabilities. The CF-18 commenced executing Sweep and Escort missions of the Offensive Counter Air role, protecting strike aircraft laden with bombs and vulnerable to enemy air defence aircraft. To clear the route, CF-18s would carry out Sweep ahead of the strike aircraft and ensure no adversary aircraft were present to target the bombers. RCAF fighters would Escort the bombers through hostile territory to their target on other OCA missions, providing defence within close proximity.¹⁴⁰ In later stages of the conflict, Canada's CF-18 received authorization to employ air-to-ground ordnance and commenced executing Air Interdiction missions. The CF-18 strike missions coincided with the ground campaign and Canadian fighters carried out 56 air-to-ground strike missions from 24 to 28 February, mainly targeting artillery and vehicle convoys.¹⁴¹ RCAF fighters again demonstrated flexibility across core capabilities enabling role changes while in-theatre to meet the needs of the coalition and the Canadian Government's desires.

Threat

Despite obtaining air superiority over Kuwait on the first night of bombing, coalition fighters still had to contend with air defences throughout the conflict.¹⁴² On

¹⁴⁰ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 167.

¹⁴¹ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 174-175.

¹⁴² Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 165.

missions into the combat zone, CF-18s had to execute evasive manoeuvres to avoid enemy Anti-Aircraft Artillery and react to Surface-to-Air Missile defences.¹⁴³ In at least one instance,

SAMs showed up at places where they were not expected. After being moved on the ground, they attacked combat groups which were not under the immediate protection of the Wild Weasels [SEAD]. Alerted by the warning flashes (called "spikes"), which appeared on the cockpit panel, the pilots carried out effective evasive manoeuvres.¹⁴⁴

Even with allied air superiority, the fog of war remains, and adversary threats are unlikely to be removed entirely. Thus there remains a requirement for platforms capable of self-defence, at a minimum, from the current threat capabilities.

Summary

The Canadian government felt compelled to provide capable military support to the UN and its resolution to protect Kuwait and expel Iraqi forces. The government determined CF-18s would be part of this support. The fighters demonstrated the agility to provide Control of the Air and Air Attack core capabilities, conducting OCA Sweep and Escort, Maritime Anti-Air and Anti-Surface warfare, and Counter-Land Air interdiction missions. The threat to allied air forces in this operation remained present despite attaining air superiority, and fighters were required to defend themselves from adversary defences. Former Deputy Minister of National Defence Charles Nixon suggested “Canada does not need fighter aircraft[,]” stating “new Canadian fighters would almost certainly never be involved in serious strike or aerial combat operations....”¹⁴⁵ However,

¹⁴³ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 170.

¹⁴⁴ Jean H Morin and Richard H. Gimblett, *Operation Friction: The Canadian Forces in the Persian Gulf* (Toronto: Dundurn Press, 1997), 169.

¹⁴⁵ Charles Nixon, “Canada does not need fighter jets, period,” *The Globe and Mail* last modified 8 July 2017, <https://www.theglobeandmail.com/opinion/canada-does-not-need-fighter-jets-period/article19503129/>.

the reality is, as demonstrated by its Gulf War contributions, Canada has chosen, historically, to employ its fighters in support of its UN commitments in these exact roles. Furthermore, as stated by Colin Gray, “future strategic history will be marred by the occurrence of regular-style conventional warfare between states, sometimes conducted on a very large scale.”¹⁴⁶ World peace has not been attained; governments and militaries must be prepared for these types of conflicts. The retention of fighter aircraft by the RCAF will ensure the government of Canada has the option to contribute these assets to assist the UN in global security.

KOSOVO

Overview

On Wednesday, 7 October 1998, the Honorable Lloyd Axworthy, Minister of Foreign Affairs for the Liberal Party, addressed The House of Commons about the situation in Kosovo. He described the actions of the Yugoslavian governments resulting in military action against the civilian population. A humanitarian disaster ensued, displacing many in the region. Axworthy explained the level of effort that the Canadian government and international community made to resolve the situation via diplomatic means. The efforts included a UN Resolution to the Yugoslavian Government. Unfortunately, certain members of the United Nations Security Council would not support a UNSCR to carry out the necessary action to resolve the situation. Axworthy ended his opening remarks reminding the Members that “...all it takes for evil to triumph is that the good do nothing.”¹⁴⁷ The Liberal majority government would eventually

¹⁴⁶ Colin S. Gray, “Understanding Airpower: Bonfire of the Fallacies.” (Air University, Air Force Research Institute, Maxwell Air Force Base, Alabama, March 2009), 58.

¹⁴⁷ House of Commons. *Debates, Hansard*, no 134, Wednesday, 7 October 1998, 18:30. <https://www.ourcommons.ca/DocumentViewer/en/36-1/house/sitting-134/hansard#LINK220>.

commit CF-18s to contribute to the NATO action taken intended to resolve the situation forcefully.

RCAF Fighter Contribution and Threat

During Operation ECHO, CF-18s once again enabled both Control of the Air and Air Attack core capabilities. The subset missions executed were Counter-Land Air Interdiction and Close Air Support, and OCA Escort.¹⁴⁸ CF-18s in this operation were once again confronted with a high threat environment.

The opposing fireworks of enemy AAA ground fire and SA3 and SA6 surface-to-air missile launches accompanied virtually all missions flown into Kosovo and Serbia. In fact, as that first NATO attack package, including the four CF-18s, crossed into Kosovo on the first night, one of the first radio calls was from MAGIC, the NATO AWACS aircraft, warning the strike package that hostile MIG-29 Fulcrum fighters were closing on them. The fighter escorts, Royal Netherlands Air Force F 16s, promptly engaged them and one was shot down.¹⁴⁹

Canadian fighters needed the ability to defend against threats, both surface and airborne. Steven Staples suggest that Canada has no requirement for capabilities to participate in the opening day of a conflict.¹⁵⁰ However, CF-18s have participated in first-day strikes in Kosovo. RCAF fighter aircraft must remain capable of defending against all modern threats to contribute in all manners to international operations, even first-day strikes.

¹⁴⁸ Lieutenant-Colonel David L. Bashow, *et al*, "Mission Ready: Canada's Role in the Kosovo Air Campaign," *Canadian Military Journal* vol. 1, no. 1 (Spring 2000): 59, <http://www.journal.forces.gc.ca/vol1/no1/index-eng.asp>; Kim R. Nossal, and Stéphane Roussel, "Canada and the Kosovo War: The Happy Follower," in *Allied Force or Forced Allies?*, ed. Pierre Martin and Mark R. Brawley (New York: Palgrave, 2000), 181.

¹⁴⁹ Lieutenant-Colonel David L. Bashow, *et al*, "Mission Ready: Canada's Role in the Kosovo Air Campaign," *Canadian Military Journal* vol. 1, no. 1 (Spring 2000): 59, <http://www.journal.forces.gc.ca/vol1/no1/index-eng.asp>.

¹⁵⁰ Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 4. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

A Significant Contribution

Operation ECHO demonstrates how a small force such as Canada can contribute substantially. In Kosovo, "...although the 18 Canadian CF-18s constituted only 2 percent of the 912 NATO aircraft involved, the Canadian planes flew fully 10 percent of the missions and recorded a relatively high rate of 'successful hits' compared with the European allies."¹⁵¹ The capabilities, not just the contribution quantity, of the RCAF's CF-18s were also recognized and needed. The Canadian Task Force Commander in Aviano, Colonel Davies, noted that Lieutenant-General Short, the Joint Force Air Component Commander (JFACC),

... assembled all the senior national representatives and requested that we all tell our nations... [h]e needed precision bombers, and particularly wanted multi-role aircraft that could be employed where and when needed. He then singled out the CF-18s (with their day/night PGM [precision guided missile] capability) from Canada as the exact capability for which he was looking.¹⁵²

Commonly, there is more demand for airpower assets than supply."¹⁵³ So it is not surprising that the JFACC desired more. It has been stated that future Canadian contributions of fighter aircraft to expeditionary operation will not be essential or required for an operation's success and thus are marginal contributions.¹⁵⁴ Kosovo is a situation that demonstrates Canadian fighter contributions are not marginal but rather highly valued. Even the relatively small numbers of fighters Canada contributes to a

¹⁵¹ Kim R. Nossal, and Stéphane Roussel, "Canada and the Kosovo War: The Happy Follower," in *Allied Force or Forced Allies?*, ed. Pierre Martin and Mark R. Brawley (New York: Palgrave, 2000), 185.

¹⁵² Colonel D.A. Davies, *The Campaign for Kosovo-Canada's Fighter Force in Action*, (03 February 00): 2, quoted in Lieutenant-Colonel David L. Bashow, *et al*, "Mission Ready: Canada's Role in the Kosovo Air Campaign," *Canadian Military Journal* vol. 1, no. 1 (Spring 2000): 56-57, <http://www.journal.forces.gc.ca/vol1/nol/index-eng.asp>.

¹⁵³ Department of National Defence, B-GA-400-000/FP-001, *Royal Canadian Air Force Doctrine* (Ottawa: DND Canada, November 2016), 17.

¹⁵⁴ Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 4. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

NATO operation can have disproportionately large strategic and political effects. A contribution of ten percent of the missions can hardly be called a marginal contribution.

It has been suggested that Canada could make other contributions instead of fighter aircraft to international commitments. Charles Nixon stated, “Canada could be involved in providing humanitarian relief, peace-keeping or to help maintain order and protection of people and property - a type of operation would not likely involve aerial combat, but could require aerial support to ground operations.”¹⁵⁵ However, each operation is different, and requirements vary. Kosovo was a situation where there were not many options. Paul Koring highlighted the limited options available to Canada in this circumstance.

[The options] include sending a small infantry unit, although NATO hasn’t asked for ground forces, sending a warship, although Kosovo is landlocked, and sending a handful of utility helicopters. The latter are unarmed but planners have proposed mounting a light machine gun in the door opening.¹⁵⁶

Canada decided to contribute fighter aircraft to Kosovo to support NATO and the shared belief that intervention was required despite the lack of UNSCR mandating force.

Without a fighter force, it is unlikely Canada would have had another option to contribute in such a significant way. The RCAF fighter force enabled the government to contribute to Global security and support its NATO commitments.

¹⁵⁵ Charles Nixon, “Canada does not need fighter jets, period,” *The Globe and Mail* last modified 8 July 2017. <https://www.theglobeandmail.com/opinion/canada-does-not-need-fighter-jets-period/article19503129/>.

¹⁵⁶ Paul Koring, “NATO Rehearses Air Raids on Kosovo Canadian Planes to Join them Later,” *Globe and Mail*, 16 June 1998, <https://search-proquest-com.cfc.idm.oclc.org/docview/384634393?pq-origsite=summon>.

Summary

During Operation ECHO, Canada demonstrated its resolution to take action in the face of evil rather than do nothing. It did so in conjunction with its NATO partners. In this circumstance, few options were available to provide a meaningful contribution, and Canada chose to deploy CF-18s to assist with this crisis. The Canadian fighter jets were desired by the highest levels of military leadership in the campaign, and their contributions and capabilities notable. The CF-18s once again face a high threat environment with modern air defence for their time. The Canadian fighters were able to mitigate the threat with no losses to Canadian planes or pilots.¹⁵⁷ Overall this once again demonstrates the unique and in-demand capabilities of the Canadian fighter force to contribute to Canada's international commitments.

LIBYA

Overview

The Arab Spring led to the civilian population of Libya uprising, demanding change in their country. Muammar Gaddafi, the Libyan dictator, subsequently threatened the use of military force to quell his population. To prevent military use against civilians, the United Nations Security Council passed a resolution to commit troops to establish a No-Fly Zone and protect civilians.

The then-Conservative government chose to deploy CF-18s as part of Canada's contribution to UNSCR 1973 and enforce the no-fly zone over Libya. The government

¹⁵⁷ Lieutenant-Colonel David L. Bashow, *et al*, "Mission Ready: Canada's Role in the Kosovo Air Campaign," *Canadian Military Journal* vol. 1, no. 1 (Spring 2000): 55, <http://www.journal.forces.gc.ca/vol1/nol/index-eng.asp>.

indicated that Canada desires to assist and is fortunate to have the means to contribute to this operation. Peter MacKay, then Minister of National Defence, stated,

In this situation, we are compelled to intervene, both in a moral duty and by duty of NATO and the United Nations[.]... In this situation, deploying the Canadian Forces is the right thing to do and I expect that Canadians and members of the House clearly recognize that fact. ... We are fortunate to have an air force... that takes mere hours to deploy six highly-sophisticated fighter aircraft and the necessary support to depart for a theatre of operations nearly 7,000 kilometres away.¹⁵⁸

The Defence Minister's statements reiterate Canada's long-standing desire to participate in global security issues. Canada views itself as morally obligated to assist, not just pressured, due to security alliances. Furthermore, it recognizes that not all nations can afford the same level of defence. Canada is fortunate to have the RCAF capabilities, which it can commit to assisting in global security and protecting innocent civilians. The government demonstrates that Canada does have a moral desire to assist in international security crises and support its international commitments, and desires to retain the capabilities required to do so.

The RCAF Fighter Contribution

Prior to the UNSCR passage on 17 March 2011, it was unknown if any military response would occur.¹⁵⁹ Due to the unforecast nature of the events of the Arab Spring, there was little preparation time. The notable rapid reaction of the fighter force and ability to depart Canada and commence operations over Libya was discussed in an earlier chapter. The CF-18s once again contributed across the spectrum of their capabilities as part of Operation MOBILE. The CF-18s initially assisted with Control of the Air by

¹⁵⁸ Canada. House of Commons. *Debates, Hansard*, no 145, Monday, 21 March 2011, 40:3. <https://www.ourcommons.ca/DocumentViewer/en/40-3/house/sitting-145/hansard>

¹⁵⁹ Richard O. Mayne, "The Canadian Experience: Operation Mobile," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 249.

contributing in the Defensive Counter Air role protecting air and maritime assets.¹⁶⁰ The doctrinal missions were Anti-Air Warfare supporting the Maritime component and High-Value Airborne Asset Protection for the air assets. As the operation progressed, CF-18s transitioned to the Air Attack role executing Counter-Land Air Interdiction and Airborne Alert Air Interdiction (XINT) missions.¹⁶¹ In the XINT missions, the CF-18s receiving their targets dynamically after they were already airborne and transiting into the combat zone.¹⁶² CF-18s also carried out what was labelled as Strike Coordination and Reconnaissance (SCAR). Nomenclature aside, the task described is similar to the doctrinal Armed Reconnaissance in which the CF-18s searched for targets and then conducted strikes on them.¹⁶³ In at least one instance, a deep strike was carried out, which had the characteristics of a Precision Strike mission of the Strategic Attack role. The RCAF fighters participated in a deep strike against targets in Sebha, beyond the personnel recovery capability of Combat Search and Rescue Assets.¹⁶⁴ While it is unclear what the targets were on this occasion, the CF-18s participation in this mission demonstrates their ability to execute precision strike missions deep inside enemy territory. As part of Operation MOBILE it is clear the CF-18s actively participate in the NATO effort, but it was not without threat.

¹⁶⁰ Mark Iype, "Canada Conducts First Libya Mission; CF-18 Fighter Jets Patrol Coast; no Strikes," *Star - Phoenix*, 22 March 2011, <https://search-proquest-com.cfc.idm.oclc.org/newspapers/canada-conducts-first-libya-mission-cf-18-fighter/docview/858993979/se-2?accountid=9867>.

¹⁶¹ Richard O. Mayne, "The Canadian Experience: Operation Mobile," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 253.

¹⁶² Eric Reguly, "Inside the Cockpit of a CF-18: Avoid Civilians and Don't Get Shot," *The Globe and Mail*, 04 April 2011, <https://search-proquest-com.cfc.idm.oclc.org/historical-newspapers/inside-cockpit-cf-18-avoid-civilians-dont-get/docview/1513557697/se-2?accountid=9867>.

¹⁶³ Richard O. Mayne, "The Canadian Experience: Operation Mobile," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 255.

¹⁶⁴ Richard O. Mayne, "The Canadian Experience: Operation Mobile," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 256.

Threat

Operation MOBILE once again had fighter aircraft facing enemy air defences. The Libyan military possessed systems capable of long to short ranges engagements. The air defence threats included Surface-to-Air Missiles such as the SA-5, SA-6, SA-8, SA-9 and Crotale, as well as Anti-Aircraft Artillery and SA-24 MANPADS.¹⁶⁵ While many of these systems were targeted early in operations by allied forces, Lieutenant General Jodice, the Air Component Commander, highlighted that mobile air defences were considered a threat through the first five months of the approximately seven-month operation.¹⁶⁶ These were threats that the Canadian fighters witnessed first-hand. The CF-18's Commanding Officer, Lieutenant-Colonel Menard, stated his pilots faced anti-aircraft fire often on their missions.¹⁶⁷ Libya presents another example that threats will remain and be a serious consideration even after the opening days of conflict, despite the technological advantage allies may have over adversaries.

Despite the threats CF-18s have been confronted with in Libya, and the other operations discussed, there is a perception that these threats are only present early in a conflict. Some argue that a fighter such as the F-35 is not required by Canada as it is a first-strike capability. The argument made is that the US will retain niche first-strike capabilities, and Canada would not participate in conflicts until "comprehensive destruction" of enemy air defences.¹⁶⁸ The challenge with this argument is that it implies

¹⁶⁵ Christina Goulter, "The British Experience: Operation Ellamy," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 160.

¹⁶⁶ Deborah C. Kidwell, "The U.S. Experience: Operational," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 130.

¹⁶⁷ Eric Reguly, "Inside the Cockpit of a CF-18: Avoid Civilians and Don't Get Shot," *The Globe and Mail*, 04 April 2011, <https://search-proquest-com.cfc.idm.oclc.org/historical-newspapers/inside-cockpit-cf-18-avoid-civilians-dont-get/docview/1513557697/se-2?accountid=9867>.

¹⁶⁸ Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 4. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

all defences will be destroyed within this first strike. However, as the Gulf War, Kosovo and now Libya demonstrate, it can not be assumed that all threat defences will be abolished. Fighter aircraft continued to encounter air defences well into the conflict in all three operations. A credible fighter capability must have the required defence systems and technology to survive current threat systems.

Furthermore, the rapid advancement of technology will increase threat capability. What is deemed an advanced threat by today's standards will be an average threat when any CF-18 replacement reaches its retirement. The USAF highlights that traditional surface-to-air and fighter aircraft threats will continue to advance and proliferate beyond just near-peer countries as nations around the world upgrade their defences.¹⁶⁹ A CF-18 replacement must be capable of surviving against advanced threats of today if it hopes to remain capable on the battlefield in the future. Canadian assessments note that while CAF participation in state-on-state conflict is unlikely, these air defence threats remain relevant. Future conflict may not be "...clearly defined state-on-state warfare or explicitly humanitarian assistance missions but rather, as in the case of Libya or Kosovo, something in between."¹⁷⁰ In both Libya and Kosovo, Canada chose to contribute fighter aircraft, and in both of these examples, CF-18s faced air defences. Canadian fighters could very easily find themselves in situations again with a SAM appearing unexpectedly and in a position where their own capabilities will be the difference between life and death. Ultimately, the RCAF will need to retain the capability to operate in current threat

¹⁶⁹ Department of the Airforce Enterprise Capability Collaboration Team, *Air Superiority 2030 Flight Plan* (Washington D.C.: U.S. Government Printing Office, May 2016), 2.

¹⁷⁰ Public Works and Government Services Canada, *Summary Report: Evaluation of Options for the Replacement of the CF-18 Fighter Fleet* (Ottawa: Canada Communications Group, December 2014), 10. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/245644>.

environments or understand that the threat may deny Canada the ability to contribute to the future conflict it desires.

Summary

The passing of UNSCR 1973 provided little warning to Canada's decision-makers to deploy CF-18s to Libya to protect civilians. The RCAF fighter force was able to respond rapidly and enable the government's desire to assist. No other Canadian capability could have physically protected civilians due to the limitation in the UNSCR, which was the foundation of the support. The CF-18s enabled DCA, Counter-Land, and Strategic Attack roles as no other Canadian Armed Forces asset could have. The contribution was once again significant in scale, the CF-18 noted as having conducted over 10 percent of the NATO strike missions.¹⁷¹ Despite those who suggest Canada will not operate in threat environments, Operation MOBILE is another example that enemy defences will remain well beyond the opening days of a conflict. The RCAF needs to retain capabilities that can operate in these environments to enable the government's desires to actively contribute to protecting innocent civilian populations from those who mean to do harm. It is said that "Op Mobile indicates the RCAF has found a good balance to meet Canada's domestic and international needs,"¹⁷² The RCAF fighter forces notable contribution in Libya is a clear contribution to this balance.

¹⁷¹ Richard O. Mayne, "The Canadian Experience: Operation Mobile," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 257.

¹⁷² Richard O. Mayne, "The Canadian Experience: Operation Mobile," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (Santa Monica, CA: RAND Corporation, 2015), 266.

IRAQ/SYRIA

Overview

The most recent CF-18 combat deployment from 2014 to 2016 was to fight Daesh in Iraq and Syria alongside a global coalition.¹⁷³ Designated Operation IMPACT, this deployment was not in response to a specific NATO or UN mandate. Instead, it was an example of Canada and the other coalition nations, recognizing that force was required to stop the terrorist group Daesh. The government felt morally obligated to assist in stopping this terrorist organization. Parliamentary Member Mr Erin O'Toole stated in a debate leading up to the deployment, "with our immense freedoms and wealth as a nation comes a duty to safeguard and promote these same opportunities for others."¹⁷⁴ The government of the time determined it would contribute CF-18s as part of its contribution to providing that force. However, following a subsequent election and change of political party in power, the CF-18s were withdrawn from Operation IMPACT. While not all governments may see CF-18s as the best method Canada can contribute, having fighters allows governments to choose. Without an RCAF fighter capability, governments would not have access to their capability nor the option to use them, no matter the scenario.¹⁷⁵

¹⁷³ Department of National Defence, "Operation IMPACT," last modified 15 December 2020, <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-impact.html>.

¹⁷⁴ House of Commons. *Debates, Hansard*, no 124, Tuesday, 7 October 2014, 41:2. <https://www.ourcommons.ca/DocumentViewer/en/41-2/house/sitting-124/hansard>

¹⁷⁵ James Fergusson, "The Right Debate: Airpower, the Future of War, Canadian Strategic Interests, and the JSF Decision," *Canadian Foreign Policy Journal* 17, no. 3 (2011): 214, <https://www.tandfonline.com/cfc.idm.oclc.org/doi/full/10.1080/11926422.2011.638195>.

RCAF Fighter Contribution

During Operation IMPACT, CF-18s provided the Air Attack core capability, including the Air Interdiction mission in the Counter Land Role.¹⁷⁶ According to reports, the CF-18's were also involved in at least one situation concurrently with Special Forces.¹⁷⁷ Canadian Special Force, Kurdish forces, and with the help of CF-18s, fended off a Daesh attack near Mosul, Iraq, in December 2017. While it does not explicitly state which mission CF-18s executed, it demonstrates the capability of Special Air Operations support by RCAF fighters. Daesh, as a terrorist organization, was unlikely to have had access to advanced air defence systems. However, one significant situation to highlight in theatre was when a US Navy F/A-18 multi-role fighter unexpectedly had to engage another aircraft to defend friendly ground forces.¹⁷⁸ While this certainly is a rare circumstance, it highlights the unexpected situations that can manifest in combat. As a multi-role fighter, the CF-18 enables the agility to counter the unexpected.

Summary

Currently, there is limited published information on the CF-18 contribution to Operation IMPACT. However, what is apparent with this operation is that it provides yet another example of the Canadian government electing for the contribution of fighter aircraft to assist in a security crisis. With no specific UNSCR or NATO mandate, Canada

¹⁷⁶ “CF-18 Commander Discusses ISIS Bombing Mission,” YouTube video, 20:10, posted by “CBC News: The National,” 3 May 2016, <https://www.youtube.com/watch?v=HdZPDdDoh5k>

¹⁷⁷ Amanda Connolly, “Canadian Forces involved in ‘largest’ firefight yet with ISIS near Mosul,” last accessed 19 March 2021, <https://ipolitics.ca/2015/12/17/canadian-forces-involved-in-firefight-with-isis-near-mosul/>; David Pugliese, “Canadian special forces help fight off ‘significant’ ISIL attack in Iraq” last accessed 19 March 2021, <https://ottawacitizen.com/news/national/breaking-canadian-special-forces-in-ground-battle-with-isil-in-northern-iraq>.

¹⁷⁸ Geoff Ziezulewicz, “The inside story of how a US Navy pilot shot down a Syrian jet,” *Navy Times*, 10 September 2018, <https://www.navytimes.com/news/your-navy/2018/09/10/the-inside-story-of-how-a-us-navy-pilot-shot-down-a-syrian-jet/>.

morally felt it needed to intervene with the coalition to stop Daesh. However, following an election, a new government adjusted Canada's contribution and removed CF-18s.

Without fighter aircraft in the RCAF inventory, neither governing party would have had the option to consider if CF-18s were a suitable contribution.

NORAD

Overview

The Government of Canada's top priority for the CAF is the defence of Canada. The RCAF contributes to this defence through the collective defence of North America in NORAD. This self-defence is also a fulfilment of Canada's NATO Article 3 commitment to resist armed attack. As highlighted in earlier chapters, fighters provide credible capability fulfilling both these NORAD and NATO commitments given their characteristics and the vastness of Canada.

RCAF Fighter Contribution

As part of NORAD, CF-18s contributed to the defence of Canada in many ways. Fighter aircraft have provided security for major events such as the G7 Charlevoix in 2018 and Vancouver winter Olympics in 2010.¹⁷⁹ In defending these localized events, CF-18s conducted Point Defence missions. CF-18s have participated in Operation NOBLE EAGLE to prevent a 9/11 style attack, and intercepted Russian military aircraft within Canada's air identification zone. Operation NOBLE EAGLE and dangerous military aircraft intrusion into Canada's ADIZ can occur anywhere around or over

¹⁷⁹ Radio-Canada, "Sommet du G7: le ciel sous haute surveillance à La Baie," last modified 24 April 2018, <https://ici.radio-canada.ca/nouvelle/1097111/avion-drone-reglement-saguenay>; Justin Brockhoff, "Air Force officials to fly missions to support Vancouver Olympics," United States Air Force, Scott Air Force Base, last modified 12 February 2010, <https://www.af.mil/News/Article-Display/Article/117631/air-force-officials-to-fly-missions-to-support-vancouver-olympics/>.

Canada. To defend all of Canada, fighters execute Area Defence air intercept missions. In doing so, fighters enabled the Control of the Air capability and its required Defensive Counter Air role for the RCAF and Canada.

Given the vastness of Canada and the various security situations described above, RCAF air defence interceptors need to rapidly and capably provide varying effects against a wide range of aircraft anywhere in Canada. NORAD Fighters have intercepted Russian supersonic bombers, such as the Tu-160 Blackjack and Fighter Aircraft within the ADIZ.¹⁸⁰ These intercepts have occurred in Canada's extreme North, far from airfields. Air defence interceptors need to be able to reach these northern areas and the speed to contend with supersonic military aircraft and weapons to be a credible deterrent to foreign military incursion on Canadian sovereignty.

As part of Operation NOBLE EAGLE, CF-18s have intercepted civilian aircraft, such as airliners which travel at high altitudes and relatively fast speeds. Sometimes, this is the only way to gain information on these aircraft, as was the case when CF-18s scrambled and intercepted an unresponsive airliner travelling from Paris. They were able to establish radio communication with the otherwise unresponsive aircraft. The unresponsive Sunwing flight only became responsive once CF-18s intercepted it.¹⁸¹ Without a crewed fighter intercepting this airliner, it would be challenging to determine why the aircraft was out of communication for so long. The RCAF's air defence

¹⁸⁰ Associated Press, "U.S., Canadian fighter planes scramble to escort Russian jets," last modified 26 January 2019, <https://www.ctvnews.ca/world/u-s-canadian-fighter-planes-scramble-to-escort-russian-jets-1.4270832>; Alex Sundby, "U.S. fighter jets intercept Russian bombers near Alaska," last Modified 20 October 2020, <https://www.cbsnews.com/news/united-states-fighter-jets-intercept-russian-military-planes-alaska/>.

¹⁸¹ Robert Fife, and Philip Ling, "Pilot error on Sunwing flight caused CF-18 fighter jets to scramble," last modified 26 February 2013, <https://www.ctvnews.ca/canada/pilot-error-on-sunwing-flight-caused-cf-18-fighter-jets-to-scramble-1.1173510>.

interceptors need the ability to intercept trans-oceanic airliners at transit altitude and airspeed. The previously discussed example of NORAD fighters intercepting a small aircraft with an unconscious pilot demonstrates the need for the ability to intercept small aircraft. In the case of civilian aircraft intercepts, fighter pilots can provide critical information to Commanders through radio communication of their observation. This information could be the difference in understanding if an aircraft is unresponsive due to an emergency and requires assistance, if it is a threat, or if it is just simply a pilot error. "Technology cannot substitute a pilot's real-time onboard ability to be aware of rapidly evolving situations and respond appropriately."¹⁸² Fighter aircraft can provide a deterrent effect to warn or advise air traffic, provide commanders critical eyes on information about a radar contact, or if need be, provide lethal force to protect events.

An argument exists that monitoring the air avenues of approach with radar is all that is required for Canada's air defence. Radar detection and identification through a filed flight plan is all that is required and civil authorities can intercept any offending aircraft upon landing.¹⁸³ However, as in the case of the unresponsive Sunwing airliner or unconscious small aircraft pilot, sometimes information is required before an aircraft lands. While thankfully there has not been another 9/11 style attack, NORAD scrambled aircraft at least 1,700 times in the three years following 9/11 due to suspicious aircraft.¹⁸⁴ Furthermore, if a radar contact is detected and not on a flight plan, the only way to

¹⁸² Public Works and Government Services Canada, *Summary Report: Evaluation of Options for the Replacement of the CF-18 Fighter Fleet* (Ottawa: Canada Communications Group, December 2014), 9. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/245644>.

¹⁸³ Ernie Regehr, *Fighter Aircraft and New Canadian Defence Imperatives*, Disarming Arctic Security (Vancouver: The Simons Foundation, 7 January 2016), 3.

¹⁸⁴ Associated Press, "Officials: Terrorists Still could Strike Capital by Air; Approximately 1,700 Suspicious Aircraft are Intercepted Or Diverted since Sept. 11;" *Telegraph - Herald*, 16 January 2004, <https://search-proquest-com.cfc.idm.oclc.org/newspapers/officials-terrorists-still-could-strike-capital/docview/368533260/se-2?accountid=9867>.

confirm their identity is through interception. Russian military aircraft entering the ADIZ have historically not filed international flight plans.¹⁸⁵ The information provided by radar alone that an aircraft has entered the ADIZ does not provide any meaningful deterrence to an adversary. The same critic of fighter aircraft acknowledges, “when aircraft intrude into Canadian skies, responding is not optional – then you can’t choose whether or not to respond.”¹⁸⁶ The argument being that Russia does not intend to ender Canadian sovereign airspace. However, others have noted the “...increasing aggressiveness of Russian military aircraft against Canadian airspace....”¹⁸⁷ The RCAF can not just hope foreign militaries will never intend to enter Canadian airspace. Until nations stop testing Canada’s defences, deterrent capabilities must be retained to protect its population and enforce its sovereignty. Fighter aircraft are the only RCAF platforms that can accomplish these effects.

Summary

The altitude, speed, and weapon capabilities of a supersonic fighter enable it to intercept the various aircraft types required to defend Canada and contribute to NORAD. In the Defensive Counter Air role, fighters can provide effects ranging from observation and deterrence to lethal force, if required. No other current airframe has the full capabilities to carry out all of these missions. If the RCAF were to lose its fighter fleet, it would create a significant capability gap to resist armed attack in the air domain. This

¹⁸⁵ North American Aerospace Defense, “A Brief History of NORAD” (31 December 2013): 12, [https://www.norad.mil/Portals/29/Documents/A%20Brief%20History%20of%20NORAD%20\(current%20as%20of%20March%202014\).pdf](https://www.norad.mil/Portals/29/Documents/A%20Brief%20History%20of%20NORAD%20(current%20as%20of%20March%202014).pdf).

¹⁸⁶ Ernie Regehr, *Fighter Aircraft (1): Threats and Priorities*, Disarming Arctic Security (Vancouver: The Simons Foundation, 29 May 2015), 4.

¹⁸⁷ Bert Chapman, “JSF and Canada,” in: *Global Defense Procurement and the F-35 Joint Strike Fighter* (Cham, Switzerland: Palgrave Macmillan, 2018), 219. https://doi-org.cfc.idm.oclc.org/10.1007/978-3-030-01367-7_6

vulnerability would hinder Canada's ability to fulfil its NATO Article 3 commitment and dramatically reduce its NORAD contribution, transferring the burden onto the US.

NATO AIR POLICING

Overview

CF-18s have deployed numerous time to assist NATO with Air Policing, including deployments to Iceland in 2011 and 2013, and Romania in 2014, 2017, 2018, 2019 and 2020.¹⁸⁸ Since 2014 the deployments to Romania have been under Operation REASSURANCE, Canada's contribution to NATO deterrence measures, demonstrating solidarity, and reinforcing collective defence.¹⁸⁹ Operation REASSURANCE is also viewed as a deterrent directly aimed at Russia after its annexation of Crimea.¹⁹⁰ These deployments occurred under both Conservative and Liberal governments. The non-partisan decisions to deploy CF-18s in this role have increased in frequency in recent years. Canada continues to choose to be an active NATO supporter with fighter aircraft, as these are required to provide credible deterrence to the adversary fighters they intercept.

The RCAF Fighter Contribution

CF-18 air policing missions provide Area Defence air intercept missions similar to the NORAD missions. Canadian fighters on Operation REASSURANCE stand on

¹⁸⁸ Department of National Defence, "Operation IGNITION," last modified 04 September 2020, <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-ignition.html>; Department of National Defence, "Operation REASSURANCE," last modified 15 February 2021, <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-reassurance.html>.

¹⁸⁹ Department of National Defence, "Operation REASSURANCE," last modified 15 February 2021, <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-reassurance.html>.

¹⁹⁰ Ryan Atkinson, "From Reassurance To Deterrence: Canada's Contribution To NATO Operations In Central And Eastern Europe," last modified 4 February 2017, <https://natoassociation.ca/from-reassurance-to-deterrence-canadas-contribution-to-nato-operations-in-central-and-eastern-europe/>.

guard for unauthorized incursions into Romanian controlled airspace. On these missions, Russian SU-27 fighter aircraft entering the Romania flight information region caused CF-18s to scramble and intercept them.¹⁹¹ There are, however, those that view fighters as unnecessary for these missions. Former Defense Minister Charles Nixon suggested that Canada's contributions in these operations are only symbolic and that "Canada does not need fighters for defence of Western Europe."¹⁹² However, the annexation of Crimea was very real, and Russia continues to demonstrate aggressive behaviour. Currently, Russia is massing troops inside Crimea and along its western border with Ukraine.¹⁹³ Regehr suggests in his argument that Canada does not need fighters going forward regardless of threat capabilities due to a lack of threat intentions.¹⁹⁴ Given the highlighted Russian actions, it is understandably challenging for Canada and NATO to assess the Russian intent as a low threat. The government of Canada states its views in SSE that "a credible military deterrent serves as a diplomatic tool to help prevent conflict."¹⁹⁵ Operation REASSURANCE's support to NATO reinforces this policy statement. Russia's behaviour and CF-18s interception of Russian fighters on these missions demonstrate that a fighter capability is required to enable a credible deterrence.

¹⁹¹ Department of National Defence, "Royal Canadian Air Force CF-18 Hornet on Operation REASSURANCE intercept Russian aircraft near Romanian Airspace," last modified 25 September 2020, <https://www.canada.ca/en/department-national-defence/news/2020/09/royal-canadian-air-force-cf-18-hornet-on-operation-reassurance-intercept-russian-aircraft-near-romanian-airspace.html>.

¹⁹² Charles Nixon, "Canada does not need fighter jets, period," *The Globe and Mail* last modified 8 July 2017, <https://www.theglobeandmail.com/opinion/canada-does-not-need-fighter-jets-period/article19503129/>.

¹⁹³ Reuters, "OFFICIAL Russian military build-up near Ukraine numbers more than 100,000 troops, EU says," last modified 20 April 2021, <https://www.reuters.com/world/europe/russian-military-build-up-near-ukraine-numbers-more-than-150000-troops-eus-2021-04-19/>.

¹⁹⁴ Ernie Regehr, *Fighter Aircraft (1): Threats and Priorities*, Disarming Arctic Security (Vancouver: The Simons Foundation, 29 May 2015), 4-5.

¹⁹⁵ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 50.

Summary

NATO Air Policing is an example of the non-lethal deterrent effects fighters provide. Furthermore, these deployments reassure allies of Canada's intent and capability to support its NATO commitments. In line with SSE, Operation REASSURANCE also reflects Canada's stated commitment to maintaining credible deterrence across all domains.¹⁹⁶ Russia's intentions are difficult to know for sure; however, it is clear they are developing 5th generation fighter aircraft, the SU-57 Felon. For Canada to provide a credible air deterrent on these missions, the RCAF must retain a credible fighter capability.

CHAPTER SUMMARY

Every Prime Minister of Canada since 1988, other than Paul Martin 2004-06, has decided to deploy fighters on an expeditionary operation discussed in this chapter. This fact demonstrates a long-standing, cross-party recognition of the requirement for these capabilities with a demonstrated willingness to use them.

These operations could be viewed individually as evidence of what Canada's future capability requirements are. Operation IMPACT and the counter-terrorist mission in Iraq and Syria could demonstrate that Canada did not need a supersonic fighter, and a UAV would have been better. Libya did not require a Stealth Fighter as fourth-generation fighter aircraft were able to mitigate the threat. Canada's NORAD role is the priority and requires an interceptor, not a multi-role fighter/attack aircraft. However, when viewed all together, these examples demonstrate how broad the roles of the RCAF CF-18s are. It

¹⁹⁶ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 50.

also becomes evident how broad the RCAF capabilities must be to enable Canada to fulfil its commitments.

One needs to be cognizant of not being caught up preparing for the previous war, but can not ignore the lessons from them, as was highlighted by Sir John C. Slessor. All these examples are just that, historical. Together they highlight the broad spectrum of doctrinal roles and missions that Canada has employed its fighter force in operationally. The fighter force must be prepared and equipped appropriately for the future.¹⁹⁷ The threat and environments of these missions will continue to evolve. Thus Canada must continue to develop its fighter force to remain capable of executing all these missions within the evolving environments. As stated by SSE, the Canadian government intends to maintain "...advanced conventional military capabilities that could be used in the event of a conflict with a 'near-peer'".¹⁹⁸

CONCLUSION

In the introduction to this chapter, the question was asked, do the roles assigned to Canada's fighter force remain relevant?¹⁹⁹ From an examination of the historical employment of CF-18s, it becomes apparent that RCAF fighters do indeed continue to be employed broadly across all assigned roles. These are not just token doctrinal missions of the RCAF but operationally utilized fighter capabilities that the Canadian government has called upon to fulfil its commitments. The governments that have deployed RCAF

¹⁹⁷ Lieutenant-Colonel David L. Bashow, *et al*, "Mission Ready: Canada's Role in the Kosovo Air Campaign," *Canadian Military Journal* vol. 1, no. 1 (Spring 2000): 59, <http://www.journal.forces.gc.ca/vol1/nol/index-eng.asp>.

¹⁹⁸ Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: DND Canada, 2017), 50.

¹⁹⁹ Steven Staples, *Pilot Error: Why the F-35 Stealth Fighter is Wrong for Canada* (Ottawa: Canadian Centre for Policy Alternatives, October 2010), 2. <https://www-deslibris-ca.cfc.idm.oclc.org/ID/225294>.

fighters do not just belong to one side of the political spectrum. The majority of Canadian governments since 1988 have chosen to deploy the CF-18 on some form of international operation. Fighter operations have varied in what they have supported.

Canadian Fighters deployments have supported UNSCRs, NATO requests, and international security crisis without UN mandates. The Gulf War, Operation ECHO in Kosovo, Operation MOBILE in Libya, Operation IMPACT in Iraq and Syria, NORAD, and NATO Air Policing demonstrate that no two fighter operations will be the same. Threat levels, core capabilities, roles, and missions vary from operation to operation. However, the broad combat capabilities of the RCAF fighter force will ensure Canada has the option to provide lethal effects, deterrence, or simply presence in the air domain when required. No other single platform could have accomplished the broad range of missions that a single multi-role crewed fighter fleet accomplished on these operations.

CF-18s have conducted all five of RCAF doctrinally defined OCA and DCA missions during expeditionary or domestic operations. Canada's fighters have conducted six of eleven missions which make up Air Attack in operations. Control of the Air and Air Attack account for half of the RCAF core capabilities. RCAF fighters have executed two-thirds of the subordinate missions to these core capabilities on real-world Expeditionary Operations. While some narrowly view fighters as only useful in combat, it is clear that combat operations are broad. For any military, a central focus of its capabilities needs to ensure combat capability. The Multi-role CF-18 fighter has demonstrated its versatility in fulfilling the RCAF's core capability requirements as no other single aircraft could. As was highlighted by Colin Gray, conventional conflicts will

continue in the future.²⁰⁰ To provide the government of Canada with all the options and capabilities it has in the past, the RCAF must retain its crewed multi-role fighter capability.

²⁰⁰ Colin S. Gray, "Understanding Airpower: Bonfire of the Fallacies." (Air University, Air Force Research Institute, Maxwell Air Force Base, Alabama, March 2009), 58.

CONCLUSION

The RCAF needs to retain its crewed fighter aircraft capability to provide all doctrinal core capabilities, fulfil government policy, and enable Canada to fully honour its international security commitments. The RCAF's CF-18s enable two-thirds of the doctrinal Air Attack and Control of the Air core capabilities. They have enabled these capabilities by carrying out the subordinate missions on real-world operations at home and around the world on an ongoing basis. The loss of fighter aircraft by the RCAF would result in an almost complete loss of these capabilities within Canada and dramatically limit the nation's abilities to fulfil its international Security commitments.

SSE has reaffirmed Canada's commitment and desire to be an active participant in NORAD, NATO, and the UN to contribute to the resolution of global security issues. Fighter aircraft are Canada's only platform to enable air defence intercept missions across the broad spectrum of potential threats that need to be considered by NORAD. The RCAF's fighter force has demonstrated the capability to rapidly support NATO missions, whether providing reassurance and deterrence or participating in active combat operations. CF-18s have been deployed as Canada's contribution to support multiple UNSCRs. Operation MOBILE in Libya demonstrated the critical role fighters enabled as no other Canadian assets could actively protect the civilian population in that situation.

Fighter aircraft, by their nature, are viewed as a combat capability. This view can lead to the assumption that there is limited scope to the roles fighters provide. It would be easy to assume they just bomb targets and that this is a single mission that is carried out the same way from one operation to the next. The reality is that fighter aircraft carry out a wide variety of doctrinal missions. Multi-role fighters are capable in Defensive and

Offensive Counter Air Roles, supporting the Maritime component with Anti-Air and Anti-Surface Warfare. Canada's fighter aircraft can execute Close Air Support for friendly ground forces, Air Interdiction against adversaries, and conducted Precision Strike missions deep within enemy territory. The RCAF fighters also provide non-lethal effects. They can provide a visible deterrent to an airborne aggressor, reassure an ally with their presence and support, or be the commander's eyes in the sky while intercepting an aircraft with unknown intentions. CF-18s have conducted all of these Air-to-Air and Air-to-Ground missions on operations.

Canadian governments have chosen to deploy Canada's CF-18s to a variety of operations. They have participated in Combat operations in the Gulf War, Kosovo, Libya, and Iraq/Syria. These fighters have also been employed in non-combat operations with NORAD and NATO Air Policing in Iceland and Romania. The fighter pilots have operated in threat environments ranging from low threat NORAD to high threat combat zones in Kosovo and the Gulf War, with Surface-to-Air missiles, Anti-Aircraft Artillery, and Air Defence Fighters. In each of these different situations, Canada's fighter force enabled many of the different core capabilities listed above. In doing so, the CF-18s provided real-world effects ranging from non-lethal reassurance and deterrence to lethal weapon employments against adversaries and hostile entities intended to protect innocent civilians. No other single RCAF platform could have provided such broad effects across such varied environments. The RCAF's Fighter aircraft are required if Canada wishes to continue to be capable of these effects as stated in SSE.

It may appear easy to categorize fighter operations as simply kinetic strike. The reality is that fighter aircraft carry out a wide variety of doctrinal missions as the sole

RCAF platform enabling critical missions and core capabilities in various threat environments. There is no certainty what the future holds. However, the air domain will remain relevant, and threats will continue to develop and proliferate. It is impossible to accurately forecast what threat environment will be encountered and what missions will be flown during future operations. The RCAF must retain broad capabilities as directed by SSE. Multi-role fighter aircraft are one airframe that enables a broad range of core capabilities for uncertain future environments. Without fighter aircraft, the RCAF would lose the ability for a significant portion of its core capabilities.

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