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**AEROSPACE POWER – THE CRITICAL ENABLER TO SPECIAL OPERATIONS  
FORCES**

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## **ABSTRACT**

The contemporary security environment, with its emphasis on global, interconnected and asymmetric threats, has highlighted the importance and value of Special Operations Forces (SOF) and the missions they perform. While SOF are ideally suited to lead the fight against terrorism and other current threats, they are not without limitations and vulnerabilities. In order to successfully prosecute their missions, while mitigating vulnerabilities, the support of key force enablers is required.

The characteristics and functions of aerospace power provide vital support to all SOF missions and tasks. The integration of SOF and aerospace power, including the use of dedicated SOF aerospace assets, has proven invaluable to the success of Special Operations. This paper clearly illustrates that aerospace power is the critical enabler to a national SOF capability.

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*. . . the AC-130 covering the operation for fires and ISR was able to paint a detailed, if not grim, picture of the mass of insurgents moving into position around the target compound. This tactical insight allowed the GFC to direct fires from the AC-130 through the JTAC to neutralize key groups of Taliban and provide some breathing room for the QRF to be called in to take the pressure off the main force. The surgical nature of the AC-130 allowed for the engagement of these enemy forces in the immediate vicinity of the force without significant collateral damage to the local infrastructure and population.<sup>1</sup>*

## **INTRODUCTION**

Although the threat of terrorism has always been prevalent, the attacks launched against the United States on 11 September 2001 (9/11), and subsequent attacks in Bali (2002), Spain (2004), and the United Kingdom (2005), ushered in a new era of conflict. No longer do adversaries consist of conventional forces of opposing nation-states. Instead, the contemporary environment is replete with dispersed, non-state, terrorist networks that are ideologically opposed to the Western way of life and the influence it has on their culture. They seek to perpetuate conflict with the West and, in so doing, inflict as many casualties as possible through whatever means necessary. Winning this ‘war against terror’ requires a combination of “long duration unconventional warfare, counterterrorism, counterinsurgency, and military support for stabilization and reconstruction efforts.”<sup>2</sup> While conventional forces have a role to play in what is being referred to as the “Long War,”<sup>3</sup> a successful strategy to prevail in this fight requires an emphasis on unconventional and indirect approaches to warfare, tasks Special Operations Forces (SOF) are ideally suited to undertake.<sup>4</sup> As a result, SOF have become the ‘force of choice’ in the current operating environment.

Consisting of small groups of carefully selected, innovative personnel, SOF are specially trained and equipped to conduct missions that are beyond the capabilities of

conventional forces. Their small unit size, high mobility and relatively light armament permit discreet operations over great distances, in denied or politically sensitive areas, with little support. Their ability to provide rapid, precise effects throughout the spectrum of conflict enables them to deal with the myriad of threats (e.g. weapons of mass destruction (WMD), terrorist and other asymmetric attacks) faced by nations today. Whether conducting counter-insurgency operations in a foreign land or executing a domestic counter-terrorist mission, SOF's capabilities are ideally suited to address the challenges present in an ever changing and complex threat environment.

However, the very characteristics that make SOF ideally suited to meet the challenges of today's threat environment also present vulnerabilities and limitations on their ability to operate in all environments. SOF's small unit size and limited integral firepower, while conducive to discreet, stealthy movement, limits the combat power available if forced to combat a larger or more heavily armed force. As well, the abilities of SOF to operate at large distances from supporting organizations, presents challenges for insertion/extraction, communications, re-supply or medical evacuation (MEDEVAC). Additionally, in a domestic context, the speed of response required to address a terrorist event, particularly in a nation as vast as Canada, requires capabilities not resident in most SOF organizations.

In order to mitigate the vulnerabilities and maximize the effectiveness of SOF, it o

enable SOF to achieve maximum effectiveness and, when necessary, level the playing field if faced with a contingency beyond their capabilities.

This paper will argue that effective Aerospace Power support is the critical enabler to an effective national SOF capability. Although this requirement may seem intuitive, the reality is many nations; including Canada, do not have the requisite aerospace power to properly enable the fielding or employment of a world class SOF capability.

The paper is divided into five chapters. Chapter One will examine the contemporary threat environment that SOF can expect to face both today and in the foreseeable future. Chapter Two will examine the fundamentals of SOF, including their characteristics, roles, missions and principles of employment. In a similar manner, Chapter Three will provide an examination of the principles and characteristics of aerospace power detailing both what is available today and what is envisioned for the future. Chapter Four will narrow the focus of aerospace power to examine dedicated Special Operations (SO) aerospace forces and the benefits and challenges they present. Finally, Chapter Five will evaluate the integration of SOF and aerospace power, examining what capabilities are most critical to the success of SO and where the greatest synergies can be achieved in the conduct of operations.

## CHAPTER ONE – Contemporary Threat Environment

*War no longer exists. Confrontation, conflict, and combat undoubtedly exist all around the world . . . and states still have armed forces which they use as a symbol of power. Nevertheless, war as cognitively known to most non-combatants, war as a battle in a field between men and machinery, war as a massive deciding event in a dispute in international affairs: such war no longer exists.*

*General Rupert Smith<sup>5</sup>*

Whether or not the above statement is true to an absolute degree, there is no questioning the fact that war has changed. The end of the Cold War was initially heralded by some as the dawn of a more peaceful and prosperous time, marking an end to “the long historical era of the constant threat of, and preparation for large-scale interstate war.”<sup>6</sup> It was hoped interstate wars would become obsolete and the spread of liberal democracy and free market systems would permeate all regions of the world. The reality has been much different, with the decades following the end of the Cold War marked by wide ranging international strife and conflict.<sup>7</sup> As the areas of conflict and violence remained largely confined to poorer and less developed parts of the world, Western nations, while involved in efforts to stabilize conflicts, generally maintained a sense of invulnerability to the risk and danger of attack. This sense of invulnerability was irrevocably shattered on 11 September 2001 when Al Qaeda terrorists attacked the United States homeland, forever transforming the context of international security.

While international terrorism remains at the forefront of Western nations’ security concerns, there are many factors affecting current and future security environments that can and will jeopardize international stability and safety. This chapter will examine the key trends and characteristics of contemporary threats to international security, as well as the characteristics of current and future operating environments. In so doing, the demand

for the responsive and adaptive capabilities SOF provides, supported by aerospace power, in combating current and emerging threats will be illustrated.

### **Trends Affecting the Threat Environment**

Analyzing future security threats, Defence Analyst Peter Gizewski described the international environment as one “marked by considerable uncertainty, volatility and increasingly rapid change.”<sup>8</sup> While these characteristics make it difficult to predict what the future will look like, a number of trends have emerged that have the potential to significantly impact the future international security environment. In *Future Force: Concepts for Future Army Capabilities*, the Canadian Army identifies the following key trends that will have a significant impact on shaping future threats: globalization, rapid scientific and technological innovation, shifting power balances, demographic shifts, resource scarcities, weak and failing states, growing significance of non-state actors, and prominence of identity-based conflict.<sup>9</sup> Each of these will be examined in greater detail with a view to illustrating the importance of SOF, supported by aerospace power, in the current and future security environments.

#### Globalization

The most significant and overarching phenomena affecting the dynamics of the world today is the growing impact of Globalization. Journalist and author Thomas Friedman described globalization as:

. . . a dynamic ongoing process [that] . . . involves the inexorable integration of markets, nation-states and technologies to a degree never witnessed before – in a way that is enabling individuals, corporations and nation-states to reach around the world farther, faster, deeper, and cheaper than ever before, and in a way that is also producing a powerful backlash from those brutalized or left behind by this new system.<sup>10</sup>

Emphasizing the magnitude of globalization's impact on the world, the U.S. National Intelligence Council describes it as, "an overarching 'mega-trend,' a force so ubiquitous that it will substantially shape all the other major trends in the world . . . ." <sup>11</sup>

Much of the impact of globalization will be positive, particularly in terms of the benefit to the world economy. The interconnectedness of societies will provide developing nations with unprecedented opportunities for economic growth and prosperity. While the U.S. is expected to remain the single most powerful nation for the foreseeable future, its pre-eminence will be reduced and challenged somewhat by rising powers such as China and India. <sup>12</sup>

Unfortunately, the positive effects of globalization will not be equitably shared nor even welcomed in all regions of the world. Those countries most adaptable to new and changing technologies and ways will benefit most while others will be left behind. In some regions or cultures, primarily those rooted in more traditional or fundamentalist beliefs, the changes brought about by globalization are feared, resented and even actively resisted. <sup>13</sup> To this end, as articulated in *Future Force*:

. . . globalization may fuel a backlash – either among those who are largely excluded from sharing in its material benefits, or from societies and cultures threatened by the norms and values that it promotes. Violent protest, increased governmental repression, growing intolerance and hostility toward Western influence, and presence abroad, represent some of the potential results. <sup>14</sup>

Linking globalization to international terrorism, Professor Elinor Sloan contends, "Of the many reasons put forward for the current era of Islamic fundamentalist terrorism against the Western world one of the most compelling or explanatory, is accelerated globalization." As societies change at an accelerated rate, the values and beliefs can not

change as rapidly resulting in resentment toward the influences of the West and providing opportunities for radical movements to be established.<sup>15</sup>

In addition to generating resentment towards the West, globalization also brings with it increased vulnerabilities and threats, particularly to the nations once considered immune to such strife. According to Gizewski, “As interconnectedness increases, so too will the dangers of attack – with means ranging from information warfare to the use of weapons of mass destruction.”<sup>16</sup> The increased availability of the technologies and information necessary to prosecute attacks is increasing the likelihood that such attacks will take place against industrialized countries, a sobering concern considering even a single such attack could have devastating consequences.

In addition to the increased vulnerability afforded by globalization, it also greatly complicates efforts to combat subversive groups be they terrorist or criminal organizations. The challenges of finding and interdicting dispersed and globally networked threats will demand an increased emphasis on intelligence collection as well as increased interagency and international cooperation.

The true impact of globalization is that instability or strife, no matter where it occurs or by whom it is perpetrated, can no longer occur in isolation. The interconnectedness of the world ensures that upheaval in one nation or region will, to some degree, resonate throughout the world. As author and lecturer Nick Bisley summarizes:

Globalization has widened the nature and character of threats against which states and societies need to secure themselves. From terrorism to infectious diseases, globalization’s network of transnational linkages has decisively changed the character of threats as well as state perceptions of these. As such, it demonstrates that traditional approaches to international security are in need of significant change.<sup>17</sup>

### Rapid Scientific and Technological Innovation

Similar to globalization, scientific and technological innovation are bringing benefits to some while increasing threats to others. Modern militaries have benefited greatly from technological advances in weapons, communications and observation capabilities, enabling more precise prosecution of targets while reducing risks to both friendly forces as well as innocent civilians. However, the benefits of scientific innovation also extend to the enemy as they continually seek ways to counter the new weaponry as well as acquire it themselves. As the forces of globalization aid the spread of these innovations beyond the industrialized world, these improvements in weapons and dangerous technologies will increasingly pose serious threats to western nations as cheap and available technologies increase the lethality of weapons as well as the ease of their transport and use.<sup>18</sup>

### Shifting Power Balances

Led by the U.S., Western dominance in the world is expected to prevail for the foreseeable future. That being said, regional hegemons are emerging throughout the world with rising power and ambitions. Countries such as China, India, Venezuela, as well as the re-emergent Russia, are staking claim to regional powerbases and, while not currently posing a direct threat to western dominance, raise the potential for increased rivalries in the future.

A more disturbing threat to western security is that posed by an increase in well-armed rogue states that have the capability of contesting or attacking Western nations and interests as well as supporting terrorist networks through financing and provision of weapons.<sup>19</sup> Generally unstable and often unpredictable, these states have the potential to

serve as sources of support and safe haven for terrorist elements. This fact is particularly troubling given that a number of such states possess or have the capability to produce weapons of mass destruction.<sup>20</sup>

### Demographic Shifts

There exist stark differences between the demographic trends in the industrialized world compared to those in the developing world. While birth rates in much of the industrialized world remain at or below those required to maintain existing population levels, trends in the developing world indicate continued growth. As a result of these divergent trends, ninety-five percent of the world's future population growth will take place in developing countries and most of this will be in urban areas.<sup>21</sup> This combination of large growth and urbanization will place increasingly higher strains on nations already struggling to provide basic services and employment opportunities. As Gizewski observes, "Left unaddressed, such demands will fester and lead to increasing disenchantment with the status quo – conditions which could ensure ready recruits for groups bent on overturning it [or other countries perceived to be the cause]."<sup>22</sup> This disenchantment provides ideal recruiting grounds for extremist and terrorist organizations as well as sowing the seeds of conflict and instability.

Conversely, the declining birth rates in industrialized nations has necessitated population growth be maintained through immigration. While this is vital to maintain the economies of countries with aging populations and declining birth rates, the influx of immigrants from wide ranging ethnic groups increases the potential for radical and terrorist elements to establish themselves in the population and potentially launch attacks from within the countries.

## Resource Scarcities

The impacts of population growth, urbanization and, to an uncertain degree, climate change are serving to create shortages of vital renewable and non-renewable resources in many areas of the world. Most critical among these resources are water, food and energy sources.

The continued growth and urbanization of the world's population is creating ever increasing demands for both food and water. While food production is expected to be able to continue to meet world demand, distribution systems are not sufficient in all areas of the world and shortages will continue to be a problem in developing countries. The availability of fresh water is a greater problem as it is projected that nearly half the world's population will be living in 'water-stressed' countries by 2015.<sup>23</sup> Further, the vast majority of available water in developing countries is used for agricultural irrigation which, while exacerbating the problems of current supply, will ultimately have a devastating effect when supplies dwindle. The fallout of water and food shortages will contribute to regional unrest through economic stagnation, civil unrest and revolt and, potentially, large scale migrations.

Additionally, as world population continues to grow and developing nations become industrialized, the demand for energy resources is expected to dramatically increase. This increasing importance of, and demand for, oil, at a time when known reserves are declining, has the potential to alter the strategic importance of some developing nations (e.g. North Africa, South China Sea).<sup>24</sup> The inability for growing demands to be met will increase competition for access to and control of remaining

reserves, once again increasing the potential for internal and interstate tensions and unrest.<sup>25</sup>

### Weak and Failing States

The trends identified so far all contribute to the continued weakness and potential collapse of many developing countries. The results of disease, famine and lack of employment opportunities, combined with rampant government corruption, not only strain the capabilities of underdeveloped nations but serve to propel their collapse. As Gizewski notes, “Many [of these] states . . . will not only continue to experience economic hardship, problems of legitimacy and societal instability, but will provide both breeding grounds and ‘safe havens’ for criminal groups, and terrorist organizations.”<sup>26</sup> The degree to which failing states threaten international security is partly a measure of the importance of their geographic location as well as the resources, both natural and military, they contain. Whether due to altruistic notions or, more likely, concern of the spread of instability and its effects, western nations will continue to be heavily involved in efforts to prevent and repair state weakness and collapse for the foreseeable future.

### Growing Significance of Non-State Actors

The governance vacuum created by failed and failing states increases the importance of non-state actors in the functioning of society. While some groups, such as Non-governmental Organizations (NGOs), are interested in helping the people, others such as multi-national corporations may only be interested in extracting resources and wealth. More worrisome and dangerous are the criminal and armed irregular elements that take advantage of the opportunities to advance their interests in the absence of effective governance. Finally, and most threatening to Western nations, are the terrorist

elements that seek refuge in failing states in order to establish training camps and bases of operation.

While all are areas of concern, it is the threat of exportation of terrorism that will demand the greatest involvement of western military forces. Combating terrorist groups is particularly challenging due to their relative anonymity and the increasing availability of technologies and know-how to launch devastating attacks against western nations. Defensive precautions are not sufficient to prevent or interdict future attacks. Instead, such organizations must be pursued wherever they are located.

#### Prominence of Identity-Based Conflict

While there are many causes for the unrest and instability that visit the world today, increasingly such strife is a result of identity clashes based on cultural, religious, ethnic, or a mix of these differences. Such conflict has prevailed throughout the world, from Europe (i.e. Kosovo) to Asia (i.e. Kashmir) and Africa (i.e. Rwanda) and is prosecuted with a fierce intensity. These conflicts are not based on more traditional Western notions of competing material or territorial desires, nor are they in many cases deterred by traditional strategies, making them especially troubling. The impact of globalization is likely to increase the threat of such conflict due in part to the growing interconnectedness of the world as well as the availability of destructive technology.<sup>27</sup>

Although much uncertainty exists as to precisely how these trends will interact to shape the future security environment, a number of possible scenarios identified in *Future Force* all reflect a continuance of strife and armed conflict. Although the potential for inter-state conflict remains low, intra-state wars will prevail in the

developing world and asymmetric threats will remain the primary concern of industrialized nations.<sup>28</sup>

### **Specific Threats to National Security**

In the post '9/11' world, Western nations share a generally common view of the greatest threats to national and international security and their assessments are consistent with those expressed by Canada. Released in 2004, Canada's *National Security Policy* identifies the following key threats to national security: terrorism, proliferation of weapons of mass destruction, failed and failing States, foreign espionage, natural disasters, critical infrastructure vulnerability, organized crime, and pandemics.<sup>29</sup> While SOF may not have a direct role in responding to all of these threats, each has an impact on the environment in which SOF will operate and therefore are worth discussing in greater detail.

#### Terrorism

Terrorism is a tactic or method that has been used by a wide range of ideological movements and can be defined as "premeditated, politically motivated violence perpetrated against non-combatant targets by sub-national groups or clandestine agents, usually intended to influence an audience."<sup>30</sup> Canada identifies the following four types of terrorism as specific security threats: religious extremism, violent secessionist movements, state-sponsored terrorism, and domestic extremism.<sup>31</sup>

Characterized by its avowed intent and demonstrated ability to attack America and its allies, Al Qaeda remains the principle terrorist threat for most Western nations. Steadily pursued since the attacks of 11 September 2001, Al Qaeda has changed from an organization conducting centrally controlled and orchestrated attacks to a more dispersed

collection of loosely affiliated cells that conduct attacks when opportunities arise.<sup>32</sup> As a result of this change in structure, the RAND Corporation assesses four threat trends for Al Qaeda that are likely to emerge:

- A continuing interest in attacking hard targets, but an increased focus on soft, civilian-centric venues;
- An ongoing emphasis on economic attacks;
- Continued reliance on suicide strikes; and
- A desire to use chemical, biological, radiological, and nuclear (CBRN) weapons but little ability to execute large-scale unconventional attacks.

In addition to the well entrenched international threats, there is a continued and in some cases growing risk of domestic terrorist entities, some of which follow the ideals of groups such as Al Qaeda and others that are largely based on the anti-globalization movement. No matter what the root causes, terrorists are viewed as the single greatest security threat to most Western nations today and for the foreseeable future.<sup>33</sup>

While the responsibility for combating terrorism on the domestic stage rests primarily with law enforcement and national security agencies, many countries, including Canada, rely on SOF either as the ‘force of last resort’ or to contribute highly specialized support where such a demand exists. Internationally, SOF play a key role in interdicting or disrupting terrorist elements in other parts of the world through targeted operations or participation in the larger War on Terror. In either case, as will be illustrated in subsequent chapters, the support of aerospace power is critical to enabling SOF in combating terrorism.

#### Proliferation of Weapons of Mass Destruction (WMD)

The psychological impact of the relatively isolated Anthrax attack in 2001 clearly illustrates the threat posed by WMD. As the technology and ingredients required to produce WMD continue to proliferate, a menacing threat exists to nations around the

world. The potential for cataclysmic results, should a WMD be successfully employed, requires all measure of protection. Included in this protective system are SOF, which contribute either through efforts to interdict elements seeking to conduct an attack or through the use of specialized units to disarm a weapon or support the response to an attack.

### Failed and Failing States

In order to prevent the spread of extremism and terrorism that threaten international security, it is vital to address the problem of failed and failing states. In examining the impact of failed states on the future security environment, defence analysts Peter Johnston and Dr. Michael Roi suggest, “A strong case can be made that they represent the primary source of international instability today and will probably continue to do so in the years ahead.” The presence of weak or corrupt governments, or the complete lack of a functioning government, provide ideal conditions to generate havens and recruiting grounds for both terrorist organizations and organized crime groups. Additionally, failed states may contribute to hostility between states, generating not only intra but also interstate conflicts, the effects of which resonate far beyond their borders.<sup>34</sup>

As current experiences in Afghanistan and Iraq show, preventing or ‘saving’ failed or failing states requires much more than simply combating opposing military or criminal forces. While some level of security operations will most certainly be necessary, a broader, multi-agency, approach emphasizing capacity building is required to prevent a return to failing state status. In addition to skilled warfighters, there is a requirement for forces with a high level of cross-cultural awareness and experience in the inter-agency arena. These skill sets speak directly to the capabilities present in SOF.

### Foreign Espionage

Since the end of the Cold War, a large portion of foreign espionage activities have been oriented toward the theft of industrial and technical secrets. While military espionage, particularly against a smaller power such as Canada, has been less pronounced, close ties to the U.S. and active participation in the War on Terror nevertheless make it a concern. While SOF do not have a specific role in combating espionage, it nevertheless remains a concern, particularly in terms of protecting not only the capabilities of SOF units but also the identities of personnel who fill their ranks. Additionally, there exists the potential to assist other government departments in the event there is a requirement for specific capabilities that reside within SOF.

### Critical Infrastructure Vulnerability

Modern society's reliance on critical infrastructure, together with the degree of interconnectivity much of it shares with the U.S., presents a lucrative target for terrorists. Whether through direct physical or cyber-attacks, natural disasters or accidents, major damage to critical infrastructure could have a devastating effect on the economies, public services, and ultimately, stability of nations. While not a standing task, in situation of extreme threat, there is potential that SOF could assist in securing vital critical infrastructure nodes.

### Organized Crime

Enhanced by the powers of globalization, the activities of organized criminal organizations have the potential to “undermine the legally constituted government, breakdown the fabric of society, facilitate the activities of terrorist organizations and cause serious damage to the financial system.”<sup>35</sup> Additionally, as Gizewski observes,

“ongoing globalization and technological change are substantially increasing the ability of such groups to organize, function and to infiltrate target societies.”<sup>36</sup> While certainly a law enforcement issue, activities such as weapons and human smuggling, combined with increasing links to terrorist organizations, present areas of interest and potential involvement for SOF. Although extraordinary in scope, there is potential for SOF to assist in combating these forces where specific capabilities may be required.

### Pandemics

The final, but by no means least significant threat to national security is that of pandemics. Rapidly expanding populations in developing countries, combined with unprecedented mobility of the world’s citizens, provides the potential for devastatingly fast spread of disease. The modern world has only experienced the impact of extremely small, natural outbreaks of disease and these have been devastating enough. If combined with a terrorist group intent on spreading a disease, the impact could be cataclysmic.

### **Combating Contemporary Threats**

What emerges from the examination of the dominant trends and threats is a security environment that is dominated by asymmetric threats that are increasingly difficult to predict, globally networked and predominantly urban focused. While most conflict will occur in developing nations, such regional strife and resulting failed or failing states serve to provide havens for terrorists and other criminal organizations that ultimately threaten the security of Western nations. Combating such threats demands both an emphasis on homeland security as well as preventative and pre-emptive action abroad.<sup>37</sup>

The reality of western conventional military dominance has forced nearly all adversaries to adopt an asymmetric approach to warfare. Asymmetric threats are characterized by tactics and techniques aimed at circumventing an adversary's superior strength or attacking its weakness.<sup>38</sup> While combating asymmetric threats take place on many levels, preventing attacks is critical and it is here that SOF has a key role to play, interdicting the threat before attacks are executed. Combating such threats requires an agile and skilled force, provided with effective intelligence, able to rapidly respond when an opportunity arises and the capable of applying force in a precise and discriminating manner. SOF are the ideal force to combat such threats and when coupled with effective aerospace power, will be capable of doing so worldwide.

The dispersed, global nature of the contemporary threat environment demands globally responsive and adaptive forces that are rapidly deployable and able to operate in wide ranging threat and environmental conditions. Additionally, the fluid and volatile nature of the threat environment demands the timely collection and dissemination of intelligence in order to effectively locate, track and interdict threats. While advanced sensor platforms are capable of providing a great deal of information, it is still necessary to get personnel on the ground to get the most complete intelligence picture. The networked nature of the threat also requires an ability to work with other agencies and governments. Further, the increasing trend toward predominantly urban-based operations, combined with minimal tolerance for collateral damage, will demand, where required, precise and discriminating use of force. Finally, the asymmetric nature of the threats, including possible use of WMD, emphasises the need for small, flexible and responsive forces that can respond rapidly where required.

The contemporary security environment is one marked by uncertainty and a truly global area of operations. The continuing impact of globalization extends across economic and social boundaries and is having a significant impact on nations' security. The sophisticated nature of threats facing nations today and the challenging environment in which they operate demand agile and responsive forces able to operate across a wide range of conditions against a variety of threats. Of the main threats to national security discussed, SOF clearly have the greatest role to play in countering terrorism and the proliferation of weapons of mass destruction as well as participating in operations to stabilize failed and failing states. As will be discussed in the following chapter, SOF are ideally suited to be the force of choice in today's security environment.

## CHAPTER TWO – SOF Fundamentals

*We sleep safe in our beds because rough men stand ready in the night to visit violence on those who would do us harm.*

*George Orwell*<sup>39</sup>

In order to illustrate the importance of aerospace power to the support of SOF, it is first necessary to understand what SOF are and how they operate. This chapter will examine the fundamentals of SOF, to include their characteristics, attributes, missions and methods of employment. In addition, SO theory, as developed by Rear Admiral (RAdm) William McRaven, will be discussed in order to illustrate how SOF are able to achieve successful results often against formidable odds.<sup>40</sup>

### **Defining SOF**

Snake Eaters, Ninjas and Prima Donnas, are a few of the terms used to describe SOF, illustrating some of the misconceptions regarding the personnel that fill their ranks and the operations they conduct. While the reality is much different and certainly less dramatic than these titles suggest, the one consistent element is the focus on the individual operators and their importance to the overall capability and success of SOF.

While it can be argued that ‘SOF like’ organizations have existed throughout the history of warfare, today’s SOF draw their heritage from units and organizations developed during the Second World War. Organizations such as the Office of Strategic Services (OSS), Special Air Service (SAS) and Special Operations Executive (SOE) were formed to collect intelligence, train and support resistance elements in enemy controlled areas, and generally disrupt enemy activities.<sup>41</sup> Although many countries disbanded their SOF units at the end of World War II, the Cold War once again generated a need for their

specialized roles, and the reformed units shared much in terms of organization and missions with their predecessors.

In a speech in 1962, US President John F. Kennedy outlined the re-emerging requirements for SOF during the Cold War:

This is another type of war, new in its intensity, ancient in its origins—war by guerrillas, subversives, insurgents, assassins; war by ambush instead of by combat; by infiltration, instead of aggression, seeking victory by eroding and exhausting the enemy instead of engaging him... It requires in those situations where we must counter it... a whole new kind of strategy, a wholly different kind of force, and therefore a new and wholly different kind of military training.<sup>42</sup>

Equally relevant today, his words could easily be speaking of the fight against global terrorism and extremism, where the demand for and employment of SOF are even greater today than they were at the time of Kennedy's speech.

While many definitions for SOF exist, most are generally consistent with the Canadian Special Operations Forces Command (CANSOFCOM) definition which states they are:

... organizations containing specially selected personnel that are organized, equipped and trained to conduct high-risk, high value special operations to achieve military, political, economic or informational objectives by using special and unique operational methodologies in hostile, denied or politically sensitive areas to achieve desired tactical, operational and/or strategic effects in times of peace, conflict or war.<sup>43</sup>

In short, as military analyst and author Tom Clancy observes, “They are specially selected, specially trained, specially equipped, and given special missions and support.”<sup>44</sup>

### **The Operator**

The first SOF truth, which states “Humans are more important than hardware,”<sup>45</sup> speaks to the most critical element of SOF, that of the individual operator. As professor Robert Spulak insists, “It is not the missions that define special operations but rather the

personnel.”<sup>46</sup> Colonel (Col) Bernd Horn, Deputy Commander of CANSOFCOM, contends, “the SOF soldier is defined by his role, intellect, and philosophical approach to warfare. In the end, it’s all about the individuals and teams that ensure success.”<sup>47</sup>

This emphasis on the quality of individual is the most consistently espoused ingredient of SOF and forms the basic building block that sets it apart from conventional military units. “The major difference between SOF and other narrowly defined military organizations,” Spulak argues, “are that SOF are elite warriors, creative, and flexible.”<sup>48</sup> Expanding on this simple summation illustrates why SOF are successful at what they do.

While the title of ‘elite warrior’ may elicit images of chiseled Herculean warriors capable of executing endless acts of heroism in battle, in practice, elite speaks to the uncompromising standards of selection and training that an individual must meet in order to join the ranks of SOF. While there are certainly individuals in conventional units that possess the attributes required by SOF soldiers, adhering to exacting standards of selection ensures a higher concentration of such individuals are resident in SOF organizations.<sup>49</sup> Further, the emphasis placed on an individual’s strength in character is exemplified by the core values of Integrity, Courage, Competence, and Creativity the U.S. Special Operations Command (USSOCOM) identifies for its soldiers.<sup>50</sup>

Creativity is critical to SOF as it enables a situation to be changed in unexpected or unconventional ways that enable a force to overcome or leverage the frictions of war to their advantage.<sup>51</sup> In Spulak’s words, this creativity enables SOF to “execute operations to accomplish goals in ways that conventional forces cannot but without a greater risk to themselves, greater risk of failure, or greater risk of negative political consequences.”<sup>52</sup>

The importance of flexibility in SOF rests with the requirement of a small unit to have a large range of overall capabilities. While conventional units, by virtue of their size and broader distribution of attributes, are restricted to a smaller range of capabilities, SOF's smaller number of more capable personnel allow them a wider and more flexible repertoire. It is this flexibility, combined with creativity that enables SOF to reorient and redirect their efforts as the dynamics of a situation change.<sup>53</sup>

In addition to the qualities that make SO, special, the challenges and hardships experienced becoming a member of SOF, together with the difficult environment within which they work, forges a fierce loyalty to their peers as well as dedication to duty that is difficult to match. Two elements of the Special Forces Creed speak clearly to these qualities, "I will not fail those with whom I serve. I will not bring shame upon myself or the forces," and "My goal is to succeed in any mission - and live to succeed again."<sup>54</sup> While these qualities are part of what makes SOF so capable and effective, they do present the potential for friction to develop when working with conventional forces, such as aerospace power, that either do not aspire to the same level of commitment or are more constrained by rules and regulations.

Having examined the qualities of the individuals that make up SOF, it is now necessary to examine the operations themselves. NATO defines SO as "Military activities conducted by specially designated, organized, trained and equipped forces using operational techniques and modes of employment not standard to conventional forces."<sup>55</sup> While consistent with the earlier definition of SOF, it adds little value in defining the actual operations. U.S. Special Operations Command (USSOCOM) on the other hand offers the following comprehensive definition of SO:

[SO] are operations conducted in hostile, denied, or politically sensitive environments to achieve military, diplomatic, informational, and/or economic objectives employing military capabilities for which there is no broad conventional force requirement. These operations often require covert, clandestine, or low-visibility capabilities. SO are applicable across the range of military operations. They can be conducted independently or in conjunction with operations of conventional forces or other government agencies and may include operations by, with or through indigenous or surrogate forces. SO differ from conventional operations in degree of physical and political risk, operations techniques, mode of employment, independence from friendly support, and dependence on detailed operational intelligence and indigenous assets.<sup>56</sup>

The core tasks assigned to SOF differ slightly amongst various nations; however, Canada is generally consistent with NATO in defining them as:

- a. Counterterrorism (CT) Operations;
- b. Maritime Counter-Terrorism (MCT) Operations; and
- c. High Value Tasks:
  - i. Special Reconnaissance (SR);
  - ii. Direct Action (DA);
  - iii. Counter Proliferation (CP);
  - iv. Defence Diplomacy and Military Assistance (DDMA); and
  - v. Non-combatant Evacuation Operations (NEO).<sup>57</sup>

CT operations consist of both offensive and defensive actions taken either to prevent a terrorist act from occurring or respond appropriately once it has occurred. A CT operation may take place in a domestic setting or deployed abroad and often involves “intelligence operations, attacks against terrorist networks and infrastructure, hostage rescue, recovery of sensitive material from terrorist organizations, and non-kinetic activities.”<sup>58</sup> While SOF are the ‘force of choice’ in combating terrorism abroad, in a domestic context, for Canada and many other nations, their use is often an act of last resort in the event Law Enforcement Agencies (LEAs) are unable to resolve an incident.

MCT operations are similar to CT but involve the added complexity of the maritime environment. Operating over vast expanses of water and utilizing multiple

assets and assault techniques, MCT operations are one of the most demanding SOF tasks, requiring the highest level of expertise, training and coordination.

The ability of SOF to operate covertly in denied, hostile or politically sensitive areas makes them ideal reconnaissance assets. Whether conducted on foot, vehicle or aircraft, SR operations seek to gather or confirm information of operational or strategic importance. These operations include: environmental reconnaissance, armed reconnaissance, target and threat assessment, and post strike reconnaissance.<sup>59</sup> If employed early when a crisis erupts, SOF can rapidly deploy in order to gain accurate ground truth for nations and their follow-on forces. U.S. SOF commonly use the term Advanced Force Operations (AFO) when referring to SR type activities.

DA operations are the dynamic and, in some ways stereotyped, mission most often related to SOF. These short, precise, offensive actions leverage speed and surprise to overwhelm enemy forces that may be superior in numbers or firepower to the attacking force. Often requiring discriminate and highly coordinated application of force, DA operations include: raids, ambushes and direct assaults; standoff attacks; terminal attack control and terminal guidance operations; recovery operations; precision destruction operations; and anti-surface operations.<sup>60</sup>

CP operations involve actions taken to limit the spread and employment of WMD. SOF involvement in CP operations can involve actions to locate, seize, capture or recover WMD and may be conducted in a covert or clandestine manner, involving counterforce tasks to eliminate or neutralize a threat.<sup>61</sup>

DDMA operations include efforts taken to assist nations in developing specialized military capabilities that are consistent with SOF capabilities. U.S. doctrine regards this

mission as part of the Foreign Internal Defence (FID) task. This task is particularly important in the conduct of counter insurgency (COIN) operations where development of an effective indigenous force is critical the long term stability.

Although NEO is not a stand alone SOF task, in many circumstances it is likely a SO Task Force (SOTF) will provide an element of the national response. SOF's ability to deploy rapidly and provide high value reconnaissance in the early stages of the NEO can pay large dividends in the execution phase.

Having examined who SOF are, and what they do, it is important to understand how they successfully execute their most challenging operations. Although not explicitly stated in the definition of the core SOF tasks, these operations frequently place a much smaller SOF element against a larger, well-defended, opponent. Where superiority in numbers or firepower may not be possible, SOF seek to gain the advantage by achieving what RAdm McRaven termed 'relative superiority'. "Simply stated, relative superiority is a condition that exists when an attacking force, generally smaller, gains a decisive advantage over a larger or well-defended enemy."<sup>62</sup> McRaven theorized, "through the use of certain principles of warfare a special operations force can reduce . . . the frictions of war to a manageable level . . . [and] achieve relative superiority over the enemy."<sup>63</sup> Having achieved relative superiority, the smaller attacking force is able to gain the initiative and secure victory.

In order to achieve relative superiority, McRaven presents the following six principles of SO that must be adhered to: simplicity, security, repetition, surprise, speed, and purpose. The principles are interrelated and must be adhered to through all phases of

an operation. “[They] . . . work because they seek to reduce warfare to its simplest level and thereby limit the negative effects of chance, uncertainty, and the enemy’s will.”<sup>64</sup>

As Carl von Clausewitz proclaimed, “Everything in war is very simple, but the simplest thing is difficult.”<sup>65</sup> He was referring to the friction of war and went on to add, “. . . the greater the magnitude of any event, the wider the range of forces and circumstances that affect it.”<sup>66</sup> It is for these reasons that simplicity is the most critical principle of SO. Consisting of three elements: limiting the number of objectives, providing good intelligence and using innovation; simplicity seeks to minimize opportunities for friction to impact an operation. While the overall objectives will likely, to a greater or lesser degree, be dictated by higher authorities, tactical objectives are usually determined by the force executing the mission and thus can be minimized. Acquiring accurate intelligence is always a challenge but is critical to minimizing the unknowns and thereby simplifying the operation. This clearly speaks to the fact that SO are, by design, intelligence led. Finally, whether through the use of new technologies or unconventional tactics and procedures, finding innovative ways to avoid or eliminate obstacles to the successful completion of the mission is the final element to simplicity.<sup>67</sup>

As important as simplicity is, all advantage can be lost if the principle of security is not adhered to. Effective security will help prevent an opponent from gaining knowledge of an impending attack. In many cases there may be some expectation of future attack; however, by concealing the time of the attack, surprise and relative superiority can still be achieved.

The principle of repetition is important during the preparation phase, aiding in honing tactical skills prior to an operation. Routinely utilized to perfect standard mission

profiles such as CT, repetition is also key when conducting missions involving multiple assets and/or organizations. In situations such as this, the value of executing complete dress rehearsals ensures all elements are familiar with the plan and the roles of everyone involved. As McRaven asserts, “Repetition hones individual and unit skills, while full-dress rehearsals unmask weaknesses in the plan. Both are essential to success on the battlefield.”<sup>68</sup>

Closely linked to security is the principle of surprise. While it may be unlikely an opponent is completely unprepared for, or unsuspecting of, an attack, it is still possible to achieve surprise through methods such as deception, careful selection of timing, or exploiting an enemy’s weakness. Achieving surprise can psychologically and physically dislocate an opposing force, ultimately helping to achieve relative superiority.

Speed of execution not only helps achieve surprise but is very much facilitated by it. Achieving speed of execution, a force is more apt to gain relative superiority, successfully execute the mission and withdraw before it is lost. Conversely, not achieving speed, even if surprise is achieved, offers an opponent time to react and thereby reduces the chance of achieving relative superiority. This is particularly critical as SOF elements are typically small with limited integral firepower, often limiting their ability to sustain action for extended periods of time.

Finally, the importance of Purpose has two aspects neither of which can be overstated. First, the objective of the mission must be clearly understood by all such that focus is maintained regardless of what frictions arise. Second, SOF members must have a high level of personal commitment to carry them through adverse situations.<sup>69</sup>

Having provided a definition of what SOF are and what they do, there are two final aspects that must be examined in order to appreciate their impact on the support requirements of aerospace power. The readiness states of SOF as well as the low-visibility nature of many SO are not common with the majority of military organizations and thus put particular demands on support requirements.

It has already been mentioned that SOF maintain extremely high levels of readiness, not only in terms of short Notice to Move (NTM) timelines but also the continual maintenance of high training standards. Although repetition is one of the principles of SO, short notice missions such as a domestic CT operation may permit minimal time for planning prior to execution and may also prevent the conduct of rehearsals. It is situations such as this that demand the highest levels of pre-combat readiness; however, when dependant upon support of other organizations, such as conventional aerospace power, problems can arise where readiness levels are not consistent. One way to mitigate this potential problem is to maintain dedicated, or as a minimum specially trained, aerospace forces to support high priority SOF missions. The benefits and challenges of these options will be discussed in subsequent chapters.

One final element that must be discussed is that of discreet or clandestine operations. Unlike most military organizations, SOF are often required to operate in the shadows, maintaining a low profile in the interest of guarding the operational security of their missions. Such requirements are not overly difficult to manage when there is no requirement for interaction with conventional forces; however, this is not always possible. Where movement of personnel and weapons or sensitive equipment is required, military airlift may be the only option available to transport SOF to or from an area of

operation. Whether in a domestic or out of area context, the presence of a military aircraft may be sufficient to draw attention to an operation and thus compromise operational security. While mitigation measures are difficult, particularly for small militaries, provision of dedicated SO aerospace forces, possibly using civilian paint schemes, is one option available.

SOF are elite forces capable of executing a wide range of specialized and dangerous missions, on short notice, throughout the world. Their highly tuned skills combined with adherence to principles such as surprise, speed and stealth; enable them to prevail against enemy forces of superior strength and numbers. While high readiness states and an ability to operate with little external support are hallmarks of SOF, some of the characteristics that make them agile and responsive, in turn leave them vulnerable if the advantage of relative superiority is lost. Further, the inherent make-up of SOF organizations typically lack capabilities such as global reach to fully enable their responsiveness. The following chapters will examine aerospace power and illustrate why it is the most critical enabler to SOF.

### CHAPTER THREE – Fundamentals of Aerospace Power

*We are witnessing a revolution in the technology of war. Power is increasingly defined not by size, but by mobility and swiftness. Influence is measured in information; safety is gained in stealth; and forces are projected on the long arc of precision-guided weapons.*

*President George W. Bush<sup>70</sup>*

Aerospace power has evolved to become a powerful stand-alone form of military power; however, its true strength lies in the synergistic effects that can be achieved through its employment in joint operations.<sup>71</sup> Aerospace power serves as a key force enabler to all branches of the military, as well as other government agencies, but plays a particularly important role alongside SOF. In order to fully examine its importance to SOF, it is first necessary to thoroughly examine the functions, capabilities and roles of aerospace power as well as the limitations that affect its use. This chapter will provide an analysis of the fundamentals of aerospace power, following which subsequent chapters will examine more closely its integration with, and critical importance to, SOF.

#### **Aerospace Power Defined**

The Canadian Forces defines aerospace power as “that component of military power applied within or from the aerospace environment to achieve effects above, on and below the surface of the earth.”<sup>72</sup> This definition, while broad in scope, speaks to the wide ranging effects that aerospace power can bring to the battle. “Furthermore, in virtually any form of modern conflict, control of the air is a pre-condition for the successful conclusion of land and maritime operations . . . ”<sup>73</sup>

By virtue of the mediums through which it operates, air and space, the employment of aerospace power is uniquely different from that of land and maritime power. While the ability to exploit the third dimension provides distinct advantages over

land or sea anchored assets it also poses additional limitations, both of which will be discussed.

### **Characteristics of Aerospace Power**

The unique nature of the aerospace environment offers both advantages and limitation to operations within it. It is important to understand the characteristics of aerospace power and how these impact, both positively and negatively, support to SOF.

#### Elevation/Perspective

Employing assets above the surface of the earth, or in space, offers distinct advantages due to their increased elevation. Ranges for observation, communications, and delivery of effects are all enhanced, within the limits of sensors and munitions, with the increased perspective offered at higher elevations.<sup>74</sup> Enhanced observation enables SOF to acquire detailed intelligence of areas of operation before inserting forces and, once on the ground, allows for over watch of the force and maintenance of situational awareness, particularly if enemy forces are manoeuvring to attack a small SOF element.

#### Reach

The combination of platform, weapons and sensor ranges combined with aerial refuelling capabilities, enables aerospace power to project effects over vast distances, providing the capability of truly global power projection. Reach also permits, to a degree, avoidance of known threats by circumnavigating specific areas in order to safely project effects.<sup>75</sup> The value of reach to supporting SOF is most critical in the ability to deploy forces over great distances and, once there, sustain them. An ability to avoid threats is particularly important when covertly inserting small force units deep into hostile or denied areas.

### Speed

Similar to reach, the inherent speed of aerospace vehicles enables the rapid projection of effects over large distances in minimal time. When applied to mobility, this speed of movement can facilitate achieving surprise over an opponent as well as minimizing exposure to some types of threats. Speed enables rapid response to requests for effects and facilitates the redirection of assets from other tasks.<sup>76</sup> Clearly complementing the SOF principles of speed and surprise, the speed of aerospace power can be critical to ensuring small SOF elements are able to gain the advantage when attacking larger or fortified forces. Further, in situations where immediate support is required, aerospace assets are able to rapidly respond to do so.

### Stealth

Whether through the use of advanced technologies or effective tactics, techniques and procedures, aerospace power can achieve a degree of stealth that enables it to minimize threats to survivability while maximizing the element of surprise.<sup>77</sup> Combined with speed and reach, stealth enables SOF to conduct operations in a discrete or covert manner and, where necessary, to achieve surprise when attacking an enemy force.

### Precision

The advent of advanced avionics, navigational aids and sensors, together with guided munitions, has drastically increased the ability of aerospace power to deliver precision effects. Whether collecting intelligence, moving personnel and supplies or delivering joint fires, the high degree of precision enables accurate and timely effects to be provided with greatly reduced risk of collateral damage.<sup>78</sup> Precision is extremely important to the support SOF. Accurate and timely intelligence, precision delivery of

forces and supplies and, ultimately, precision delivery of fires are all critical to the effective and safe employment of SOF.

### Payload

While payloads of aerospace vehicles are normally comparatively smaller than those that can be carried by land or maritime vehicles, the speed, precision and resulting destructive power that can be delivered provides a definite advantage. The advent of precision weapons now enables single aircraft to effect multiple targets simultaneously and, if required, multiple sorties can affect the delivery of high volumes of weapons or cargo.<sup>79</sup> The ability to concentrate SOF forces at a specific time and place using the payload capacity of aerospace power facilitates achieving an element of surprise and gaining an advantage over a defending force. Similarly, the availability of aircraft equipped with multiple precision weapons, can provide effective and devastating fire support to an operation.

### Impermanence

Aerospace vehicles and platforms can only remain airborne for finite amounts of time. While certain platforms such as long endurance/range Uninhabited Air Vehicles (UAVs) and satellites can remain airborne for days and years respectively, in general, the vast majority of aerospace platforms are endurance limited to a few hours at most. While procedures such as Air-to-Air Refuelling (AAR) or rotating assets can provide extended coverage, the reality is it is virtually impossible to maintain a permanent aerospace presence.<sup>80</sup> Obviously this presents vulnerabilities to SOF elements that may be relying on the aerospace assets for observation or fire support tasks and is a limitation that must be accounted for in planning operations.

### Sensitivity to Technology

Advances in technology can have a significant impact on the effectiveness of aerospace power. These impacts can be both positive, such as the case of a new sensor or weapon system greatly increasing the accuracy of fire support, or negative if an adversary obtains a new air defence system that puts the aerospace platform at risk. Both instances speak to the requirement for continuous, timely, technological development of aerospace power.<sup>81</sup> SOF are accustomed to rapid adoption of new technologies and capabilities, aerospace forces are generally constrained in their ability to do so. While not a barrier to providing support, this can limit the degree of integration of SOF and aerospace power.

### Fragility

An unfortunate reality of the nature of aerospace vehicles is that they tend to be much more fragile than those that operate in the ground or maritime environments. Even when components are hardened and armour added to protect aircrew and passengers, they are still highly susceptible to damage from enemy action or environmental hazards. This inherent fragility requires special handling and extensive maintenance practices that place limitations on the sustained operation of aerospace vehicles in some environments.<sup>82</sup> Further, this fragile nature, combined with limited numbers of assets, can result in command organizations limiting participation in missions of higher risk. This tendency can pose significant challenges as well as frustration for organizations such as SOF which often operate in more challenging and dangerous environments.

### Sensitivity to Environmental Conditions

Although advances in technology are continuing to reduce their impact, environmental conditions can place significant limitations on aerospace power. The

difficulties and dangers operating through adverse weather conditions and reduced platform performance in certain climate conditions can significantly hamper operations and in some case make them extremely dangerous. Further, many sensors and weapons packages, as well as communications equipment can be negatively impacted by environmental conditions reducing or potentially negating an aerospace platform's ability to effectively support an operation.<sup>83</sup> The impact to SOF was clearly demonstrated during Operation Enduring Freedom when initial deployment of SOF teams into Afghanistan were hampered by adverse environmental conditions, both delaying their arrival and, in once case, also resulting in the delayed evacuation of an operator.<sup>84</sup>

#### Support Dependency

As noted above, the fragility and technological dependency of aerospace demand a high level of technical support to maintain continuous and safe operations. Additionally, aerospace power requires a large amount of logistical support both in terms of fuel and munitions as well as parts and support equipment. These support demands limit the flexibility of employment of aerospace power to a certain degree, often requiring operations from fixed locations where the requisite support organizations and infrastructure are available.<sup>85</sup> In a SOF context, the presence of large support elements can serve to negate the ability to operate covertly resulting either in minimal use of aerospace power, or where able, use of other civilian pattern assets.<sup>86</sup>

These characteristics form the foundation of aerospace power's critical importance to supporting SOF and also highlight some of the limitations in this regard. The ability to collect intelligence in preparation for, and support of, operations is enhanced by the elevation and reach offered by aerospace power. This enables long

range sensors to be employed well in advance of the entry of a SOF force, at altitudes that help preserve surprise while offering much greater observation horizons and fields of view than could be achieved from the ground. The combination of reach, speed and stealth facilitate rapid global deployment of forces while increasing survivability of valuable SOF assets by avoiding known threats and limiting exposure where avoidance is not possible. As well, in the conduct of DA missions, speed and stealth facilitate achieving surprise and speed on the objective, principles that are critical to enabling success. Precision and payload, while important in mobility support, are critical to the provision of effective fire support. The small size of SOF elements, combined with a tendency of being in close contact with enemy forces, demands the highest levels of precision as well as discrimination in the provision of fire support. Additionally, the increased payload can also facilitate increased persistence of fire support, another key factor for protection of SOF on the ground.

While aerospace power offers many advantages to supporting SOF, it is not a panacea and a number of characteristics detract from this support. In particular, sensitivity to the environment and support dependency significantly reduce the flexibility of some elements of aerospace power, limiting their employment in conditions of adverse weather or harsh climates. Further, the inherent fragility as well as sensitivity to technology of aerospace platforms presents significant vulnerabilities to their use, potentially ruling out support to certain high risk operations or resulting in losses of platforms and personnel when platforms are attacked. Finally, the impermanence of aerospace power raises significant challenges to providing support when and where it is required. Although longer range Uninhabited Aerial Vehicles (UAVs), air to air

refuelling (AAR) and careful planning and management of assets can reduce the impact of impermanence, it will not always be possible to provide support when and where SOF require it.

### **Tenets of Aerospace Power**

While the characteristics of aerospace power identified the many capabilities, as well as limitations, that make it an ideal resource for a wide range of tasks, in order to effectively employ aerospace power, the following key tenets must be observed.

#### Centralized Control and Decentralized Execution

Owing to the limited amount of aerospace assets available, a situation that is likely only to worsen in the future, it is critical that centralized control of these assets be maintained in order to ensure their proper prioritization and apportionment. While the intent of centralized control is to maximize its flexibility and effectiveness, care must be taken not to overly limit subordinate commanders' ability to use initiative in dealing with uncertainties of warfare. It is to this end that decentralized execution is designed, providing effective span of control while promoting situational responsiveness.<sup>87</sup>

#### Flexibility and Versatility

The old axiom 'flexibility is the key to airpower' applies equally to aerospace power, providing the ability to shift rapidly from one objective to another. The versatility of aerospace power enables it to be employed effectively in all levels of warfare, achieving synergy through asymmetric and parallel operations.<sup>88</sup>

Recent experience conducting air operations in Operation Enduring Freedom (OEF) clearly illustrates the value of these tenets. Owing to the dynamic situation on the ground, and lacking sufficient static targets such as infrastructure, aerospace forces were

often employed as ‘on call’ strike assets. Instead of launching with preset targets to attack, aircraft would fly to an assigned area and receive target cuing from SOF on the ground. The use of strategic and other bomber aircraft not traditionally used in a Close Air Support (CAS) role clearly illustrates the flexibility and versatility of aerospace power.<sup>89</sup>

### Synergistic Effects

Coordinating the employment of aerospace power with other elements of military power can provide effects greater than the sum of the individual forces if they were employed separately. Precision munitions are an outstanding contribution to the modern battlefield providing there is sufficient targeting data available.<sup>90</sup> As was demonstrated during OEF in Afghanistan, the use of SOF in concert with offensive aerospace power proved extremely effective. SOF elements, supporting indigenous ground forces, provided accurate targeting information for attacking aerospace forces. The resulting effects turned what had initially been an ineffective bombing campaign into a rapid defeat of Taliban and Al Qaeda forces.<sup>91</sup>

### Persistence

Although aerospace power can not occupy terrain, the speed, range and aerial refuelling capabilities can enable, within resource limitations, extended presence over or near desired targets. As previously mentioned, space power and to a lesser extent UAVs, have even greater potential to provide near continuous effects over a given area of operations.<sup>92</sup> Persistence is important to SOF both in preparing for an operation, in order to continuously observe an area to gather intelligence, and during an operation, where

both a persistent presence of Intelligence Surveillance and Reconnaissance (ISR), as well as fires, can be vital to ensuring the protection of the force.

### Concentration

The versatility of aerospace power makes it attractive to dole out piecemeal to support the maximum number of tasks. Traditionally, this dilution of effort has been fiercely resisted as it runs counter to the principles of mass and economy of force that aim to achieve overwhelming power at the right place at the right time.<sup>93</sup> It is questionable if this still holds true in all cases, particularly with the advent of precision weapons and the ability for a single aircraft to engage multiple targets with a high degree of accuracy. As such, in a counter insurgency (COIN) operation such as OEF, where there are fewer requirements for concentration of aerospace power, assets are more widely distributed for execution of tasks.

### Priority

Due to the realities of resource limitations, demand for aerospace assets will often exceed the supply available. As a result, the demands for aerospace power support must be prioritized to ensure they are being utilized where the greatest benefits can be realized. This is a key driver for the requirement of maintaining centralized control of aerospace assets.<sup>94</sup> Although SOF are often given high priority for support, there are rarely sufficient aerospace resources to meet all demands. As a result, SOF must compete with other conventional forces in requesting support. While this may seem fair, it creates significant challenges to supporting short-notice time sensitive missions that ultimately demand aerospace forces maintaining a standby posture in order to respond when an

opportunity to hit a target arises. The best way to provide responsive support for missions such as this is through the provision of dedicated aerospace support to SOF.

### Balance

The final tenet speaks to the need to balance the principles of war and tenets of aerospace power to produce the greatest effect.<sup>95</sup> At the same time, the goal of accomplishing the mission must be balanced against the risks to the aerospace forces themselves.<sup>96</sup> It is this last point that can create a great deal of frustration on the part of SOF when the decision is made not to employ aerospace power due to the assessed risks.

Similar to the characteristics of aerospace power, the tenets can have both positive and negative impacts on the support to SOF. Although centralized control and decentralized execution together with priority and balance are intended to maintain flexibility of support while preserving limited resources, they can serve to frustrate supported elements such as SOF, particularly where there is often a demand to execute short notice, reactive missions. While dedicating resources to supporting SOF can alleviate this to a degree, there is still likely to be competition amongst users due to the constant shortages of aerospace platforms. The tenet that is of greatest interest to SOF is that of synergistic effects, where the greatest effects can be achieved by combining the strengths of SOF with the critical support aerospace forces provide. This was clearly illustrated during OEF, the overwhelming effect of a small number of SOF ground elements providing direction and control of aerospace fires, provided the necessary advantage for SOF and indigenous forces to rout the Taliban and Al Qaeda.

## **Aerospace Functions**

There are a wide range of methods used to describe aerospace functions throughout different militaries, ranging from the U.S. Air Force's list of seventeen key operational functions to five for the Canadian Air Force. To remain consistent with Canadian doctrine, the five functions of Command, Sense, Shape, Move and Sustain will be used.<sup>97</sup> Doctrinally some of these functions relate only to the functioning of aerospace power (e.g. Command); however, in this examination they will also be used as a basis to examine the broader utility in supporting other forces.

### Command

While the function of Command in air doctrine is oriented toward command of the aerospace assets, it is important to consider their use in facilitating command and control (C2) of other assets. In particular, the use of aircraft as airborne C2 platforms, either fixed or rotary wing, provides commanders the ability to maintain effective communications with ground or sea assets while an operation unfolds. The advent of technology now provides the ability to monitor live sensor images while remaining clear of much of the confusion and friction of the battlefield. In the absence of a dedicated C2 platform, relayed images and communications from aerospace vehicles, either manned, unmanned or space based, can help provide robust situational awareness of both the friendly and enemy dispositions to both commanders in the field and those physically dislocated from the operation. The enhanced sensory and communications capabilities offered via space based systems provides worldwide information and communications capabilities, ensuring units are provided with the most up to date intelligence and are able to remain in contact with their higher headquarters.

### Sense

Air and space borne sensors enjoy significant advantages in terms of observation and reception ranges over ground based sensors. The ability to rapidly reposition assets over different areas, or conversely, maintain a persistent presence over an area of interest, whether using manned, unmanned or space based assets, enables near continuous collection of intelligence, be it imagery (IMINT), electronic (ELINT) or signals (SIGINT). While not infallible, the continued improvement of sensors, together with an ability to relay information directly to ground units and headquarters, has resulted in the ability to achieve unprecedented levels of situational awareness. Further, the modularity of some intelligence collection equipment enables it to be mounted on various platforms, such as commercial pattern aircraft, a key enhancement if operations must be conducted in a clandestine manner.

### Shape

Aerospace forces shape the battlespace by delivering effects in both the physical and moral domains of the adversary. Aerospace power can conduct shaping operations either independently or integrated into other operations. Gaining control of the air is the most critical requirement as doing so greatly improves the freedom of manoeuvre of all forces and enables aerospace power to most effectively support the other forces.

The delivery of physical or kinetic effects via aerospace power can be accomplished through the use of fixed wing bomber and attack aircraft, rotary wing attack or armed aircraft or unmanned platforms such as the MQ-9 Reaper, hunter-killer UAV or future Unmanned Combat Air Vehicles (UCAV). Additionally, electronic attack

aircraft such as the EA-6B Prowler or EC-130 Compass Call can disrupt enemy operations through jamming of communications and other activities.

Aerospace power also delivers effects in the enemy's moral domain through the conduct of psychological operations such as the dropping of leaflets, transmitting radio and television signals or, simply delivering kinetic effects when and where promised.<sup>98</sup>

### Move

The ability of aerospace power to rapidly manoeuvre personnel and equipment across large distances throughout the spectrum of conflict is, arguably, what sets it most apart from other elements of military power. The Move function is further divided into two components, air mobility and force projection.

Air Mobility, consisting of strategic and battlefield mobility operations, involves the movement of personnel and equipment to support operations. Strategic mobility operations involve the movement between theatres of operation while battlefield mobility provides for the manoeuvre of forces, and their sustainment, within a particular theatre or area of operation. Air mobility assets consist of fixed and rotary wing aircraft ranging from large transport aircraft that can move large amounts of personnel and equipment over great distances to smaller platforms that may only move a few personnel but in a more discreet manner. The aerospace platforms need not land to facilitate mobility as both personnel and equipment can be delivered via parachute or other means where either the environmental or threat conditions preclude landing.<sup>99</sup> As will be discussed in subsequent chapters, these capabilities are of vital importance to the employment of SOF.

Force projection, while not entirely separate from mobility, refers to the ability to deploy air forces in order to provide a capability or presence that can influence an

operation. The flexibility, speed and versatility of aerospace power enable a presence to be established, typically much faster than sea or land power assets. In concert with the high readiness and deployability of SOF, the ability to rapidly project aerospace power enables the employment of an effective synergistic capability, far quicker than conventional forces could deploy.<sup>100</sup>

### Sustain

The sustain function of aerospace power consists of force generation and support operations. While force generation is primarily concerned with maintaining an aerospace power capability, there are certain elements that are of specific concern to SOF and the support they require. In particular, the training and equipping of aerospace forces have a direct impact on the ability to support SOF to the maximum degree desired. The exacting standards and often unique methods of employment used by SOF require a comparable degree of training and equipping for the aerospace forces that support them. While there are many routine support tasks that require no additional training or equipment beyond which aerospace forces are normally equipped, there are certain tasks and missions where this is not sufficient (e.g. CT, CP, MCT). In situations such as these, there are a number of approaches that may be taken ranging from accepting the limitation of conventionally trained forces, providing additional training for some elements, or forming dedicated SO aerospace forces with specialized training and equipment. The following chapter will discuss the latter two options in greater detail.

The characteristics, tenets and functions of aerospace power clearly define a capability that is ideally suited to provide the critical support required by SOF. The demanding nature of SOF missions, often requiring a small force to execute challenging

operations anywhere in the world, with little notice, demands critical elements of support, such as speed and reach, which can be provided by aerospace power. Whether covertly collecting intelligence in foreign countries, rapidly infiltrating forces over large distances, or providing precision joint fires in support of a SOF unit on the ground, aerospace power is capable of supporting all aspects of SO. Aerospace power's inherent characteristics such as speed, reach and stealth, compliment the SOF principles of speed, surprise and security, helping to achieve relative superiority during dynamic operations. Aerospace power is not a panacea and limitations and vulnerabilities such as fragility and sensitivity to the environment must be recognized and planned for accordingly. Where conventional aerospace forces cannot provide the level of support required by SOF, additional mitigation measures can be taken as will be discussed in the following chapter.

## CHAPTER FOUR – Dedicated SO Aerospace Forces

*Four brave men who do not know each other will not dare to attack a lion. Four less brave, but knowing each other well, sure of their reliability and consequently of their mutual aid, will attack resolutely.*

*Colonel Charles Ardant du Picq<sup>101</sup>*

The fundamentals of aerospace power discussed in the previous chapter highlighted many characteristics and functions that offer great benefit to SOF and the execution of their tasks. However, it is also clear there are a number of areas where conventionally trained and equipped aerospace forces do not offer the degree of support SOF require to successfully execute some of their most demanding missions. This chapter will examine the requirement for and capabilities of dedicated SO aerospace forces and the benefits and challenges that accompany them.

The Second World War saw the first appearance of air units dedicated to supporting SOF. Officially known as Special Duty Squadrons (SDS), and operating in Europe and Asia, these British and American units were known as ‘Carpetbaggers’ and ‘Air Commandos’. Flying specially equipped aircraft, mostly at night, the SDSs were officially tasked with supporting the SOE and OSS but also rescued or evacuated scores of downed allied aircrew and other injured soldiers. Although SDS tasks consisted mostly of transport roles, in the Asian theatre a composite unit was formed consisting of fighter and ground attack aircraft in addition to the transports. While the SDSs were disbanded at the end of the war, a precedent had been set and the value of dedicated SOF air support fully realized. Revived during the Cold War, modern day dedicated SO aerospace forces, led by the U.S. Air Force Special Operations Command (AFSOC), continue the tradition of providing dedicated support to SOF.<sup>102</sup>

The historic reasons for the requirement of dedicated SO aerospace forces are no different from those of today. Simply put, they are required to provide support that is beyond the capabilities of conventional aerospace forces. While conventional forces are capable of providing a wide range of valuable support to SOF, there remain specific areas where more specialized capabilities, provided by specially trained crews operating specially equipped aircraft, are required. Correspondingly, NATO defines Special Air Operations as:

. . . air activities conducted by specially organised, trained and equipped forces to achieve military, political, economic, or psychological objectives by unconventional military means. These operations are conducted during peace, crisis and conflict, independently or in co-ordination with operations of conventional or in support of special operations forces.<sup>103</sup>

More specifically, critical SOF missions such as CT and CP require the support of high readiness, specially trained and equipped aerospace forces that are able to respond with little preparation. While SOF are highly mobile and able to deploy throughout the world with little notice, they require aerospace forces that can provide the reach and stealth to get them to these areas, particularly where penetration of hostile or politically sensitive areas is required. Owing to their small size and limited integral firepower, during operations, SOF can be particularly vulnerable and may require responsive and persistent ISR and fire support to afford protection. Finally, although difficult to quantify, the importance of the trust and confidence of SOF operators in the capabilities and dedication of supporting aerospace forces cannot be overstated in its overall importance to mission accomplishment.

Arguably, the most important requirement for the provision of dedicated SO aerospace forces is the need to provide responsive and effective support to high priority,

time-sensitive, SOF missions such as CT or CP. These demanding missions require a wide range of very specialized tactics, techniques and procedures (TTPs) as well as specialized equipment that are unique to SOF. Further, the high readiness states that must be maintained cannot be achieved simply by maintaining aerospace forces on short NTM. Instead it requires continuous, habitual training with the supported SOF element. The fourth SOF truth, which states, “Special Operations Forces cannot be created after emergencies,”<sup>104</sup> is equally applicable to the aerospace forces that support them, particularly where there is a need to perform specialized manoeuvres not consistent with those used in support of conventional forces (e.g. fast roping or rappelling to buildings or moving platforms).

Late, ad hoc organizing and training of aerospace forces is not an effective way to provide the support required by SOF and nowhere was the requirement for dedicated SO aerospace forces more clearly demonstrated than Operation Eagle One, the aborted rescue mission of American hostages in Iran.<sup>105</sup> While there were a number of reasons for the failure of the operation, one of the key findings the Holloway Report identified was that the military lacked aircraft and crews trained and equipped to perform this type of SOF mission.<sup>106</sup> In preparation for a second rescue attempt, a special project was launched, drawing upon aviation assets from the 101<sup>st</sup> Airborne Division, to develop the specialized capabilities required to conduct the rescue mission, in particular long-range, deep-penetration skills. The unit conducted extensive training in “desert environmental skills and long-range, close-formation precision navigation with NVGs in preparation for the . . . mission.”<sup>107</sup> Although the hostage crisis ended peacefully, realizing the value of the capability it had created and the time and effort required to build it, the Army elected to

retain the unit, creating what has become the 160<sup>th</sup> Special Operations Aviation Regiment (Airborne).

Assessing similar requirements, numerous other countries including the United Kingdom, Canada and Australia, have all devoted dedicated SO aerospace forces to support their SOF and specifically their national CT and CP missions.<sup>108</sup>

True to the roots of dedicated SO aerospace forces, the provision of mobility support is the most highly demanded support requirement of SOF. While conventional forces are capable of providing a wide range of strategic and tactical mobility support, they are limited in their responsiveness as well as ability to operate in areas of higher threat or challenging environmental conditions. The requirements of both reach and stealth in providing the force projection of SOF throughout the world are best provided by dedicated SO aerospace forces using a combination of specialized equipment, procedures and training.

Specialized Air Mobility (SAM) missions entail highly trained crews utilizing specialized fixed and rotary wing aircraft, to conduct clandestine or overt infiltration, exfiltration and resupply in support of SOF. Equipped with advanced avionics and aircraft protective suites, SAM crews are capable of operating from austere locations, penetrating hostile or politically sensitive airspace and operating in darkness and adverse weather conditions. When augmented by Specialized Refuelling (SREF), their extended ranges enable provide excellent flexibility as was illustrated during the early days of OEF. A combination of SAM and SREF operations were critical during the early deployment of SOF into Afghanistan. The long range helicopter insertions, flown from

neighbouring Uzbekistan, required aerial refuelling over Afghanistan in order to complete missions and be able to return to base.<sup>109</sup>

The capabilities and flexibility offered by the SAM missions make them the preferred method of airlift for SOF. “When you have to get some SEALs, Rangers, or Special Forces to some out-of-the-way place like Afghanistan, and do it in a hurry, you move via AFSOC aircraft.”<sup>110</sup>

One additional element of mobility support that warrants discussion is that of covert mobility. While a degree of concealment of SOF movements can be accomplished by operating at night, where extended covert operations are required, the use of civilian aerospace platforms, or ones painted as such, provides an additional method to maintaining secrecy. To this end, it is alleged the highly secretive U.S. SOF unit Operational Detachment Delta (Delta Force) maintains a small helicopter force, painted in civilian colours for use in discreet, CT operations.

Once SOF are inserted, the importance of precise and persistent ISR and Precision Fires (PF) support can be vital to their success and in extreme circumstances, their survival. While the ability of conventional forces to provide such support has greatly improved with the increased availability UAVs as well as guided munitions, the dynamic and discriminating nature of many SOF missions demands a degree of persistent and responsiveness beyond what conventional forces can readily provide.

During preparations for, and the conduct of, operations, the provision of effective ISR support is vital to the safe and effective execution of the mission. This can be provided either by a UAV such as the MQ-1 Predator, or, ideally, a CAS platform such as the AC-130 gunship. Additionally, specialized electronic warfare (EW) platforms such

as the EC-130 Compass Call can either degrade or disrupt enemy communications and weapons systems or aid in the warning of enemy intentions or movements through signals interception. While the Predator is primarily an ISR platform, it also carries two Hellfire missiles enabling it to provide immediate suppression of targets if required. Conversely, the AC-130, armed with an array of sideward firing cannons and sophisticated sensors, is able to orbit over objective areas for extensive periods of time providing both ISR sp and very precise firepower.<sup>111</sup> Critically important where SOF are often in very close proximity to enemy forces, the ability of the AC-130 to provide continuous, precise and discriminating fire support is far superior to any other CAS platform available.

A final but critical element to providing PF and ISR support is that of Special Tactics Teams (STT). Consisting of Joint Terminal Attack Controllers (JTAC), STTs facilitate SOF missions through coordination and control of both manned and unmanned aerospace platforms and the direction and control of the effects they deliver. The contribution of STTs provides an invaluable link between aerospace forces and forces on the ground. Nowhere has the significance of this contribution been more clearly demonstrated than during the early months of OEF in Afghanistan. In coordination with other SOF and indigenous Afghan forces, STS JTACs provided accurate direction and control of aerospace power against Taliban and Al Qaeda positions, effectively turning the tide of the land battle, and bringing about their rapid defeat.

The final point that speaks to the demand for and importance of dedicated SO aerospace forces is the requirement for a bond of trust and confidence between the SOF operators and the aerospace forces supporting them. The challenging and dangerous

missions SOF are tasked to perform, demand the highest levels of commitment and trust in their fellow operators. Similarly, when aerospace forces are providing intimate and critical support, there is also a need for mutual trust and dedication. There is no better way to develop a shared ethos that promotes mutual trust and support than through habitual, intimate, training and operational support relationships. Through extensive and continual integrated training a mutual understanding of capabilities and requirements is developed as well as the acceptance of the SOF organization. The depth of these bonds of trust are best exemplified by the efforts and lives expended trying to rescue the crews of two 160<sup>th</sup> SOAR(A) MH-60 helicopters shot down in Mogadishu, Somalia or the immediate decision of a 160<sup>th</sup> MH-47 crew to return to a hot landing zone (LZ) in Afghanistan to attempt to recover a lone SOF operator. In both cases, the actions were extremely dangerous and likely to result in additional casualties but the mutual trust demanded it.<sup>112</sup>

In all cases, the chief differentiator between aerospace power assets dedicated to supporting SOF and those that are not, are the level to which they are trained and the habitual training relationships they maintain with the supported units. In the precise and demanding world of SO, the trust and confidence built through continual, intimate training and a shared ethos ensures the highest level of support will be provided when it is most needed.

Clearly dedicated SO aerospace forces offer the best support to SOF; however, where resource limitations preclude provision of such a capability, an alternate option exists in providing specialized qualifications for select elements of conventional forces. In addition to receiving specialized training, these forces would establish habitual training

and operational relationships with the SOF unit they support. While remaining a part of conventional aerospace units, these 'enhanced' elements would support SOF whenever required. While far from the best solution, particularly where a short NTM or standby posture is required, the use of specially trained conventional aerospace forces in support of SOF is a plausible compromise where resources limitations preclude any greater commitment.

The provision of a dedicated SO aerospace capability is clearly the most effective method of providing the critical support required of SOF. Specifically tailored to the mission requirements of SOF, dedicated aerospace forces utilize special equipment, procedures and tactics to provide the best support to SOF. Capabilities such as SREF and enhanced aircraft self-protection equipment enable deep penetration through hostile or denied space to insert SOF where required to best conduct their missions. Persistent ISR and specialized CAS platforms (AC130) together with STTs to direct PF provides SOF a persistent, responsive and discriminating degree of protection and support not possible from other fires elements. While still not impervious to the limitations of aerospace power, the use of advanced avionics and sensors enable operations in adverse environmental conditions while additional protective armour provides a degree of hardening and protection to the aircraft and personnel not normally found on conventional platforms.

While less comprehensive a solution, providing enhanced training to designated conventional aerospace forces is an alternative option where resource limitation preclude the provision of dedicated assets. This option; however, does not provide an effective high readiness response capability.

## CHAPTER FIVE – Aerospace Power / SOF Integration

*In Afghanistan, we saw composite teams of U.S. special forces on the ground, working with Navy, Air Force and Marine pilots in the sky, to identify targets, communicate targeting information and coordinate the timing of strikes with devastating consequences for the enemy. . . . The change between what we were able to do before U.S. forces, special forces, were on the ground and after they were on the ground was absolutely dramatic.*

*U.S. Defense Secretary Donald Rumsfeld<sup>113</sup>*

Beginning with the bold assault on the Belgium fortress at Eben Emael and the covert insertions of SOE and OSS teams into occupied Germany, the integration of aerospace power and SOF has continually developed and matured since the early days of the Second World War.<sup>114</sup> As technologies continue to improve, the degree to which SOF and aerospace power benefit and leverage each other continues to grow. In order to articulate the critical contribution aerospace power makes to the successful conduct of SO, this chapter will examine contributions of aerospace power in facilitating SOF through the overarching functions of: Intelligence, Surveillance and Reconnaissance; Command and Control; Mobility; Fire Support; and Combat Support. While these contributions are applicable across all SOF missions and tasks, their critical importance to SR and DA missions will receive specific focus. Additionally, the successful employment of SOF and aerospace power in what has been referred to as the ‘Afghan Model’ will be examined in order to illustrate the synergistic effects the integration of SOF and aerospace power can have on the battlefield. As a final note, the challenges faced in providing adequate aerospace support to support SOF will be discussed, as will the merits of dedicated SO aerospace forces.

Like all military operations, SO are intelligence led. However, by their nature, SOF are more dependant on the provision of timely and accurate intelligence than

conventional forces due to their reliance on principles such as surprise and security to achieve an advantage over their opponents. The employment of small numbers of lightly armed SOF in operations lacking clear, accurate and actionable intelligence can be disastrous, especially if facing a large, heavily armed enemy force. To this end, aerospace power plays a critical role in enabling the collection and dissemination of intelligence both in preparation for, during and following SOF operations.

At the highest national levels, space based imagery and signals collection and monitoring assets provide a capability to gain intelligence in any area of the world, no matter what the situation on the ground, in a covert and un-intrusive manner. While lacking the degree of fidelity offered by personnel on the ground, these high level assets provide an ability to collect intelligence in the most denied and hostile of environments. When combined with high altitude manned and unmanned surveillance platforms, such as U-2, Global Hawk or Predator UAVs, aerospace power has the capacity to provide a persistent coverage of key targets or areas of interest often with an ability to provide real time video or signals data direct to ground units.<sup>115</sup> This availability of timely information and intelligence is critical to building as accurate a picture as possible of a target area, prior to inserting SOF elements. Without sufficiently detailed information, SOF elements may be unable to prepare for, and ideally rehearse, potential contingencies of an operation. Such uncertainties can inject confusion into an operation and ultimately reduce the chances of success.

Additionally, manned electronic and signals intelligence (ELINT and SIGINT) platforms are able to provide critical real-time information and intelligence through monitoring adversary communication and other emissions. Used in conjunction with

human intelligence (HUMINT) sources, the information gathered is extremely valuable in building complete intelligence pictures, establishing pattern of life information, providing warnings of impending attacks and even confirming locations of specific command nodes or individuals. This information helps ensure high value SOF elements are not squandered on operations with little chance of success and also helps to protect them on the ground by providing warning of enemy forces manoeuvring to preparing to attack.

While the provision of accurate and timely intelligence is vital to all SOF missions, it is crucial to the successful execution of DA missions. In preparation for an operation, aerospace power contributes to developing a target through imagery collection as well as monitoring pattern of life activities both through imagery and signals monitoring. Immediately prior to an operation, aerospace assets, primarily UAVs or manned aircraft, can be used to confirm the presence of specific targets and status of landing zones as well as provide warning of nearby opposing forces. Finally, during the conduct of the assault itself, real-time overhead imagery can assist forces in maintaining SA, providing warning of counterattacking forces as well as assisting tracking and engagement of targets. In the aftermath of an operation, these assets may also be the only feasible means with which to conduct a battle damage assessment (BDA) of the target area.

While the use of military aerospace vehicles in the ISR role will certainly suffice in circumstances where such platforms are routinely present, in more discreet situations collection must be carried-out in a clandestine fashion. In instances such as this, the use of less conspicuous platforms may be required. Although often hampered by legal

restrictions, some countries have successfully employed civilian aircraft as collection assets where the use of military platforms would either be too risky or serve to compromise the mission. Hours prior to the Israeli raid to free hostages at the Entebbe Airport in Uganda, a civilian aircraft was rented in a neighbouring country and flown over the airport in order to collect the most up to date information on the situation on the ground.<sup>116</sup> In a longer term collection operation, a top secret U.S. SOF unit known variously as the Intelligence Support Activity or Grey Fox, used civilian aircraft, under the guise of a radio beacon survey program, to systematically monitor communications of insurgents in El Salvador and drug cartel leaders in Colombia.<sup>117</sup> In both instances, the efforts provided extremely valuable intelligence that helped facilitate successful operations. Had military aircraft been used in either instance, compromise of the operation or worse would likely have happened. As the importance of SR continues to increase in the evolving threat environment, so to will the requirement to use alternate and innovative ways to expand intelligence collection capabilities.

In addition to providing valuable ISR support, aerospace power is also key to enabling the effective command and control (C2) of SOF. While the dispersed, remote and often covert employment of SOF assets can pose a particular challenge to maintaining effective C2, the technologies and platforms provided by aerospace power help ensure an effective flow of information is maintained. First and foremost, the advent of secure satellite communications systems has increased the connectivity of SOF to the point that the smallest force elements are able to maintain nearly seamless voice and data communications throughout the world. This robust communications capability facilitates the passage of critical intelligence information as well as command direction both to and

from deployed SOF elements, ensuring timely passage of information and rapid re-tasking of assets if required. Additionally, effective long range communications also ensures that ground units are never out of contact with critical support enablers such as CAS or MEDEVAC.

In addition to the requirement for effective communications, achieving and maintaining a high level of situation awareness (SA) is also critical to effective C2. This is particularly important with more challenging and complex missions such as CT that demand both a high degree of precision in timings and movements as well as close coordination of multiple assets such as aircraft and ground vehicles. Complicating this further, are geographic influences such as urban, mountainous or even maritime environments where it is increasingly difficult for commanders and subunit leaders to maintain accurate SA due to extended distances between elements and possible barriers to observation. The provision of a dedicated aerospace C2 platform enables commanders to direct operations from a relatively secure environment, maintaining SA often with the benefit of live imagery and the enhanced perspective overhead observation offers. Although still subject to limitations such as weather and surface to air threats, this method of C2 is particularly beneficial for complex operations, involving multiple assets. MCT operations regularly utilize airborne C2 platforms to facilitate coordinating the air and surface vessels conducting the assault. Further, owing to the observation perspective offered from the air, the assaulting force can be alerted to the location of specific threats as they approach or manoeuvre on the objective. This method of C2 is superior to utilizing UAV or other assets to relay information to the assaulting force as it provides continual observation and a push of necessary information as required so that the

assaulting force can be provided the best information and given direction in the most timely fashion.

Arguably the greatest contribution aerospace power has made and continues to make in support of SOF is the provision of mobility support. The global and asymmetric nature of today's operating environment not only requires the responsive and adaptive capabilities SOF provides but also the ability to effectively deploy these forces, throughout the world, wherever and whenever required. No matter what the SOF mission being supported, mobility support provided by aerospace power can range from point to point administrative moves, with little to no threat or security concerns to dynamic assaults against fortified installations, or covert high altitude parachute insertions into denied areas.

Insertion of SR elements can take place via a variety of means; however, in cases where operations are being conducted in hostile or denied areas, some manner of aerial movement may be the only feasible option. Depending on the location and capabilities of the threat, options for insertion include: fixed-wing aircraft flying into existing airstrips, helicopter insertions directly into the area of operations, use of offset helicopter landing zones (LZ) from which ground or vehicle movement to the final destination will be conducted, or via parachute.<sup>118</sup> The advantages in range, speed and stealth that an air insertion offer can enable SR operations deep in enemy controlled territory, providing valuable intelligence in support of SOF or conventional operations. During Operation Anaconda in Afghanistan in 2002, AFO teams were infiltrated into offset LZs from which they occupied a number of observation posts (OPs) in order to gather intelligence prior to the infiltration of the main conventional force. Their successful covert insertion

enabled the teams to gain accurate intelligence on the enemy and ultimately helped save countless lives following a devastating enemy ambush.<sup>119</sup>

The key principles of speed, surprise and security that are critical to the success of DA operations speak directly to the advantages aerospace mobility offers. Whether an assault is conducted solely using aerospace platforms, or in combination with land or sea based assets, the ability to rapidly concentrate forces onto an objective, allowing limited reaction time for opponents, is key to enabling a typically smaller SOF element to achieve an advantage over a larger defending force.

By their nature, rotary wing assets are typically the aerospace platform of choice in supporting DA missions. Capable of landing a sizeable force in close proximity to the objective enables SOF elements to assault targets in the shortest possible time, providing opponents with minimal time to react. Where multiple assets are often associated with a DA mission, close coordination is critical to maintaining surprise and security and, ultimately, achieving relative superiority over an opposing force. To this end, it is critical that precision in timings and positioning are achieved by the aerospace forces supporting the assault. While some conventional aerospace forces, if given sufficient preparation time, are capable of operating to the degree of precision required for some SOF missions, most are not, particularly when short notice missions demand a constant high readiness state. Additionally, some of the more challenging SOF missions, such as CT and MCT, require specialized equipment and procedures such as fast roping to buildings or moving targets. The exacting standards required to support such operations speaks to the requirement for dedicated SO aerospace forces that continually hone their skills and maintain the highest readiness levels.

Not strictly limited to rotary wing support, fixed wing aircraft have also been used to great success supporting SOF DA missions. The successful Israeli hostage rescue mission at Entebbe Airport in Uganda provides an excellent example of the critical importance of aerospace power to enabling SOF operations. Transported by four C130 transport aircraft, a mixed Israeli force of SOF and commandos flew seven and one half hours, non-stop and undetected, from Israel to the Entebbe Airport. Upon landing they launched their assault and in less than an hour were once again airborne with the hostages on board. The contribution of aerospace power to the success of the mission was vital. The surprise of conducting such a bold, long range, assault enabled the SOF force to gain a decisive early advantage while the speed of execution ensured they were clear of the area before the Ugandan military could organize an effective response.<sup>120</sup>

In addition to the importance of insertion, the timely extraction of SOF forces is also vital. In the event a SR patrol is compromised immediate extraction may be necessary in order to prevent it from being attacked by a superior enemy force. While the means for extracting SOF forces are generally consistent with those used for the insertion additional challenges may exist, particularly if the area is hostile and the force being extracted is attempting to break contact with enemy forces. As illustrated by the case of Bravo Two Zero, a British SAS patrol that was compromised during Operation Desert Storm, failure to provide timely extraction can be disastrous.<sup>121</sup>

Similarly, rapid extraction of a DA force is key to ensuring the enemy is not able to organize a possible counter-attack. It may also be necessary if an operation does not go as planned, possibly as a result of failing to achieve surprise or meeting stronger than expected resistance. In such cases, the capability and dedication of aerospace forces to

execute an extraction under fire may be critical to the survival of the SOF force.<sup>122</sup> Such qualities of dedication and ‘mission first’ focus, while certainly not excluded from conventional aerospace forces, are more readily cultivated in forces dedicated to supporting SOF due to the intimate support relationship and the SOF ethos they share.<sup>123</sup>

Another key contribution of aerospace power that has become increasingly important to SOF in recent years is the provision of fire support. Advances in precision delivery of munitions now enable discriminating use of aerial firepower both to facilitate planned operations as well as protect forces that have been compromised or outmanoeuvred by a larger force.

The ability of SR detachments to remain concealed and observe targets from advantageous positions provide excellent opportunities to direct or control fires against the enemy. Effective communications and precise target marking equipment enable SOF to direct fires with devastating accuracy. When SOF are operating in remote or hostile areas, it is possible aerospace power may be one of the few, if not only, fire support options available. During Operation Anaconda, AFO teams occupying observation posts were instrumental in protecting conventional forces that were surrounded by well positioned enemy troops. Through accurate direction of aerospace fires, the AFO teams succeeded in disrupting a number of enemy attacks, ultimately preventing a bad situation from getting far worse. In one instance, an AFO team observed enemy fighters manoeuvring to attack friendly forces. After confirming the coordinates, “[t]he team contacted a B-52, and within minutes six JDAMs rained down, killing four of the fighters, including the commander.”<sup>124</sup> In the words of a SOF operator involved in the

mission, “if it wasn’t for the actions of the AFO teams directing the aerospace fires, many more friendly forces would have died that day.”<sup>125</sup>

In the unfortunate event a SOF element is compromised, its small size and limited weaponry can quickly place it in a dire situation. While extraction of the element is the preferred course of action, this may not be immediately possible and defensive fire support may be essential. In such a case, aerospace power is likely to be the most responsive, accurate, and possibly the only, fire support available to protect or cover the extraction of the SOF team.<sup>126</sup>

The provision of fire support during a DA operation may take the form of preparatory fires or, more likely, on call fires either to prosecute elements of the target or provide defensive fire support to protect the force in the event greater than expected resistance is met. In either case, the dynamic nature of a DA mission combined with the likely close proximity of friendly and enemy forces requires closely controlled and highly precise fires. While fire support capabilities internal to the SOF element are typically limited to snipers, and possibly mortars, the precision and flexibility of aerospace power enables the provision of effective and devastating fire support. To this end, support can range from snipers carried onboard helicopters, armed or attack helicopters, CAS, and even heavy bombers carrying precision ordinance. The most capable CAS platform utilized in support of SOF forces is the AC130 Spectre gunship. Although only utilized at night, its suite of sensors, formidable direct fire weapons and ability to maintain a persistent orbit overhead enables the crew to maintain excellent SA and thus respond extremely quickly to requests for fire. This provision of CAS has become so effective that, as author Sean Naylor criticizes, “[t]o an alarming degree, special operators had

become psychologically dependant on the presence of aircraft like the AC130 ‘clearing’ their landing zones and objectives.”<sup>127</sup> This criticism aside, the fire support provided by aerospace power offers a tremendous degree of security to the small and lightly armed forces that characterize most SOF assault elements.

While SOF missions in a domestic context are unlikely to require provision of fire support beyond that organic to SOF organizations, the use of helicopters as sniper platforms remain a common requirement.

The degree to which effective integration of SOF and aerospace delivered fires can impact the conduct of ground operations was dramatically demonstrated by the early and rapid success in Operation Enduring Freedom, in what has become known as the ‘Afghan Model’. Although aerial bombing commenced prior to SOF deploying into Afghanistan, the overall damage to the enemy and impact on ground operations was minimal, due largely to the scarcity of fixed targets such as infrastructure and command and control nodes were so few. Once SOF were on the ground and able to direct strikes against Taliban and Al-Qaeda fighting positions in close coordination with indigenous ground forces, progress was swift. A force of approximately three hundred SOF, leveraged the precision effects of aerospace power, tipping the balance in favour of the Northern Alliance to effectively topple Taliban and Al-Qaeda forces in Afghanistan in less than fifty days.<sup>128</sup> This overwhelming success has led some to hail the Afghan Model as a new way of war fighting. While others contest this notion, there can be no questioning the success of the synergistic effects of precise air delivered effects directed by skilled SOF eyes on the ground.<sup>129</sup>

In the words of then U.S. Secretary of Defense, Donald Rumsfeld:

. . . getting U.S. special forces on the ground early dramatically increased the effectiveness of the air campaign. In Afghanistan, precision-guided bombs from the sky did not achieve their effectiveness until we had boots, and eyes, on the ground to tell the bombers exactly where to aim.<sup>130</sup>

This successful use of aerospace power, including heavy bombers, to deliver precision strikes at the direction of SOF on the ground has even sparked calls for amending doctrine to establish a new aerospace mission of Ground- Aided Precision Strike (GAPS) or Ground Directed Interdiction (GDI).<sup>131</sup>

In reality, rather than defining a new way to fight wars or a new aerospace mission, the ‘Afghan Model’ simply illustrates how the combination of SOF and aerospace power complement one another, effectively nullifying some of the limitations each possess (e.g. impermanence for aerospace power and light armament for SOF).<sup>132</sup> The end results demonstrated the true synergy that could be accomplished through truly joint operations.

Although SOF operations tend to demand less intensive logistics support than conventional forces, owing to their smaller numbers and greater self sufficiency, provision of effective combat support nevertheless remains extremely important. While extended SOF operations, such as SR missions, can provide a windfall of useful intelligence, they also come with significant challenges and risks. If deployed for long enough periods, it will eventually be necessary to resupply the force. Depending on the circumstance, this may be accomplished either by ground or aerospace means. If aerial resupply is deemed appropriate, options include using helicopters providing direct point to point delivery of supplies or fixed-wing assets conducting airdrops via parachute. In cases where the risks of compromise may be high, resupply via precision air drop may be the only option available in order not to reveal the location of the force. While

conventional transport aircraft are capable of conducting air drops, in situations where penetration of enemy air defences is necessary, specially equipped and trained aerospace forces are required. Utilizing assets such as the MC-130, AFSOF units are capable of low level penetration of hostile and denied airspace to deliver supplies with a very high degree of precision. Additionally, new technologies, such as the Sherpa guided parachute delivery system enable stand-off precision delivery of supplies thus enabling a true covert method of resupply.<sup>133</sup>

Another critical element of combat support that is equally important to all SOF missions is the provision of an effective MEDEVAC capability. As with any military operation, the importance of rapidly evacuating injured personnel is critical to preserving life as well as maintaining the morale and confidence of soldiers. Given that SOF often operate far from supporting forces, aerospace power will normally be the only capability that can provide timely evacuation in the event personnel require medical attention. Combined with effective communications systems, the availability of a responsive MEDEVAC capability is extremely important to enabling operations.

Clearly, aerospace power is a key enabler for SOF. Nonetheless, there exist significant challenges to integrating the two. First and foremost is the challenge of providing aerospace forces capable of executing missions to the level of precision and fidelity required for more demanding missions such as CT and CP. A second challenge is that of dealing with the cultural divide that exists between SOF and conventional forces and the inherent difficulties that arise when working together.

While conventional aerospace forces possess the requisite skill levels to support a number of SOF missions, many tasks require procedures and a degree of precision not

normally associated with conventional forces. In particular, CT and CP missions demand unique and often dangerous procedures to be performed to a high level of precision and in coordination with multiple assets. These demands, combined with the requirement to maintain high pre-combat readiness levels are not achievable through ad hoc support arrangements and require a significant amount of training and preparation.<sup>134</sup>

In addition to specialized training and qualifications, habitual training relationships not only serve to build an intimate understanding of mission requirements but also instill a level of confidence and trust between the elements that would be impossible to achieve through an ad hoc arrangement. Ultimately, this dedicated relationship serves to enable a level of interoperability and understanding of supporting capabilities that is essential to the success of demanding SO. The failure of Operation Eagle Claw, the aborted mission to rescue American hostages in Iran, provides a clear example of the risks and pitfalls that result from ad hoc support arrangements.<sup>135</sup>

Additionally, the cultural divide that exists between SOF and conventional forces can be particularly wide and deep. While all forces share a dedication to accomplishing the mission and prevailing over the enemy, the SOF mindset takes this dedication to a higher level. Imbued in the SOF ethos is a relentless pursuit of excellence and a 'never quit' attitude. The pursuit of excellence demands the highest level of effort and commitment from special operators and, by extension, is also expected of supporting elements such as aerospace power. Similarly, the 'never quit' attitude can resonate with supporting elements in two ways. Either they do not share the level of commitment and therefore will not pursue a mission to the same lengths as SOF, or, they do not temper the

commitment and pursue the mission beyond their own competency level. Either outcome can have results unsatisfactory to the supported SOF.<sup>136</sup>

In order to provide aerospace force that possesses the requisite qualities so critical to the success of the most demanding SOF missions, it is necessary to dedicate forces to this role. The habitual training relationships afforded in a dedicated support relationship help build and maintain the required skill level while gaining the critical understanding of the SOF mission as well as the acceptance and confidence of the SOF organization.

One SOF operator voiced the community's view with regard to the importance of this mutual understanding and shared commitment to mission success. He stated, "it is always important, but especially critical when things don't go well. Things are easy when everything goes according to plan. The importance of a common understanding is vital when an operation goes off the rails."<sup>137</sup>

Due to the realities of existing resource constraints, most militaries, with the exception of larger forces such as the U.S. or U.K., are challenged to maintain the desired level of dedicated aerospace support to SOF. In order to mitigate this capability gap as much as possible, an alternative strategy of identifying select conventional crews to receive additional qualifications and conduct training with SOF elements can be followed. While this method holds some merit, particularly for operations where advanced notice will allow time to respond, it does not suffice in providing a force ready and trained to conduct operations on short notice. As a result, the only suitable means to maintain adequate and responsive aerospace power in support of vital SOF missions is through the provision of forces dedicated to this role.

The critical importance of aerospace power in enabling SO extends across all missions and tasks assigned to SOF. Whether providing responsive and persistent ISR support in preparation for an operation, mobility support to a dynamic CT assault, or devastating fire support at the direction of small SOF teams, aerospace power serves as the single most important force multiplier to SOF. Enhancing SOF capabilities such as global reach and rapid reaction, aerospace power also serves to mitigate vulnerabilities such as lightness and operating far from supporting elements. While conventional aerospace forces may be suitably trained and equipped to provide some of the support SOF requires, certain critical tasks, such as CT or penetration of hostile territory, demand specially trained personnel using specialized equipment, tactics, techniques, and procedures. Further, achieving the most effective integration of aerospace power and SOF requires a common level of understanding of the operations as well as the commitment and mindset of the forces involved. The most effective way of accomplishing this is through the provision aerospace power forces dedicated to the support of SOF.

## CONCLUSION

*Entering into the enemy's back yard some 170km from the airfield, even in the coming daylight, did create initial surprise . . . The next eight hours consisted of multiple engagements over the entire objective area by both ground forces and CAS, effectively neutralizing the main Taliban/AQ training camp and logistical node. All Aviation, CAS and ISR was controlled by the senior JTAC and pushed as required to the JTACs with each tactical element on the ground. Without major incident, the entire force was pulled off the objective in two heavy lifts prior to last light with its tactical objectives completed.<sup>138</sup>*

The contemporary security environment, strongly impacted by the influences of globalization, is one marked by uncertainty and unprecedented levels of worldwide instability. The world has evolved from a classic inter-state balance of powers to a more complex and dynamic mix of interconnected societies where non-state actors have gained increasing importance and influence, particularly in areas where failing states create a void of rule and order. Faced with an increasing prominence of asymmetric threats, protecting the security of Western nations demands both defensive measures within nations and offensive pre-emptive measures in the troubled areas of the world where threats find haven to organize and plan attacks. This approach will demand an emphasis on timely and accurate intelligence collection as well as an ability to rapidly react when targets present themselves. Further, combating these asymmetric threats will not only demand the involvement of military forces but will be a multi-agency effort requiring coordination across different departments and nations. The skill sets and capabilities SOF possess make them ideally suited to be the force of choice in combating today's security threats.

Flexible, adaptive and skilled at working in small groups, SOF have proven ideally suited to combat the asymmetric threats facing the world today. Able to discreetly operate throughout the world, with minimal support across the spectrum of

conflict, they provide the ideal capability for infiltrating hostile areas to gather intelligence or carry out offensive actions. Additionally, their responsiveness and ability to apply precise and discriminating force make them the best choice to execute demanding high risk operations such as CT, both at home and abroad.

Not without vulnerabilities, SOF's small numbers, combined with the challenging and high risk missions they are asked to perform, can place them at considerable risk. Through an emphasis on intelligence driven operations and adherence to SOF principles such as surprise, speed and purpose, these risks can be mitigated somewhat. However, in order to mitigate risks to the greatest degree as well as enhance the SOF operations as much as possible, support of other force enablers is required. To this end, the most critical force enabler to supporting SOF is aerospace power.

The characteristics and functions of aerospace power both complement the strengths of SOF and help mitigate its vulnerabilities. Aerospace power's inherent characteristics such as speed, reach and stealth, enable collection of timely intelligence, as well as rapid and often covert global force projection of SOF elements. These characteristics further complement the SOF principles of speed, surprise and security, helping to achieve relative superiority during dynamic operations. Aerospace power too faces limitations and vulnerabilities such as fragility and sensitivity to the environment that can significantly limit its employment potential. Further, certain SOF missions demand support capabilities that are beyond what most conventional aerospace forces are capable of providing. Where conventional aerospace forces cannot provide the level of support required by SOF, the best solution is the provision of dedicated SO aerospace forces.

Utilizing special equipment, procedures and tactics and maintaining habitual training relationships with the SOF units they support, dedicated aerospace forces are capable of supporting the most demanding of SO. Their ability to provide long range insertion through hostile areas, execute dynamic assaults in support of DA missions and provide precise and persistent fire support are well beyond the capabilities of conventional aerospace forces. While still facing many of the same limitations as conventional aerospace power, the use of advanced avionics, sensors and protective equipment, together with an imbued ethos that emphasizes mission accomplishment and dedication to fellow SOF, provides the most effective support possible.

The critical importance of aerospace power in enabling SOF extends across all missions and assigned tasks. While all capabilities that aerospace power offers are important, the most vital are the provision of ISR, mobility and fire support. Owing to the small numbers of relatively lightly armed SOF, accurate and timely intelligence is critical to ensuring high value forces are not unnecessarily placed in a dangerous situation. The importance of mobility touches all aspects of SOF operations from air dropping SR teams deep into hostile territory to conducting a MCT assault, offshore, against a vessel underway. Similarly, fire support may be provided as part of a planned operation where SOF are directing aerospace forces in support of indigenous or conventional ground troops or in direct support to a SOF element that has been compromised or is being outmanoeuvred by an attacking force. Additionally, aerospace power provides invaluable support to C2 of SOF forces as well as the sustainment of widely dispersed elements.

While aerospace power is an important capability across all facets of warfare, there can be no questioning the fact that it remains the critical force enabler to a national SOF capability.

## ENDNOTES

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<sup>1</sup> Confidential interview with SOF Operator A, 1 April 2008. The narrative describes activities during a Direct Action mission in Afghanistan in support of Operation Enduring Freedom.

<sup>2</sup> United States, Department of Defense, *Quadrennial Defense Review Report* (Washington, DC: U.S. Government Printing Office, February 6, 2006), 4.

<sup>3</sup> The U.S. acknowledged the requirement for an enduring fight against terrorism and other extremist causes when it unveiled a 20 year strategy focusing on deployments in dozens of countries, with a focus on SOF as the lead. See Ann Scott Tyson, "Ability to Wage 'Long War' Is Key To Pentagon Plan," *Washington Post*, 4 February 2006.

<sup>4</sup> The U.S. military defines Unconventional warfare as: a broad spectrum of military and paramilitary operations, normally of long duration, predominantly conducted through, with, or by indigenous or surrogate forces who are organized, trained, equipped, supported, and directed in varying degrees by an external source. It includes, but is not limited to, guerrilla warfare, subversion, sabotage, intelligence activities, and unconventional assisted recovery. See United States, Department of Defense, JP 1-02 *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: U.S. Government Printing Office, 4 March 2008), 564.

<sup>5</sup> General Rupert Smith, *The Utility of Force: The Art of War in the Modern World*, (New York: Alfred Knopf, 2007), 3.

<sup>6</sup> Ronald Dannreuther, *International Security: The Contemporary Agenda*, (Cambridge, UK: Polity Press, 2007), 165.

<sup>7</sup> Peter Johnston and Dr. Michael Roi, *Future Security Environment 2025*, (Ottawa: DND Canada, 2004), Executive Summary; [http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/ord/fse2025/intro\\_e.asp](http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/ord/fse2025/intro_e.asp); Internet; accessed 21 March 2008.

<sup>8</sup> Peter Gizewski, "The Future Security Environment: Threats, Risks and Responses," *International Security Series*, (Canadian Institute of International Affairs, March 2007), 1.

<sup>9</sup> Department of National Defence, Directorate of Land Strategic Concepts, *Future Force: Concepts for Future Army Capabilities*, (Kingston: Directorate of Land Strategic Concepts, 2003), 2-13.

<sup>10</sup> Thomas L. Friedman, *The Lexus and the Olive Tree*, (New York: Random House, 2000), 7.

<sup>11</sup> United States, National Intelligence Council, *Report of the National Intelligence Council's 2020 Project*, (Washington, DC: Government Printing Office, December 2004), 10.

<sup>12</sup> *Ibid*, 11.

<sup>13</sup> Geoffrey Till, "The Evolution of Strategy and the New World Order," in *Contemporary Security and Strategy*, ed. Craig A. Snyder, 95-117 (New York: Palgrave MacMillan, 2008), 112.

<sup>14</sup> DND, *Future Force...*, 3.

<sup>15</sup> Elinor Sloan, "Terrorism in 2025: Likely Dimensions and Attributes," *Integrated Threat Assessment Centre Trends in Terrorism Series*, Volume 2007-3; <http://www.scrs-csis.gc.ca/en/itac/itacdocs/2007-3.asp>; Internet; accessed; 20 March 2008.

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<sup>16</sup> Gizewski, *The Future Security Environment...*, 1-2.

<sup>17</sup> Nick Bisley, "Great Powers and the International System: Between Unilateralism and Multilateralism," in *Contemporary Security and Strategy*, ed. Craig A. Snyder, 210-226 (New York: Palgrave MacMillan, 2008), 221.

<sup>18</sup> DND, *Future Force...*, 4-5.

<sup>19</sup> Gizewski, *The Future Security Environment...*, 2-3.

<sup>20</sup> It is now accepted that North Korea has a nuclear capability and rhetoric from Iran indicates a strong desire to achieve the same.

<sup>21</sup> United States, Central Intelligence Agency, *Global Trends 2015: A Dialogue with Non-Governmental Experts*, (Washington: Central Intelligence Agency, December 2000), 24.

<sup>22</sup> Gizewski, *The Future Security Environment...*, 3.

<sup>23</sup> CIA, *Global Trends 2015...*, 26-27.

<sup>24</sup> Johnston and Roi, *Future Security Environment...*, V.

<sup>25</sup> DND, *Future Force...*, 10.

<sup>26</sup> *Ibid*, 5.

<sup>27</sup> DND, *Future Force...*, 12-13.

<sup>28</sup> *Ibid*, 13-18.

<sup>29</sup> Department of Public Safety, *Securing an Open Society: Canada's National Security Policy* (Ottawa: Canada Communication Group, 2004), 6/7.

<sup>30</sup> Title 22 of the United States Code, Section 2656f(d).

<sup>31</sup> Department of Public Safety, *Securing an Open Society...*, 6.

<sup>32</sup> Peter Chalk, Bruce Hoffman, Robert Reville, and Anna-Britt Kasupski, *Trends in Terrorism Threats to the United States and the Future of Terrorism Risk Insurance*, (Santa Monica, CA: RAND Corporation, 2005, xiv-xv; [www.rand.org/pubs/monographs/2005/RAND\\_MG393.pdf](http://www.rand.org/pubs/monographs/2005/RAND_MG393.pdf)), internet; accessed 17 March 2008.

<sup>33</sup> *Ibid*, xiv.

<sup>34</sup> Johnston and Roi, *Future Security Environment...*, Part V.

<sup>35</sup> *Ibid*, Part V, para 68.

<sup>36</sup> Gizewski, "The Future Environment...", 5-6.

<sup>37</sup> DND, *Future Force...*, 18.

<sup>38</sup> The Canadian Army describes asymmetric threats as, "... terrorism, disinformation, psychological operations, use of WMD and information system attacks. . . . opponents may interdict lines of communication, try to maximize casualties to erode our resolve, fight in complex terrain such as cities

and mountains and take hostages. See Department of Defence, Directorate of Land Strategic Concepts, *The Future Security Environment* (Kingston, 1999), 13.

<sup>39</sup> Complete Works of George-Orwell, "George Orwell Quotes," [http://www.george-orwell.org/l\\_quotes.html](http://www.george-orwell.org/l_quotes.html); Internet; accessed 27 March 2008.

<sup>40</sup> RAdm McRaven's thesis turned book, *Spec Ops*, is perhaps the seminal book on SO theory. See William H. McRaven, *Spec Ops: Case Studies in Special Operations Warfare: Theory and Practice*, (Novato, CA: Presidio Press, 1996).

<sup>41</sup> The SOE was formed in England in 1940 and tasked with facilitating espionage and sabotage behind enemy lines and to serve as the core of a resistance movement in Britain in the possible event of an Axis invasion. The OSS was the predecessor of the U.S. Central Intelligence Agency and the SAS still exists to this day. See Sean M. Maloney, "Who Has Seen the Wind?: A Historical Overview of Canadian Special Operations," in  *Casting Light on the Shadows*, ed. Colonel Bernd Horn and Major Tony Balasevicius, 181-198 (Kingston: Canadian Defence Academy Press, 2007), 182-187.

<sup>42</sup> U.S. President John F. Kennedy, Speech to United States Military Academy Graduating Class, 6 June 1962. See National Geographic. *Inside Special Forces*. National Geographic Television and Film, 2003. DVD.

<sup>43</sup> Department of National Defence, *Canadian Special Operations Command: DRAFT CONOP*, (Ottawa: DND, 2007).

<sup>44</sup> Tom Clancy, *Special Forces: A Guided Tour of U.S. Special Forces*, (New York: Berkley Books, 2001), 3.

<sup>45</sup> United States, Department of Defense, *United States Special Operations Command History: 1987-2007*, (Tampa, FL: USSOCOM/SOCS-HO, 2007), 25.

<sup>46</sup> Robert G. Spulak, "A Theory of Special Operations: The Origin, Qualities, and Use of SOF," *JSOU Report 07-7*, (Hurlburt Field, FL: The JSOU Press, 2007), 13.

<sup>47</sup> Bernd Horn, "Special Operations Forces: Uncloaking an Enigma," in  *Casting Light on the Shadows: Canadian Perspectives on Special Operations Forces*, ed. Colonel Bernd Horn and Major Tony Balasevicius, (Kingston: Canadian Defence Academy Press, 2007), 30.

<sup>48</sup> Spulak, "A Theory of Special Operations...", 14.

<sup>49</sup> Ibid, 12.

<sup>50</sup> United States, Department of Defense, *United States Special Operations Command Capstone Concept for Special Operations*, (Tampa, FL: USSOCOM/SOCS-HO, 2006), 13.

<sup>51</sup> Friction is essentially what differentiates real war from war on paper. It is the accumulation of all the difficulties (from adverse weather to enemy action) that occur in battle. See Carl Von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1984), 119-120.

<sup>52</sup> Spulak, "A Theory of Special Operations...", 18.

<sup>53</sup> Ibid, 19.

<sup>54</sup> 20<sup>th</sup> Special Forces Group, "SOF Creed," <http://www.il.ngb.army.mil/Army/UnitWeb/20sf/creed.htm>; Internet; accessed 9 March 2008.

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<sup>55</sup> North Atlantic Treaty Organization, AJP-01(B) *Allied Joint Doctrine* (Brussels: NATO, 2002), 8-1.

<sup>56</sup> United States. Department of Defense, JP 3-05 *Doctrine for Joint Special Operations*, (Washington: U.S. Government Printing Office, 2003), I-1.

<sup>57</sup> DND, *Canadian Special Operations Command: DRAFT CONOP....* NEO is not a stand alone SOF task. In the event of a NEO, a SO Task Force may form one component of the national response.

<sup>58</sup> United States. Department of Defense, JP 3-05..., II-9.

<sup>59</sup> Ibid, II-6/7.

<sup>60</sup> Ibid, II-4/5.

<sup>61</sup> Ibid, II-10.

<sup>62</sup> McRaven, *Spec Ops...*, 4.

<sup>63</sup> Ibid, 1.

<sup>64</sup> Ibid, 8-9.

<sup>65</sup> Von Clausewitz, *On War...*, 119.

<sup>66</sup> Ibid, 159. Simply put, friction is what differentiates real war from war on paper. It is the accumulation of all the difficulties (from adverse weather to enemy action) that occur in battle. See Ibid, *On War...*, 119-121.

<sup>67</sup> McRaven, *Spec Ops...*, 11-14.

<sup>68</sup> Ibid, 15-16.

<sup>69</sup> Ibid, 16-23.

<sup>70</sup> U.S. Secretary of Defense Donald H. Rumsfeld, "A Choice to Transform the Military," *Washington Post*, 16 May 2002. On-line; available from <http://www.defenselink.mil/speeches/speech.aspx?speechid=223>; Internet; accessed 12 March 2008.

<sup>71</sup> Canadian Aerospace Doctrine refers to aerospace power as "... an important and inherently flexible form of military power in its own right . . . [which] can be used for independent operations across the spectrum of conflict." See Department of National Defence, B-GA-400-000/FP-000 *Canadian Forces Aerospace Doctrine* (Ottawa: DND Canada, 2007), 20. The success of Operation Allied Force, the bombing campaign to eject Serbian forces from Kosovo, provided aerospace power enthusiasts an opportunity to proclaim its power to win wars as a single force. However, closer examination of the Kosovo conflict has shown serious limitations to aerospace power's capability to defeat a land force and Serbian capitulation was a result of a combination of a number of factors, not simply the effects of aerospace power. See Daniel L. Byman and Matthew C. Waxman, "Kosovo and the Great Air Power Debate," *International Security* 24, 4 (Spring 2000): 5-13. Early effects of bombing during Operation Enduring Freedom in Afghanistan also showed little impact on Taliban and Al Qaeda forces. See Alastair Finlan, *Special Forces, Strategy and the War on Terror*, (New York: Routledge, 2008), 121.

<sup>72</sup> DND, *Aerospace Doctrine...*, 20.

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<sup>73</sup> United Kingdom, Ministry of Defence, AP 3000 *British Air Power Doctrine*, (London: The Stationery Office, 1999), 1.2.3.

<sup>74</sup> U.K., *British Air Power Doctrine ...*, 1.2.7.

<sup>75</sup> Australia, Department of Defence, AAP 1000-D *The Air Power Manual* (Canberra: National Library of Australia, 2007), 80-83.

<sup>76</sup> DND, B-GA-400..., 28.

<sup>77</sup> Ibid.

<sup>78</sup> Australia, *The Air Power Manual ...*, 93-94.

<sup>79</sup> Ibid, 95-96.

<sup>80</sup> Ibid, 94-95.

<sup>81</sup> DND, B-GA-400..., 28.

<sup>82</sup> Ibid, 27.

<sup>83</sup> Ibid, 28.

<sup>84</sup> Gary C. Schroen, *First In: An Insiders Account of How the CIA Spearheaded the War on Terror in Afghanistan*, (New York: Ballantine Books, 2005), 314-318.

<sup>85</sup> DND, B-GA-400..., 27-28.

<sup>86</sup> The US SOF Intelligence unit, known as 'Gray Fox' of 'The Activity' successfully used civilian aircraft for intelligence collection activities. See Michael Smith, *Killer Elite* (London: Weidenfeld and Nicolson, 2006), 54-55 and 154.

<sup>87</sup> United States. Department of Defense, AFDD-1 *Air Force Basic Doctrine*, (Washington: U.S. Government Printing Office, 2003), 30.

<sup>88</sup> U.K. MoD, AP 3000..., 1.2.5.

<sup>89</sup> Rebecca Grant, "An Air War Like No Other," *Air Force Magazine* 85, no. 11 (November 2002): 33.

<sup>90</sup> U.S. DoD, AFDD-1..., 31.

<sup>91</sup> The close integration of SOF and aerospace power enabled a force of approximately 300 SOF to facilitate the defeat of Taliban and Al Qaeda forces in just 49 days. See Bernd Horn, "'Avenging Angels': The Ascent of SOF as the Force of Choice in the New Security Environment," in *Casting Light on the Shadows: Canadian Perspectives on Special Operations Forces*, ed. Colonel Bernd Horn and Major Tony Balasevicius, (Kingston: Canadian Defence Academy Press, 2007), 170.

<sup>92</sup> U.S. DoD, AFDD-1..., 31.

<sup>93</sup> Ibid, 32.

<sup>94</sup> DND, G-GA-400..., 31.

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<sup>95</sup> The Canadian Forces Principle of War are: Selection and Maintenance of the Aim, Maintenance of Morale, Offensive Action, Security, Surprise, Concentration of Force, Economy of Effort, Flexibility, Cooperation, and Administration. See DND, B-GA-400..., 26.

<sup>96</sup> U.S. DoD, AFDD-1..., 33.

<sup>97</sup> DND, B-GA-400..., 37. The U.S. Air Force doctrine includes seventeen operational functions that include: Strategic Attack, Counterair, Counterspace, Counterland, Countersea, Information Operations, Combat Support, Command Control, Airlift, Air Refueling, Spacelift, Special Operations, Intelligence, Surveillance and Reconnaissance, Combat Search and Rescue, Navigation and Positioning, and Weather Services. See U.S. DoD, AFDD-1..., 39.

<sup>98</sup> During the Gulf War in 1991, thousands of Iraqis were convinced to surrender by a combination of leaflets and bombing raids. On a preceding night, leaflets were dropped on Iraqi positions stating they would be bombed by coalition aircraft the following day, which they were. Following this action, leaflets were again dropped with the message the defenders could surrender or face further bombing. They chose to surrender.

<sup>99</sup> Large quantities of supplies can be delivered via parachute or Low Altitude Parachute Extraction System that deposits the load on the ground from a very low (few feet) approach over the delivery area. Personnel can be delivered via parachute, or in the case of a helicopter, rappel or fast rope.

<sup>100</sup> The most telling example of this synergistic force projection was during early days of OEF when a small number of SOF, working with local militias and aerospace power effectively defeated Taliban and Al Qaeda forces.

<sup>101</sup> Colonel Charles Ardant du Picq, *Battle Studies : Ancient and Modern* (Harrisburg : Military Service Publishing, 1947), 110.

<sup>102</sup> The Carpetbaggers operated in the European theatre while the Air Commandos were in the China-Burma-India theatre of operations. See Col Michael E. Haas, *Apollo's Warriors: US Air Force Special Operations during the Cold War*, (Maxwell AFB, Alabama: Air University Press, 1997), 2-9. U.S. AFSOC operates an expansive fleet of dedicated SO aerospace forces providing intimate training and operational support to USSOCOM units.

<sup>103</sup> NATO, AJP-01(B)..., 7-5.

<sup>104</sup> U.S. DoD, *United States Special Operations Command History...*, 25.

<sup>105</sup> Following the decision to abort the mission, due to the loss of three U.S. Navy helicopters for mechanical reasons, a helicopter collided with a C-130 at a forward area refuelling site resulting in the death of eight servicemen.

<sup>106</sup> Adm(Ret) James Holloway, LGen (Ret) Samuel Wilson, LGen (Ret) Leroy Manor, MGen James Smith, MGen John Piotrowski, MGen Alfred Gray Jr, *Holloway Report* 23 August 1980, 32-48

<sup>107</sup> Ronald E. Dolan, *A History of the 160<sup>th</sup> Special Operations Aviation Regiment (Airborne)*, (Washington: Library of Congress, 2001).

<sup>108</sup> The U.K. maintains a Joint Special Forces Aviation Wing, comprised of Army Air Corps and Royal Air Force helicopters and small fixed-wing aircraft, as well as one flight of C-130 aircraft. Canada and Australia each maintain one dedicated helicopter squadron, 427 Special Operations Aviation Squadron and 171 Aviation Squadron respectively.

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<sup>109</sup> Michael Durant and Steven Hartov, *The Night Stalkers: Top Secret Missions of the U.S. Army's Special Operations Aviation Regiment*, (New York: G.P. Putnam's Sons, 2006), 254.

<sup>110</sup> James F. Dunnigan, *The Perfect Soldier: Special Operations, Commandos, and the Future of U.S. Warfare*, (New York: Citadel Press, 2003), 273. AFSOC refers to Air Force Special Operations Command.

<sup>111</sup> United States, *USAFSOF Fact Sheet*,” <http://www.af.mil/factsheets/factsheet.asp?id=71>; Internet; accessed 18 March 2008.

<sup>112</sup> Two MH-60s were shot down during a combined Delta Force, US Ranger raid on the Olympic hotel in Mogadishu, Somalia. See Durant, *The Night Stalkers...*, 201-233. During Operation Anaconda, after a Navy SEAL fell from a MH-47 while it was taking fire over a landing zone (LZ), the crew immediately elected to return to the LZ in an attempt to retrieve or save their comrade. The aircraft was too badly damaged and unable to return, crash landing some distance away. See Naylor, *Not a Good Day...*, 314-315.

<sup>113</sup> United States Department of Defense, *Secretary Rumsfeld Speaks on '21<sup>st</sup> Century Transformation' of US Armed Forces*, remarks as delivered by Secretary of Defense Donald Rumsfeld, National Defense University, Fort McNair, Washington DC, 31 January 2002, <http://www.defenselink.mil/speeches/2002/s20020131-secdef.html>, accessed 1 April 2008, 8.

<sup>114</sup> The Germans assaulted the fortress at Eben Emael on 10 May 1940 as the opening salvo of the invasion of Belgium. The German commandos conducted a glider-borne assault directly onto the fortress, conquering it in a matter of hours. Highly rehearsed and carefully guarded in secrecy, the successful assault was achieved by adherence to the principles of SO. See William McRave, *Spec Ops...*, 29-69.

<sup>115</sup> The U-2 and Global Hawk are high-altitude, all-weather, day/night surveillance and reconnaissance assets of the U.S. military. The U-2 is manned while the Global Hawk is a UAV. See United States, Department of Defense, “U-2S/TU-2S Fact Sheet,” <http://www.af.mil/factsheets/factsheet.asp?id=129>; Internet; accessed 20 April 2008, GlobalSecurity.org, “RQ-4A Global Hawk (Tier II+ HAE UAV),” [http://www.globalsecurity.org/intell/systems/global\\_hawk.htm](http://www.globalsecurity.org/intell/systems/global_hawk.htm); Internet; accessed 20 April 2008. The MQ-1 Predator is a medium-altitude, long endurance UAV capable of conducting armed reconnaissance and interdiction missions as well as conventional ISR support. See United States, Department of Defense, “MQ-1 Predator Unmanned Aerial Vehicle Fact Sheet,” <http://www.af.mil/factsheets/factsheet.asp?fsID=122>; Internet; accessed 20 April 2008.

<sup>116</sup> The Entebbe mission was an assault on the Entebbe airport in Uganda to free Israeli civilians taken hostage onboard an Air France flight on 27 June 1976. The aircraft was eventually flown to Entebbe where the hostages were held in an old passenger terminal. Israeli SOF and commandos executed the hostage rescue mission on 4 July after first flying seven and a half hours non-stop and undetected from Israel. See McRaven, *Spec Ops...*, 334-378.

<sup>117</sup> Smith, *Killer Elite...*, 54-55 and 154.

<sup>118</sup> Parachute insertions can be High Altitude High Opening (HAHO), which offers the advantage of a higher glide distance for jumps off-set a far distance from the intended landing zone, to High Altitude Low Opening (HALO) which offers better stealth against radar or other threats.

<sup>119</sup> Unfortunately, through poor coordination of SOF and conventional units, little of this intelligence made it to the conventional ground forces or Rangers who needed it.

<sup>120</sup> The Entebbe raid involved a total of four C130 Hercules aircraft for transport of the assault force, seven vehicles (four Armoured Personnel Carriers and two jeeps as well as one limo as part of a deception) and a small medical team. Two Boeing 707 aircraft were also used in the operation, one as an airborne command centre and the other for MEDEVAC from neighbouring Kenya. Although three hostages and the SOF commander were killed during the rescue, the mission was considered a great success. See McRaven, *Spec Ops...*, 333-378.

<sup>121</sup> Bravo Two Zero, a SR patrol of eight SAS operators was inserted into Iraq 22 January 1991 to observe an Iraqi main supply route. Shortly after insertion by helicopter the patrol was compromised. Unable to call for extraction due to communications problems, the patrol attempted to self extract by walking to Syria. In the end, one operator made, three died from exposure or enemy fire, four were captured by the Iraqis and one made it to Syria. See Andy McNab, *Bravo Two Zero*, (Island Books, 1994).

<sup>122</sup> The author observed a DA mission during Operation Enduring Freedom that encountered a much stronger enemy force than anticipated. Although the SOF unit, with continuous CAS support, was able to repel the enemy forces, a helicopter extraction under fire was necessary in order to exit the area before sunrise and the possible arrival of additional enemy turned the tide of the fight. The ability and willingness of the helicopter crews to conduct the extraction under fire ensured the SOF force extracted with minimal casualties.

<sup>123</sup> During Operation Anaconda, a SOF operator fell from a CH47 helicopter that had to abort a landing due to heavy ground fire. Without hesitation, and recognizing the dangers involved, the 160<sup>th</sup> SOAR(A) crew elected to return to the same LZ in order to attempt to rescue their fellow SOF operator. In the end, the stricken helicopter would not allow it and they were forced to crash land some distance away. See Naylor, *Not A Good Day...*, 314-315.

<sup>124</sup> Ibid, 262. JDAM refers to Joint Direct Attack Munitions, these are Global Positioning System (GPS) guided freefall bombs ranging from 500 to 2000 pounds.

<sup>125</sup> Confidential interview with SOF Operator A. 20 March 2008.

<sup>126</sup> During Operation Enduring Freedom, the author observed a Coalition SOF patrol that had its OP compromised and was being attacked and outmanoeuvred by enemy forces. Owing to the rugged terrain and lack of available extraction assets (if aviation had been available the threat level and daylight conditions would probably have prevented their use for an extraction), the only option was to provide fire support to interdict the attacking force. The immediate use of CAS successfully interdicted the enemy force and the patrol was safely extracted after nightfall.

<sup>127</sup> Naylor, *Not a Good Day...*, 307.

<sup>128</sup> Reported dates vary somewhat; however, mid-January 2002 is generally considered the point of defeat of the Taliban and Al Qaeda forces in Afghanistan. Although sporadic resistance continued beyond this date, large scale Taliban operations did not re-emerge until 2006. See Benjamin S. Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, (Santa Monica, CA: RAND Corporation, 2005), 157-158 and Grant, "An Air War Like No Other,"..., 35.

<sup>129</sup> While acknowledging the success of SOF and aerospace integration in OEF, Stephen Biddle argues this same effect can not be achieved in all situations but rather was a combination of effective air/ground integration as well as the capabilities of the indigenous forces on the ground (both Northern Alliance and Taliban/Al Qaeda. See Stephen Biddle, *Afghanistan and the Future of Warfare: Implications for Army and Defense Policy* (Carlisle Barracks, PA: U.S. Army War College, November 2002 Strategic Studies Institute, vii.

<sup>130</sup> US DoD, *Secretary Rumsfeld Speaks on '21<sup>st</sup> Century Transformation...*

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<sup>131</sup> The principle difference between GAPS or GDI and CAS is that CAS is normally considered to consist of aerospace power supporting a manoeuvre force that is in contact with enemy forces while the others refer to aerospace power as the manoeuvre force being supported by SOF for targeting of enemy forces that are not yet in contact. See Eric Theisen, *Ground-Aided Precision Strike: Heavy Bomber Activity in Operation Enduring Freedom* (Maxwell Air Force Base, Alabama: Air University Press, 2003), 1 and Mark Findlay, Robert Green and Eric Braganca, "SOF on the Contemporary Battlefield," *Military Review* 83, no. 3 (May-June 2003), 9.

<sup>132</sup> David Jeffcoat, *Air Power and Special Forces: A Symbiotic Relationship* Air Power Development Centre, Paper Number 14 (National Library of Australia, 2004), 22-23.

<sup>133</sup> Deliverable from a variety of aerospace platforms, Sherpa provides GPS guided delivery of loads up to 10000lbs. Sherpa details can be found at <http://www.mmist.ca/Sherpa.asp>.

<sup>134</sup> The author witnessed conventional aviation crews display outstanding skill and dedication flying conventional missions in support of SOF missions. However, where unique procedures and equipment as well as finely honed skill sets are required (such as assaulting a moving vehicle or vessel), conventional aerospace forces are neither trained nor equipped to support. Such demanding profiles require extensive and continuous training for the aircrew as well as intimate training with the SOF elements being supported.

<sup>135</sup> Lacking adequate SOF aviation support, a decision was made to utilize Marine Corps RH-53D helicopters due the advantages they offered in payload, range and speed. Although AFSOF aircrew familiar with the required mission profiles could have been trained to fly the RH-53D, the decision was made to utilize Navy and Marine pilots who, although familiar with the aircraft, had no experience conducting the challenging mission of a long range night assault. While the mission was ultimately cancelled due to aircraft unserviceabilities, a collision between one of the helicopters and a C-130 aircraft on the ground resulted in eight fatalities. The Holloway Commission which examined the operation identified the ad-hoc support arrangement as a contributing factor and identified the importance of establishing a helicopter responsible for maintaining the capability to support SOF operations such as this. See Holloway et al, Holloway Report....

<sup>136</sup> Confidential Interview with SOF operator B. 1 April 2008.

<sup>137</sup> Ibid.

<sup>138</sup> Confidential interview with SOF Operator A, 1 April 2008.

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