

**NATIONAL DEFENSE UNIVERSITY**  
**JOINT ADVANCED WARFIGHTING SCHOOL**



**Air Power's First Among Equals:**  
**Why Air Superiority Still Matters**

**By**

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**A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning and Strategy.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.**

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**4 April 2008**

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# REPORT DOCUMENTATION PAGE

*Form Approved*  
*OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

<b>1. REPORT DATE (DD-MM-YYYY)</b> 13 06 2008			<b>2. REPORT TYPE</b> Master's Thesis		<b>3. DATES COVERED (From - To)</b> 23-07-2007 to 13-06-2008	
<b>4. TITLE AND SUBTITLE</b>  Air Power's First Among Equals: Why Air Superiority Still Matters					<b>5a. CONTRACT NUMBER</b>	
					<b>5b. GRANT NUMBER</b>	
					<b>5c. PROGRAM ELEMENT NUMBER</b>	
<b>6. AUTHOR(S)</b> Lt Col Andrew T. Slawson, USAF  Student, Joint Advanced Warfighting School (JAWS) Sem 3 '07-'08					<b>5d. PROJECT NUMBER</b>	
					<b>5e. TASK NUMBER</b>	
					<b>5f. WORK UNIT NUMBER</b>	
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> Joint Forces Staff College Joint Advanced Warfighting School 7800 Hampton Blvd. Norfolk, VA 23511-1702					<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>  JFSC 25789	
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b>					<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b>	
					<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b>	
<b>12. DISTRIBUTION / AVAILABILITY STATEMENT</b> Approved for public release, distribution is unlimited						
<b>13. SUPPLEMENTARY NOTES</b>						
<b>14. ABSTRACT</b> Air superiority has become non-negotiable in conducting U.S. military operations. In fact, the maturation of airpower has ensured that we have not been challenged by a conventional military in a "fair fight" in over 50 years. Air superiority is not an end in and of itself—its value is directly tied to the role air superiority plays toward the overall campaign objectives. History is replete with examples of successful or failed air superiority campaigns. This paper details air superiority's role in both the Battle of Britain, and the 1967 Six Day War's Operation <i>MOKED</i> . Today's operations may not face a similar air superiority challenge, but, tomorrow that may well change. We must not allow ourselves to succumb to the "cult of the now." Not all future conflicts will be insurgency focused. Russia is producing and continues to export sophisticated, modern air defense systems that place our current fourth generation fighters at significant risk. China is currently purchasing advanced air defense systems which may pose significant challenges to our options in East Asia. In the future we will be challenged for control of the air—we must be ready to fight for what has become our domain since the Korean War. The cost of developing and producing advanced stealth fighters is high—the cost of losing air superiority would be incalculable for the Joint Force Commander.						
<b>15. SUBJECT TERMS: Air Superiority, Battle of Britain, Six Day War, Air Power, Offensive Counter Air,</b>						
<b>16. SECURITY CLASSIFICATION OF:</b> Unclassified			<b>17. LIMITATION OF ABSTRACT</b> Unclassified Unlimited		<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
<b>a. REPORT</b> Unclassified	<b>b. ABSTRACT</b> Unclassified	<b>c. THIS PAGE</b> Unclassified				<b>19b. TELEPHONE NUMBER (include area code)</b> 757-443-6301



## **Acknowledgments**

I owe a huge debt of gratitude for the love, patience, and encouragement given me by my wife Opp, and my daughters Lauren and Erin. I could not have completed this project without their understanding and support.

I'd also like to thank my classmates in JAWS Seminar III. They are the epitome of professionalism and class. I would gladly go to war with each and every one of them. To you my friends, I send my thanks and admiration.

Finally, I'd like to thank the JAWS instructor staff. In particular, Lt. General, USAF (Ret) Chuck Cunningham, Col USMC (Ret), "Doc" Paul Melshen, Col Jack "Coach" Allison, and finally, my advisor COL Tom Snukis. If we become "world class" planners, it will be a direct result of your hard work and patience. I know that we have all learned more than we realize...now it is time to execute!

## **Vita**

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## Abstract

Air superiority has become non-negotiable in conducting U.S. military operations. In fact, the maturation of airpower has ensured that we have not been challenged by a conventional military in a “fair fight” in over 50 years. Air superiority is not an end in and of itself—its value is directly tied to the role air superiority plays toward the overall campaign objectives. History is replete with examples of successful or failed air superiority campaigns. This paper details air superiority’s role in both the Battle of Britain, and the 1967 Six Day War’s Operation *MOKED*. Today’s operations may not face a similar air superiority challenge, but, tomorrow that may well change. We must not allow ourselves to succumb to the “cult of the now.” Not all future conflicts will be insurgency focused. Russia is producing and continues to export sophisticated, modern air defense systems that place our current fourth generation fighters at significant risk. China is currently purchasing advanced air defense systems which may pose significant challenges to our options in East Asia. In the future we will be challenged for control of the air—we must be ready to fight for what has become our domain since the Korean War. The cost of developing and producing advanced stealth fighters is high—the cost of losing air superiority would be incalculable for the Joint Force Commander.

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## Introduction

The contest for air superiority is the most important contest of all, for no other operations can be sustained if this battle is lost. To win it, we must have the best equipment, the best tactics, the freedom to use them, and the best pilots.<sup>1</sup>

---General William W. Momyer

This report attempts to demonstrate the criticality that air superiority provides for the Joint Force Commander. To wrestle control of the skies and through this hard fought struggle the ability to positively influence events on the ground and at sea, has been the result of an emphasis on funding and fielding of air superiority aircraft capable of seeing off challenges to this dominance.

We are entering challenging times, facing both the prospect of a waning defense budget combined with ever-aging fighters. Bear in mind, this is not meant to be simply a problem addressed by the Air Force: this is a true joint force problem. At the same time, Russia is continuing to plan, produce, field, and export advanced fighters and air defense systems capable of challenging our aerial dominance. China has embarked on an aggressive military buildup that is focused on acquiring and fielding modern fighters and strike aircraft, advanced air defense systems, and a burgeoning naval capability to include modern submarines and surface combatants. In short, nobody told China that we will or should enjoy unlimited military superiority in the Pacific Rim. Air Force Secretary Michael Wynne recently said, “If you as Americans want to be coerced, we’re starting

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<sup>1</sup> Cooling, Benjamin Franklin, *Special Studies: Case Studies in the Achievement of Air Superiority*. (Washington D.C.: Government Printing Office, 1994), iii.

down that road,” he also added, “You need to make sure we have air dominance and that our enemies believe we have air dominance.”<sup>2</sup>

One lesson is clear in studying airpower history from World War Two, Korea, and the Six Day War: to win, you must control the skies—particularly over your own territory.<sup>3</sup> This would again play out during Operation DESERT STORM where Allied Air Forces won control of the air and then proceeded to severely maul the Iraqi Republican Guards preparing the operational environment for the ground offensive. United States air operations in the skies over the Middle East and in the Balkans have enjoyed easily won air superiority due largely to a lack of robust and sophisticated enemy air defenses. This has falsely led some to assert that modern fighters, owing to their expensive technologies, are not worth the cost.

This belief is very short-sighted and largely ignores or dismisses the likelihood of facing an opponent armed with modern, conventional military weapons in any sort of peer capacity. Secretary Wynne reminds us that potential enemies have been watching the United States and are buying sophisticated air defense systems from Russia and investing in their own modern fighter aircraft.<sup>4</sup> This reality, coupled with China’s drive to modernize the Peoples Liberation Army Air Forces with modern Russian air and air defense systems, means that US policy makers and military planners may face a potential

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<sup>2</sup> Marcus Weisgerber, “Iran, Venezuela Pose Threat to Most U.S. Fighter Jets,” *Inside the Air Force*, 21 September 2007, (Accessed on line 3 December 2007)  
[http://insidedefense.com/secure/defense\\_docnum.asp?f=defense\\_2002.ask?docnum=AIR](http://insidedefense.com/secure/defense_docnum.asp?f=defense_2002.ask?docnum=AIR)

<sup>3</sup> Major Norman E. Wells, “Air Superiority Comes First,” *Air University Review*, November-December 1972, 11.

<sup>4</sup> Michael Sirak. “Wynne: Maintaining Air Dominance Requires Greater National Commitment,” *U.S. Air Force Aim Points*. 21 September 2007, 2. (Accessed online 21 September 2007)  
<http://aimpoints.hq.af.mil/display.cfm?id=21375&printer=yes>

adversary who refuses to yield control of the air. The military problem set and the foreign policy implications will be examined and expanded upon in Chapter 4.

America's hegemony in the air has been bought and paid for, and quite expensively, with the blood and courage of its airmen, enlightened leadership, and the industrial and financial backing of the American people for 100 years now. The most dangerous threat we face is one of benign neglect, born of a false sense of security that we will always be able to impose our will when and where we choose to commit airpower. This has U. S. foreign policy implications far beyond simply describing what the Joint Force Commander derives from controlling the air. American airpower has, on multiple occasions, been the military tool of choice, offering the combination of minimal commitment and footprint with maximum speed, precision and flexibility.

The 2006 National Security Strategy (NSS) of the United States proclaims that "*The United States will stand and support advocates of freedom in every land.*"<sup>5</sup> This resonates well in speeches, and reads well in the press, but, suggests an implicit military capability to go wherever and whenever the National leadership directs. The NSS further asserts--referencing the continuing war on terror, and terrorist support and sanctuary of rogue states "*The United States and its allies in the War on Terror make no distinction between those who commit acts of terror and those who harbor them...Any government that chooses to be an ally of terror, such as Syria or Iran, has chosen to be an enemy of freedom, justice, and peace.*"<sup>6</sup> The take-away from these two statements is clear—the United States military must be ready to execute combat operations against a myriad of threats in various environments.

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<sup>5</sup> U.S. President, "National Security Strategy", (2006): 6.

<sup>6</sup> Ibid, 12.

This may seem a blinding flash of the obvious, however, closer examination presents the US military with a series of challenges in executing these missions. Confronting China over an attack on Taiwan presents multiple challenges for U.S. forces. They are quickly modernizing their air defenses with advanced Russian weaponry. The tyranny of distance presents its own series of challenges for access and sustainment of combat power. In the case of Iran, a potential nuclear armed state, a modernizing air defense network, and a known sponsor of multiple terrorist organizations which will certainly threaten our theater basing is equally problematic. Chinese and Iranian air defenses pose a significant threat to our current aircraft. The Russian arms industry is alive and well, despite the decline in readiness of Russian conventional forces. The Russians continue to develop, field, and alarmingly, export advanced air defense systems capable of challenging the currently fielded 4<sup>th</sup> generation aircraft like the USAF's F-15, F-15E, F-16, and the F-18s of the USN and USMC. Air Force Secretary, Michael Wynne recently commented why our 4<sup>th</sup> generation fighters need replacing, stating "If we were to engage Iran or Venezuela in an air campaign no fourth generation fighters—including the F-15 Eagle, the F-16 Falcon and the Navy's F/A-18 Hornet—would be able to participate."<sup>7</sup> Advanced Russian air defense systems, if deployed, would render our current strike inventory at significant risk.

Our 2005 National Defense Strategy lays out how we will accomplish our objectives in support of the National Security Strategy: 1) Assure allies and friends, 2) Dissuade potential adversaries, 3) Deter aggression and counter coercion, 4) Defeat adversaries.

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<sup>7</sup> Marcus Weisgerber, 1.

One of the assumptions listed as the underpinning of this strategy is that “we will have no global peer competitor and will remain *unmatched* in traditional military capability.”<sup>8</sup>

Our current 4<sup>th</sup> generation air superiority fighters, despite reigning undisputed for the last 30 years, are well past their intended service life and lack the stealthy requirements to defeat advanced surface to air systems.

While this author does not doubt the bravery, superior doctrine, and training of our airman, I am extremely concerned that our commitment to the funding of future air superiority fighters, in the face of an enemy equipped with sophisticated fighters and surface to air systems, is insufficient. The real question is what the potential loss or even inability to achieve air superiority means for the JFC? If at all, how does it limit his ability to execute U.S. national objectives.

“Air superiority is, however, merely a means towards the end; it is a state in which the exercise of air power becomes possible.”<sup>9</sup> In fact, air power, enables the exercise of all military power that the JFC can bring to bear. Let me make it clear that while this topic is written by an Air Force officer, this paper advocates a capability, not a platform, nor that the Air Force must be the only force equipped for this mission. George Washington’s words written in 1780 are still hauntingly true today: “There is nothing likely to produce peace as to be well prepared to meet an enemy.”<sup>10</sup>

Chapter 1 will define air superiority and provide a historical perspective on the types of air superiority missions. After defining air superiority and arguing that this should be the “first among equals” in the joint fight, this report will examine two epic historical

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<sup>8</sup> U.S. Secretary of Defense, “National Defense Strategy” (2005): 5.

<sup>9</sup> Tedder, Arthur William, *Air Power in War* (London: Hodder and Stoughton, 1948), 53

<sup>10</sup> Washington, George. 1780. Preparation/Preparedness.: 332. Quoted in Peter T. Tsouras *Warrior’s Words* (London: Arms and Armour Press, 1993).

examples of air power employment. The Battle of Britain provides a well-documented laboratory to study, from both the British and German perspective, how the air superiority fight was waged. A clear linkage emerges between the necessity to achieve air superiority and the German objective and intent to invade England in the summer of 1940. The next campaign studied is the 1967, Israeli Operation *MOKED*, the pre-emptive air attack that crippled the combined Egyptian, Jordanian, Iraqi, and Syrian air forces at the outset of the Six Day War.

The two campaigns will be examined by setting the context for each air campaign, explaining the conduct and rationale for the battle, and concluding with thoughts that tie the plans and campaign conduct with the overall strategy. Specifically, the analyses will address the question of the relationship between the necessity of achieving air superiority and the success or failure of the overall theater campaign plan. Chapter 3 will then describe what the loss of air superiority today would mean to the JFC. What type of combat missions could not be brought to bear on the enemy given the threat of air attacks? Short examples, from the air perspective alone, would be airlift, interdiction, and ISR, with only limited CAS and CSAR being conducted. Finally, Chapter 4 will be a future scenario involving combat against the PLAAF over the Taiwan Straits.

In this section, I will define the parameters of the scenario, describe how the US would have to respond and how the Chinese would challenge our notion “win decisively.” The real issue here is not just the fact that we may not win the air battle, rather, the key will be what effect this will have on the JFC and his mission as well as what it means to our power projection credibility and foreign policy. As Winston Churchill said, “No foreign policy can have validity if there is no adequate force behind it

and no national readiness to make the necessary sacrifices to produce that force.”<sup>11</sup>

Finally, I will offer some closing thoughts on the future procurement of 5<sup>th</sup> generation advanced fighters and what they offer to the JFC and the nation.

## **Thesis Statement**

Air superiority is still the key to unlocking the entire air campaign and enabling freedom of maneuver for the joint force. Will the “cult of the now,” and future austere budgets threaten our ability to ensure air superiority?

We are entering into a difficult time as an air force. We are faced with an aging fleet of fighters (average age 26 yrs) and the prospect of not having a sufficient budget to replace the capability we are losing through natural attrition and obsolescence. Are we living on borrowed time with our dominance of the air? What happens if a well equipped enemy forces us into a disadvantageous fight in the air? It is worth examining the effects this would have on the employment of the Joint Force. Joint Publication 1, *Joint Warfare of the Armed Forces of the United States* reminds us about our military role in dissuading adversaries and explains the importance of our military power as “demonstrated military capability is the cornerstone of deterrence.”<sup>12</sup> Are we really willing to accept the risk of ceding this capability to deploy combat aircraft to defeat adversaries anywhere at anytime in support of U. S. national policy?

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<sup>11</sup> Churchill, Winston. Quoted in Peter T. Tsouras, *Warriors Words* (London: Arms and Armour Press, 1993) 334.

<sup>12</sup> Joint Chiefs of Staff, *Joint Publication 1, Joint Warfare of the Armed Forces of the United States* (Washington DC: Joint Chiefs of Staff, 14 November 2000), vi.



## Chapter 1

### What is air superiority? Why does it matter?

“Air superiority is not a mission we can win 101-98 in overtime. We must triumph in the air convincingly and quickly to be able to do the other theater missions.”<sup>13</sup>

---General John Loh

Gaining and maintaining the air superiority has become a non-negotiable axiom in the joint fight. Since the dawn of military aviation, no conventional army has been able to conquer and secure victory in the face of the enemy’s air superiority. History is replete with examples of air superiority being the necessary precursor to successful ground operations. Our current, undisputed control of the air will not last forever. In the future, we will be challenged by an opponent who is unwilling to hide or bury his jets in the ground to avoid their destruction. We may also have to fight an opponent who enjoys basing and access advantages.

History is a harsh teacher--conventional forces cannot lose command of the air if they intend to win. While we would maintain the ability to conduct maneuver even if control of the air is still being contested, we do so at considerable risk. Controlling the air allows us to maximize the flexibility within the Joint Force to mass and maneuver as required. The degree of air superiority required is the key in determining the risk the Joint Force Commander is willing to accept on any given operation. Quickly summed up, the effect of losing air superiority is nothing short of catastrophic. The Germans in Normandy were taught this very harsh lesson. A German staff report expressed in 1944: “At the

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<sup>13</sup> General John Loh, “Advocating Mission Needs in Tomorrow’s World” *Airpower Journal* , Vol 6, no1 (Spring 1992): 12.

beginning of the war the operations of the G.A.F. determined the character of events; the initiative has now, however, since 1941, been in the hands of the enemy.”<sup>14</sup> The same disastrous consequences fell upon the Egyptian armor in the June 1967 Sinai campaign, and more recently, the 1991 “road of death” where Iraqi vehicles were decimated leaving Kuwait City with no air cover.

Two key questions have to be answered in evaluating the relative value of air superiority and the value or lack of it provides the Joint Force Commander—just what does air superiority mean and what benefits does it provide? Equally important as a follow-on question: what are the potential consequences of failure to achieve it?

Joint Publication 1-02 defines **air superiority** as “*that degree of dominance that permits friendly land, sea, and air forces to operate at a given time and place without prohibitive interference by the opposing force.*”<sup>15</sup> It is important not to mistake air superiority with air supremacy. Joint Publication 1-02 defines **air supremacy** as “*that degree of air superiority wherein the opposing air force is incapable of effective interference.*”<sup>16</sup> The key difference is that air superiority involves dominance at a given time and place, where supremacy implies anytime and anywhere in the operational environment or theater of operations.

The D-Day landings in Normandy on 6 June, 1944, provide an outstanding example of localized air superiority, while the larger battle was being fought over the skies of Germany. Allied air superiority enjoyed over the beaches in Normandy was a key enabler to successful landings by impeding the German *Luftwaffe*'s attempt at disrupting

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<sup>14</sup> Tedder, 48.

<sup>15</sup> Joint Chiefs of Staff, *Joint Publication 1-02 Department of Defense Dictionary of Military and Associated Terms* (Washington DC: Joint Chiefs of Staff, 12 April 2001), 21.

<sup>16</sup> *Ibid*, 21.

the landings. Additionally, controlling the air provided American and British forces with on-call air support during the breakout from the beachhead and successful interdiction of the Germans as they attempted to reinforce the beaches.

Air superiority is the key to opening up the full potential of airpower options for the Joint Force Commander. The battle for air superiority is not fought because the enemy has an air force; rather, it is fought to disable the enemy air forces that pose a threat to operations against the joint force. “The most precious thing an air force can provide an army or navy is air superiority, since this gives the surface forces the ability to carry out their own plan of action without interference from an enemy air force.”<sup>17</sup>

Counter air operations are the mechanism to achieve air superiority. In short, it can be achieved through either offensive or defensive counterair operations. JP 1-02 defines

**offensive counterair** (OCA) as:

*Offensive operations to destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting structures and systems both before and after launch, but as close to their source as possible. Offensive counterair operations range throughout enemy territory and are generally conducted at the initiative of friendly forces. These operations include attack operations, fighter sweep and escort, suppression of enemy air defenses..*<sup>18</sup>

OCA operations are typically fought over enemy territory as means to preparing the operational environment for exploitation through air, land, or naval operations. Our operations in Desert Storm are a clear example of how not only aircraft and their bases were attacked, the integrated air defense system (IADS) had to be crippled before air forces could bring all power to bear on other target sets.

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<sup>17</sup> Momyer, William W., *Air Power in Three Wars* (Maxwell AFB: Air University Press, 1978), 158.

<sup>18</sup> JP 1-02, 306.

The conduct of the OCA campaign is becoming as much about defeating an IADS, as it is simply fighting enemy aircraft. “A fact that brings the air defense picture into perspective is that, in nearly all conflicts since and including World War I, more aircraft have been lost as a result of surface-to-air defenses than have been victims of fighter action.”<sup>19</sup> The Israelis who gained complete air superiority in the opening hours of 1967, were dealt a stark reminder about the lethality of surface to air missile systems during the 1973 Yom Kippur War.<sup>20</sup> Similarly, our current air dominance is being put at risk more by advanced air defense systems than by enemy fighter aircraft.

**Defensive counterair** (DCA) operations are exactly what the title implies: *All defensive measures used to detect, identify, intercept, and destroy or negate enemy forces attempting to attack or penetrate the friendly air environment.*<sup>21</sup> Typically this involves flying defensive combat air patrols and integrating them into an air defense network combined with surface to air missile systems. The Joint Forces Air Component Commander (JFACC) will usually also be designated the Area Air Defense Commander since this for unity of command and effort.<sup>22</sup> (Not all countries operate this way, but the United States does.) The quintessential example of the defensive employment of air power is the Battle of Britain in which the Royal Air Force’s Fighter Command fought a classic series of defensive aerial battles to negate the German *Luftwaffe*’s controlling English skies.

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<sup>19</sup> Shaw, Robert L. *Fighter Combat: Tactics and Maneuvering*. (Annapolis: Naval Institute Press, 1985), 334.

<sup>20</sup> Warden, John A III, *The Air Campaign* (Lincoln NE: toExcel Press, 2000), 12-13.

<sup>21</sup> JP 1-02, 118.

<sup>22</sup> Air Force Doctrine Document 2. “Organization and Employment of Aerospace Power” (Maxwell AFB: Air Force Doctrine Center, 2000) 72.

The history of air warfare clearly demonstrates that the most effective OCA mission is to attack enemy airbases.<sup>23</sup> Destroying the enemy air forces before they can be brought to bear is attacking the enemy when he is most vulnerable. On June 22 1941, Operation *BARBAROSSA*'s opening day, the *Luftwaffe* crippled the Soviet air forces on the ground and in the air. Russian sources claim 1,136 aircraft lost while German claims are 1,811 aircraft destroyed.<sup>24</sup> Taking a page from this blueprint, [a campaign we will explore in great detail in the next chapter,] the Israeli attack on 5 June 1967, the opening blows of the Six Day War, destroyed the bulk of the Arab air forces in less than a day.

Today, U.S. desired political end states and the prevailing context will drive what method the Joint Force Commander selects for gaining air superiority. History has shown that OCA campaigns are more decisive since they involve striking the enemy and his bases and support infrastructure. General Eisenhower's Deputy Commander, Air Marshal Tedder declared: "The only decisive air superiority is that established over the enemy territory."<sup>25</sup> The American way of war is to take the fight to the enemy, turning warfare into an away game. This remarkable achievement is heavily reliant on airpower.

Despite the recognized dominance of US airpower, one that Colin Gray has characterized as "quintessentially an American way of war,"<sup>26</sup> Russia is producing and exporting air defense systems that challenge our dominance of the air. China has purchased and continues to purchase advanced Russian SAMS like the SA-10 and SA-20 designed to negate the traditional advantages enjoyed by airpower. The purest example

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<sup>23</sup> Shaw, 318.

<sup>24</sup> Blustone B.L. and J.P. Peak. *Air Superiority and Airfield Attack: Lessons From History* (Technical report prepared for Defense Nuclear Agency by the BDM Corporation) (Washington DC: Defense Nuclear Agency, 1984), 75.

<sup>25</sup> Tedder, 45.

<sup>26</sup> Gray, Colin S. *Explorations in Strategy* (Westport, CT: Greenwood Press, 1996), 83.

of effective air defense and what the loss of air superiority can cost will be analyzed next.

These conflicts were directly shaped through politics and strategy and demonstrate lasting maxims that still regulate our airpower employment in the 21<sup>st</sup> century.

## **Chapter 2**

### **Historical Examples: Battle of Britain and Operation *MOKED***

The value in studying historical air campaigns is to ascertain the factors that determined victory or defeat. The purpose is to determine why air superiority campaigns either succeeded or failed, and to correctly identify the reasons for either victory or defeat. “Nothing ever repeats with sufficient fidelity to allow the set-piece application of

a historical solution.”<sup>27</sup> The fundamental questions that need to be answered are 1) what contextual factor led to the air superiority campaign, 2) how was the conduct of the campaign fought, 3) what were the results and how did they effect the overall strategy.

With this format in mind, the 1940 Battle of Britain and the 1967 Israeli Operation *MOKED* provide outstanding characteristics for analysis. Each will demonstrate one very important maxim—the role of air superiority cannot be oversold, and the initiative gained through striking hard, fast, and directly against the enemy air forces and support infrastructure are often the keys to success. “Air superiority is, however, merely a means towards the end; it is a state in which the exercise of air power becomes possible.”<sup>28</sup> While acknowledging that air superiority is not an end in itself, these two campaigns clearly demonstrate that air superiority is a prerequisite for successful joint force campaigns. This also suggests the failure to achieve air superiority may prove fatal to future phases of the joint campaign.

## **Battle of Britain July-October 1940**

The Battle of Britain provides an outstanding backdrop to examine the link between the battle for air superiority and the relationship and dependence on the overall campaign on its achievement. History’s first campaign altering air battles revolved around the struggle for daylight air superiority over southern England. The battle was fought in three very distinct phases that had specific OCA and DCA characteristics that will be covered during the conduct of the battle portion.

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<sup>27</sup> Blustone and Peak, 6.

<sup>28</sup> Tedder, 53.

From 10 July to 31 October 1940, Great Britain was subjected to the greatest aerial campaign in the history of warfare. Isolated and shaken, the British, still crippled by their losses in France and the skies over the Dunkirk beaches, were hurriedly equipping Fighter Command to face the German onslaught. Summed up, the Germans must control the air, preventing Royal Air Force and Navy from significant interference with the invasion force prior to the unpredictable late autumn storms that the English Channel is prone to.<sup>29</sup> Conversely, the main goal of the Royal Air Force's Fighter Command was to remain a viable threat to prevent the control over the anticipated German invasion beaches in southeast England.

While multiple dates exist depending on whether one reads German or British accounts, this paper will cover the period starting on the 10<sup>th</sup> of July 1940 with the start of the battle over the Channel, and end on the September 17<sup>th</sup> 1940, the day on which Hitler indefinitely postponed his planned invasion of England. In analyzing both the successes and failures of this campaign, valuable lessons can be learned. The Battle of Britain demonstrated that air superiority was essential for the Germans to even consider a cross-channel invasion, and for the British, a matter of national survival. Fighter Command winning the air superiority fight forced the Germans to cancel the invasion. The cancellation of the planned German invasion, Operation *SEALION*, meant that England was safe until at least the summer of 1941, by that time, the Germans had launched Operation *BARBAROSSA* and never again posed a credible invasion threat.

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<sup>29</sup> Deighton, Len. *Fighter: True Story of the Battle of Britain* (New York: Harper Books, 1977) 162.

## Context: Summer of 1940

During the summer of 1940, the world watched as the first war and strategy altering air battle raged over the skies of southern England. The British, having just evacuated a battered army from Dunkirk, were ill-prepared for the anticipated German onslaught that could come at any moment. Their army was defeated and demoralized after their expulsion from the continent. The British anticipated the *Luftwaffe* would soon commit the full-weight of their combat power to preparing the British Isles for invasion. Few gave England much of a chance against the Germans to include the U.S. ambassador to England Joseph P. Kennedy, who in his messages to President Roosevelt declared ‘England will go down fighting,’ and that ‘Unfortunately, I am one who does not believe that it is going to do the slightest bit of good.’<sup>30</sup>

The speed of the German victories in the west seemingly caught German planners off guard. Germany’s senior military leaders possessed no clear strategy for continuing the war against England following the fall of France. This lack of strategic vision was exacerbated by Germany’s lack of seaborne invasion equipment, and no experience in large seaborne landing operations. By the Middle of July 1940, Hitler issued Directive No. 16, “Since England, in spite of her hopeless military situation, shows no signs of being ready to compromise, I have decided to prepare a landing operation against England, and, if necessary carry it out.”<sup>31</sup> This disconnect between threatening and invasion and lacking the means to carry one out, meant time was necessary to set the conditions so an acceptable level of risk could be achieved. This time delay had grave

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<sup>30</sup> Ambassador Joseph P. Kennedy. Quoted in Hough and Richards, *Battle of Britain* (New York: W.W Norton & Company, 1989),185.

<sup>31</sup> Deighton, 37.

effects on the conduct of the air battle because it allowed the British vital time following Dunkirk to recover their losses and refine techniques for employing their revolutionary, and world's first, Integrated Air Defense System (IADS).

The British developed their IADS under the premise that the Germans would attack the British Isles with massive air attacks. The strategic bomber orientation that captured virtually all the inter-war theorists was still the prevailing sentiment in the summer of 1940. The leading inter-war air theorists from Giulio Douhet, Sir Hugh Trenchard, and Billy Mitchell all were firmly convinced of the viability and lethality promised through strategic bombing. The air defense system designed, funded, and implemented by Fighter Command's Air Officer Commanding, Air Marshal Sir Hugh Dowding, challenged the prevailing strategic bombing doctrines. While Douhet and the leading air theorists espoused the destructive potential of strategic bombing, they failed to anticipate and operationalize advanced fighter technology and radar development to see what was possible in defense. The technological advances of radar, ground controlled intercept technology, and faster, eight-gunned fighters, nourished and embraced by the Fighter Command, were now the unproven, yet promising technologies that Great Britain was pinning its defense on.

British and German authors differ slightly over the timeframe of the specific phases of the air campaign. This paper will identify three distinct phases that had three very different objectives that were unique from the previous phases. The objectives for the German *Luftwaffe* shifted during the phases, while the Fighter Command's employment of forces maintained an unwavering allegiance to contesting air superiority and surviving to fight another day. The three phases called the *Kanalkampf* (Channel Struggle),

*Adlerangriff* (Eagle Attack), and last phase of the raids on London will be analyzed in detail during the next section. After of the failure of the raids on London, Hitler on 19 September ordered preparations [for invasion] to be scaled down, and on 12 October to maintain the appearance of an invasion threat I order to keep up ‘political and military pressure on England.’<sup>32</sup>

Ironically, the air battles fought over the beaches at Dunkirk were telling in that the heavily favored and well-postured *Luftwaffe* failed to achieve air superiority over the beaches while the British were evacuating. Despite dozens of ships being sunk, they failed to control the skies and sweep the Fighter Command from the air. By June 4, 1940, Operation *DYNAMO* ultimately succeeded in rescuing over 338,000 troops, mostly British, and prevented what had threatened to be the biggest military disaster in the history of Great Britain.<sup>33</sup> There should have been warning sirens going off, yet, the Germans were flush with victory and seemingly unprepared for what should happen next.

The *Luftwaffe*’s lessons from Dunkirk were either unclear or ignored. During the evacuation lasting from 26 May to 3 June, the RAF lost 177 aircraft to the *Luftwaffe*’s 240.<sup>34</sup> The *Luftwaffe* was unable to maintain air superiority over the beachhead, a very narrow front, and suffered considerable losses. German bombers had been unable to inflict significant losses on the British soldiers on the beaches of Dunkirk. In short, the *Luftwaffe* was unable to stop Dunkirk’s massive evacuation lasting several days over a limited beachhead. While euphoric about driving the British from the continent, the

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<sup>32</sup> Overy Richard, *The Battle of Britain: The Myth and the Reality* (London: W.W. Norton and Company 2000), 97.

<sup>33</sup> Richard Hough and Denis Richards, *Battle of Britain*, (New York: W.W. Norton & Company, 1989), 94-95.

<sup>34</sup> Williamson Murray, *Strategy for Defeat : The Luftwaffe 1933-1945* (Maxwell AFB: Air University Press, 1983), 39.

sobering lessons were missed and re-learned over the skies of southern England in the coming months. The missed lessons about the quality and skill of their opponents led to a series of bad assumptions.

In fairness to the Germans, despite the failure to achieve air superiority over the beaches at Dunkirk they had nonetheless just driven the British Expeditionary Force from the continent and occupied France. This followed the stunning successes in Poland and the Low Countries. Specifically, the *Luftwaffe* had enjoyed nothing but success up to this point. Over the skies from Guernica to Rotterdam the Germans had complete mastery of the air and drew some faulty conclusions which would have a significant impact on the upcoming battle. First, they wrongly concluded that the *Luftwaffe* could destroy entire cities. In fact, their bombing was indiscriminate and executed over defenseless cities in a benign air defense environment. Second, the stunning success of the *Luftwaffe* in supporting the Blitzkrieg was based on cooperation and speed of advance with the ground forces. None of these two factors would be present in their air campaign against the British Isles. “The *Luftwaffe* now faced strategic problems and issues that had never existed in history: in sum, how to fight and win a great aerial campaign independent of ground and naval forces.”<sup>35</sup>

Inextricably linked to the application of airpower is the role that intelligence played in preparing the *Luftwaffe* and its leaders for an air campaign against England. Colonel Meilinger reminds us :”airpower is targeting, targeting is intelligence, and intelligence is

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<sup>35</sup> Kreis, John F., *Air Warfare and Air Base Defense 1914-1973* ( Washington D.C.: Office of Air Force History, 1988), 89.

about indentifying the enemy's center of gravity.”<sup>36</sup> British intelligence, while far from perfect, usually provided salient and timely information to Fighter Command. In stark contrast, *Luftwaffe* intelligence was disjointed, inefficient, and not held in any sort of esteem by German leaders. Over-confidence and poor intelligence led to an ill-directed campaign, which breached a fundamental principle of war—maintenance of the aim [objective].<sup>37</sup>

The *Luftwaffe* head of intelligence, Major ‘Beppo’ Schmid commissioned the *Studie Blau* (Study in Blue), and this report was issued on 16 July 1940. The timing of this report—being released after combat operations had been initiated, failed to inform the *Luftwaffe* leaders on Fighter Command’s strengths and weaknesses. This report was relatively accurate in basic order-of-battle information, but totally inaccurate in assessing the British IADS. Reflecting the *Luftwaffe*’s lack of understanding how the British IADS worked, the report made no mention of the British radar system and its implications for the attacking German forces.<sup>38</sup> The complete lack of appreciation of what controlled defense would mean in terms of mass and robbing the German’s of surprise should have guided the target selection necessary to cripple Britain’s Fighter Command. This is but one of the series of mistakes that plagued the *Luftwaffe* who had historically paid very little attention to their intelligence services. In fact, Major Schmid’s assessments badly

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<sup>36</sup> Meilinger, Phillip. *10 Propositions Regarding Airpower*. (Washington DC: Air Force Historical Office, 1995), 20.

<sup>37</sup> Air Commodore Henry Probert and Sebastian Cox, *The Battle Re-Thought: A Symposium on the Battle of Britain* (Shrewsbury: Airlife Publishing, 1991), 438.

<sup>38</sup> Williamson Murray, “How did the few win?” *MHQ: The Journal of Military History* 2, no.4 (1990): 11.

mislead German leadership who could not have a clear picture of the battle as it unfolded.<sup>39</sup>

Fighter Command was created in 1936 for the very purpose of defending Great Britain against bombers launched from either France or Germany. The aim of Fighter Command was to thwart the expected invasion, to remain a deterrent force in being and inflict enough losses on the *Luftwaffe* that an invasion would carry too high a risk to be attempted. To accomplish this mission, Fighter Command's first objective was simply to survive. Fighter Command's Commander, Hugh Dowding, never lost sight of this clear and singular objective. Air Marshal Dowding's subordinate Group Commanders had disagreements on how best to accomplish this, yet, all had their eyes on outlasting the *Luftwaffe* during the summer of 1940.

The British Integrated Air Defense System (IADS) of 1940 was truly innovative. Never before created, nowhere existed such a fully integrated air defense system which incorporated fighters, anti-aircraft guns, balloons, searchlights and the means whereby it could be efficiently directed against an enemy.<sup>40</sup> Britain's air defense system robbed the *Luftwaffe* of one of its previous keys to success--surprise. Radar had penetrated the fog of war and proved to be an incalculable force multiplier. Despite the fiscal authority of the inter-war years, Dowding astutely realized he needed to fund the scientists and researchers to build the eyes, and ears, and the teeth of his air defense system. Dowding's vision led to the funding of cutting edge radio direction finding and ranging

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<sup>39</sup> Sebastian Cox in *Battle Re-thought*, 67.

<sup>40</sup> Flint, Peter, *Dowding and Headquarters Fighter Command* (London: Airlife Publishing Ltd, 1996), 144.

(RADAR), a robust land communications network, and prioritizing fighter production centered around the Hurricane and Spitfire in creating a cohesive air defense system.

Dowding divided Great Britain into four air defense sectors: 11 Group covering Southeast England and London, which bore the brunt of the battle; 12 Group covering the Industrial Midlands; 10 Group covering Southwestern England and Wales; and 13 Group covering Scotland and the Northeast. What made this a “system” was the robust communications which filtered radar plots and transmitted enemy and friendly data to a synchronized system of plotting boards which were simultaneously displayed at Fighter Command HQ, all Group HQs, and finally each sector within the affected Group. The ability to assemble, sort, and distinguish perishable radar plots and then disseminate this intelligence to fighters was the key to Fighter Command’s success. While the German Blitzkrieg may have been a Revolution in Military Affairs (RMA), in my view, Fighter Command’s IADS construct was every bit an RMA and this was missed by the Germans. The purpose of defensive operations is not always the total defeat, or destruction of the attacking forces. Ultimately, either through destruction or disruption, or a cumulative process, the goal is to render further attacks cost-prohibitive.

No credible study of the Battle of Britain can fail to evaluate the role of the planned German invasion, Operation SEALION. The British felt that the invasion was imminent and planned their defenses accordingly. Commanders are directly affected by their intelligence estimates and their perceptions. British intelligence correctly assessed that the *Luftwaffe* would first have to wrestle control of the skies over southern England. The advent and technological advances of military air power destroyed the immunity from invasion which the Royal Navy had provided for the previous two centuries and posed

new and significant problems for the defense of Great Britain.<sup>41</sup> German strategy can be reduced to the following formula: the *Luftwaffe* would break the back of the RAF early in the battle; after two months of air attacks on British industrial and population centers, British morale would crack; then, SEALION would deal the death blow to British participation in the war.<sup>42</sup> Refusing surrender, Hitler had decided an invasion was the only answer for removing the last active enemy in Europe. To mitigate risk, he must have air superiority or he would not risk drowning his divisions in the channel.<sup>43</sup> The die was cast, the battle for air superiority would decide whether the Germans could carry out the rest of their overall campaign for the conquest of England.

## Phases of the Battle

### Phase One

The "*Kanalkampf*" lasted from approximately 10 July to 12 August 1940. The German objective was two-fold; first, they attempted to draw the RAF into battle over the channel, and second, they attempted and actually succeeded in stopping daytime British convoys through the Channel. While fine in concept, it had little effect on the British defenders. The British admiralty had already in June decided to divert almost all of its ocean traffic to western ports long before the *Kanalkampf*.<sup>44</sup> The *Luftwaffe's* indirect attempt to draw the British into a battle over the Channel allowed Fighter Command a

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<sup>41</sup> Young, Neil, "Foundations of Victory: Development of British Air Defences 1934- 1940," Royal United Services Institute Journal no.135 (Autumn 1990): 62.

<sup>42</sup> Williamson Murray, "How did the Few Win?" 11.

<sup>43</sup> Gropman, Alan L, "Battle of Britain and the Principles of War," *Aerospace Historian*, September 1971, 139.

<sup>44</sup> Basil Collier, *Battle of Britain* (New York: MacMillan Company, 1962), 73.

needed respite and a means of refining their experimental IADS. Since the battle over the Channel did not directly target radar sites or Fighter Command airfields, the British defenders were able to perfect their ground aided intercepts and replace the aircraft that were destroyed in France and over Dunkirk. This proved to be a godsend for Fighter Command.

The salient question that must be asked is why didn't the *Luftwaffe*, with all possible vigor, conduct an OCA campaign against Fighter Command and its support infrastructure (radar, control stations, airfields, and production plants)? Instead, the Germans chose to tempt Fighter Command to fight over the Channel. This indirect approach proved unsuccessful as the British did not rise to the bait. The Germans wrongly believed that the Royal Air Force would have to contest the air over the Channel. The long and short of it was that Fighter Command leadership realized that it could not afford to challenge the *Luftwaffe* over an issue that did not threaten their survival.

The Germans needed to clear the Channel prior to invading, and they had to remove the Royal Air Force as a prohibitive threat to the invasion barges. Notably, the Germans had a campaign phasing problem, it would be months before the Germans could assemble enough ships and barges to invade England. Fighter Command fought a classic, defensive delaying battle. RAF's Air Intelligence, in their final report to Churchill in mid-July, stated that if the *Luftwaffe* could be held off until mid-September then the invasion would not take place due to worsening weather, enemy losses, and the lack of German reserves.<sup>45</sup>

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<sup>45</sup> Derek Wood and Derek Dempster, *The Narrow Margin: The Battle of Britain and the Rise of Air Power 1930-1940* (Washington D.C.: Smithsonian Institution Press, 1990), 75.

The net result of *Kanalkampf* was localized air superiority over the Channel—achieved largely because Fighter Command refused them battle. Achieving localized air superiority over the Channel did nothing to weaken Fighter Command that chose to not conduct an attrition based DCA campaign. As previously mentioned, the respite that Fighter Command received allowed the RAF to sharpen its intercept procedures and British industry time to replace the lost planes from the Battle of France and over Dunkirk.

## **Phase Two**

*Adlerangriff* lasted roughly from 12 August to 6 September. This was the period where the true OCA campaign was carried out against Fighter Command. Attacks on radar sites and Fighter Command's airfields signified the direct approach to combating Fighter Command having failed in the indirect *Kanalkampf*. If Fighter Command would not accept a battle of attrition over the Channel, they would be attacked on their air bases. Historically, this has proven to be the most effective and efficient form of OCA.

Radar sites and forward airfields were the primary targets for the first two weeks. German intelligence failed to realize they were hurting Fighter Command deeply. The British duped the German intelligence collectors into thinking that they were not badly damaged by transmitting signals the Germans thought were the radar stations they had just attacked. In reality, Fighter Command was forced to employ more standing patrols which is highly wasteful, ineffective, and defeats the purpose of "controlled defense." These attacks were the right objective for the Germans since radar, even if not fully

appreciated, provided the eyes that Fighter Command needed to properly execute this DCA campaign with the right economy of force.

Fighter Command's worst fears were about to be realized when on 24 August and lasting through the first week in September, the full weight of the *Luftwaffe* was thrown against Fighter Command's airfields in southern England. While not well understood by the Germans, co-located at the large airfields were Fighter Command's key command and control stations. These became high payoff targets for the *Luftwaffe*. The OCA campaign would only be successful if Fighter Command and its infrastructure were crippled to the point where they could not offer more than token resistance to any planned invasion. This was truly the time of crisis for Fighter Command. While their aerodromes were being smashed south of London, they were also getting critically short of fighter pilots,' this was becoming the true limiting factor to defending England, more so than were the mounting aircraft losses.

Accounts of the Battle of Britain often refer to a heroic David vs Goliath fight for the few against the many. True enough in total, however, in the key element for the all-important air superiority fight, the sides were more equal than images concoct. In July 1940, Fighter Command had approximately 700 single engine fighters, against 2,500 *Luftwaffe* aircraft, of which only around 800 were the all important Me-109 fighters.<sup>46</sup> Once again, the *Luftwaffe* was to be undone, despite a solid OCA concept of directly attacking the IADS by faulty intelligence reports. Goering dismissed attacks against radar sites as low pay-off targets since no evidence showed they were being degraded, and incorrect analysis combined with poor bomb damage assessment led to airfields and

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<sup>46</sup> Len Deighton and Max Hastings, *Battle of Britain* (Hertfordshire: Wordsworth Edition Limited, 1990), 101.

their aircraft being crossed off the order of battle maps following attacks. If German commanders had a better appreciation for the role of radar in the IADS and the exact nature of how Fighter Command intercepts worked, they would never have halted the attacks until they had destroyed the radar network.<sup>47</sup>

The greatest limiting factor for the *Luftwaffe* was the range of their primary fighter the Me-109. Since the other *Luftwaffe* aircraft required fighter escort, it is not a stretch to say that, the effective operational reach of the *Luftwaffe* was limited to the range of the Me-109. Over London having wasted valuable fuel during escort operations on the way, the Me-109 only had 10 minutes combat time, if it had to go very far beyond London it could not fight.<sup>48</sup> Having said this, *Adlerangriff* hurt the British badly, and had it been maintained, had Goering persevered, Fighter Command might have been weakened to the point where it moved its fighters out of the Me-109s range and into the Midlands to save itself for final battles over the invasion beaches.<sup>49</sup> The direct attacks on Fighter Command's airfields and radar network nearly broke them down. Alarming, the heavy battles of August posed a greater problem for pilot replacement than it did for aircraft. During August the casualty rate rose to 22 percent of pilot strength, a higher loss rate than Operational Training Units could turn out.<sup>50</sup> This battle of attrition severely weakened Fighter Command. In my view, the decision to focus attacks on London saved Fighter Command and cost the Germans air superiority on the south coast.

A clear example of a tactical event that had strategic implications occurred on the night of 24/25 August when an off-course *Luftwaffe* bomber, released its ordnance over

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<sup>47</sup> Overy, 79.

<sup>48</sup> Hough and Richards, 309-319.

<sup>49</sup> Gropman, 142.

<sup>50</sup> Overy, 81.

London. This accidental event had a serious impact on both British and German leadership. Attacks on London had been prohibited and this decision rested with Adolph Hitler alone. Churchill ordered immediate retaliation raids on Berlin. The attack enraged Hitler who ordered the full weight of the *Luftwaffe* be directed against London. This was one of the fateful decisions of the entire war. The lack of accurate intelligence as previously noted once again did not arm the German leadership with a clear picture of just how badly Fighter Command was suffering under the direct attacks against their airfields.

### **Phase Three**

On 7 September a thousand aircraft attacked London signaling the final phase of the Battle of Britain. Initially, Fighter Command was caught off-guard, while the radar plots were well laid out, RAF leaders assumed the Germans were continuing their attacks on the sector airfields they had been hitting for the last two weeks. London suffered as a result since the DCA was not positioned in the right location or the right amount to inflict enough damage to the *Luftwaffe* bombers. The pattern of the previous two weeks had been Fighter Command interceptors vectored to cover their aerodromes and not in the right position to offer serious resistance to a thousand-bomber raid on London. While an indirect means of engaging Fighter Command, the German air leaders were correct in thinking that defending London would draw Fighter Command into the air. Conversely, it also narrowed the defensive front for the DCA and allowed greater Fighter Command mass to be thrown into the sky for the defense of London. The radar plots of *Luftwaffe* aircraft departing their airfields in France and the Low Countries all of which were

heading toward London simplified Hugh Dowding's defensive plan. Bearing in mind the Me-109s combat radius was limited to 10 minutes over London, it put the rest of the German bomber force at significant risk.

*Luftwaffe* intelligence had long predicted the end of Fighter Command. The stiff resistance that met German bombers through mid-September shook the confidence of the bomber crews. Up to this point, 11 Group in southern England had bore the brunt of the attacks and combat. Dowding had kept a large portion of his forces in reserve. 12 Group located in the midlands could now be brought to bear in the fight over London. In the earlier phases they could not since warning/scramble time necessitated smaller units assembled at altitude where time was the key factor. Larger squadrons took longer to scramble and climb to altitude. Now the full weight of Fighter Command could be brought to bear against the *Luftwaffe*. The morale of the *Luftwaffe* crews crumbled under the weight of the stiff resistance. On 17 September, Hitler indefinitely postponed SEALION.

In driving Hitler to postpone SEALION, the British had won a classic DCA campaign that was better executed than the *Luftwaffe's* OCA campaign. Air superiority in and of itself is never sufficient, the real measure of merit is how it either enabled or disabled the overall campaign objective. The Battle of Britain is highly relevant and important in studying the how OCA and DCA campaigns compare and what role intelligence can play in supporting and air campaign.

## **Conclusions and Linkages to Campaign Objectives**

Two things are clear, the Fighter Command's DCA campaign was well planned and executed, and the *Luftwaffe's* OCA campaign, despite some successes was ill-directed and fueled by miserable intelligence. The German plan was governed by the requirement for air superiority over the landing beaches. With a foothold in southern England, the *Luftwaffe* would then forward deploy their Me-109s forward to finish off the rest of Fighter Command in the Midlands and the north. This would allow the operational reach to provide fighter escort in their attacks against the industrial midlands and against Royal Navy bases in the west and north. At this point, it would have been game-set-match for the British. German failure to achieve air superiority meant that the risk to crossing the English Channel with an invasion force that would be subjected to attacks from the Royal Air Force and Navy was unacceptably high. The German Navy was weak and lacked adequate replacements for sunk invasion barges. The Germans had never undertaken such a large amphibious landing and in my view, would not risk a cross channel invasion unless the conditions were right and probability for success were high.

Fighter command's mission in concept was quite simple: they were to fight a DCA campaign that inflicted losses on the *Luftwaffe* that was in essence a delaying action until the storms of autumn rendered the seas too risky for the Germans to cross. British industry had already overtaken German industry and they were now out-producing the Germans in single-engine fighters. Accordingly, Fighter Command prioritized its DCA campaign around defending airfields, radar sites, and fighter production.

Goering directed the OCA campaign against Fighter Command during *Adlerangriff*. Still, needless sorties were wasted at multiple periphery targets such as Liverpool and Coastal Command bases. Faulty intelligence led to the *Luftwaffe* striking the wrong

airfields—mismarked in Germany as Fighter Command bases. This dilution of combat power came at a critical time when Fighter Command’s “controlled defense” was close to collapse. *Luftwaffe* strikes against the primary fighter airfields had a double payoff with fighter aircraft and maintenance being struck, the additional benefit, although unrealized, was that they were smashing the vulnerable control network whose control huts were above ground. Only after the battle did the British move most of these facilities underground.

Air superiority was a clear requirement since the German bombers were slow and lacked the sufficient punch envisioned in Douhet’s “battleplane.”<sup>51</sup> The failure to maintain the objective of destroying Fighter Command at the expense of peripheral targets wasted precious sorties. Conversely, Fighter Command kept to its task of remaining a viable deterrent force and did not aimlessly dispatch fighters to every incoming German raid. The revolutionary IADS was the key to effective defense. English fighter ace Air Vice Marshal J.E. “Johnny” Johnson later said “Now [in the Battle of Britain] fighter squadrons could be used economically, so that the cathode tube [radar] had the effects of multiplying the fighter strength several times.”<sup>52</sup>

### **Operation *MOKED* 5 June 1967**

On 5 June 1967, the Israeli Air Force (IAF) launched a preemptive attack that destroyed the Egyptian Air Force on the ground. So complete was the surprise and

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<sup>51</sup> Douhet, Giulio, *The Command of the Air*, (New Hampshire: Ayer Publisher INC, Reprint Edition 2002), 117. Battleplane concept...Must meet the criteria of sufficient radius of action, speed, armored protection, and offensive and defensive armament. Goal-- arrive and destroy targets despite air defenses.

<sup>52</sup> Johnny Johnson , Quoted in Shaw’s *Fighter Combat* , 321.

persistent the attacks, that in a matter of hours they effectively removed the Egyptian Air Force from the war. Shortly after noon the same day, in retaliation for limited, ineffective attacks on Israel, the air force launched attacks and neutralized the Jordanian, Syrian, and Iraqi air forces in turn. Israel, drawing from [her] experience in the 1956 Sinai campaign, determined that air superiority was a prerequisite for their badly outnumbered ground forces and would provide the critical force multiplier against the Egyptians.

It is no exaggeration to claim that the Israeli Air Force had dealt the decisive blow of the Six Day War in the first six hours. By 10 June, when the Israelis suspended offensive operations, the Israeli Defense Forces (IDF) had destroyed the ground forces of Egypt, Jordan, and expelled the Syrian army from the Golan Heights. This stunning victory was due, in large part, to complete mastery of the air. *MOKED*'s successful execution was more than just a brilliant six hours of airmanship, it was the result of years of focused acquisition, training, maintenance, and intelligence efforts with the goal being the elimination of [her] Arab neighbor's air forces.

The following sections illustrate how Israel arrived at the decision for war and why *MOKED* was selected as the appropriate military operation to meet their political objectives. Israel's geo-strategic location and small land mass did not afford them the luxury of defense in depth. Israel firmly believed, planned, trained, and eventually executed the defense of Tel Aviv over the Egyptian airfields in the Sinai and around Cairo.<sup>53</sup> The Israelis identified the Egyptian military, and more specifically their air force, as the center of gravity and *MOKED*'s first priority.

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<sup>53</sup> O'Ballance, Edgar, *The Third Arab Israeli War* (Hamden CT: Archon Books, 1972), 54-55.

## Context of 1967 Six Day War

Since Israel became a state in 1948, war, or at least hostilities, with her Arab neighbors was always very close to the surface. Cross-border Arab harassing attacks were beginning to hit harder at Israel. The Syrian coup in 1966, the Defense Pact with Egypt, and the April 1967 clashes along the border with Israel set the stage for another war in the Middle East.<sup>54</sup> Israel had long held the massing of Arab armies on their borders as a trigger for war. Adding to these fears was the joint command agreement, led by Egyptian President Nassar, over the combined Arab armies.<sup>55</sup> Events had been sliding toward war throughout early 1967, Prime Minister Eshkol indicated that continued terrorist action inside Israel would be met “at a time, place, and by a method of its own choosing.”<sup>56</sup> The Arab armies responded by preparing for war and massing along the Israeli border, setting the stage where a threatened Israel would have to act.

Key events which led to the crisis in 1967 included: Egyptian redeployment of men and armor to the Sinai Peninsula; Egypt’s demand that United Nations observer troops vacate their positions in the Sinai (removing the peacekeeping buffer); Syrian and Palestinian artillery and guerilla operations aimed at Israeli military and civilian outposts and, finally; Egyptian paratroop seizure of Sharm el Sheik and Nassar’s announced closing of the Straits of Tiran. In addition to hostile armies on their borders, the specter

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<sup>54</sup> Reich, Bernard, *Background of the June War Research Paper* (Virginia: Research Analysis Corporation, 1968), 6-7.

<sup>55</sup> *Ibid.*, 6.

<sup>56</sup> *Ibid.*, 8.

of economic strangulation now forced the Israelis to act. In short, surrounded and facing economic disaster, the state was under siege.

The Israeli's had long held that the massing of Arab armies on their borders or the closing of the Tiran Straits was a basis for war. Maybe not singularly, but the combined effects led the IDF to recommend to Prime Minister Eshkol that, failing international diplomatic intervention (which was unlikely to happen) Israel would have to defend itself by taking the war to the enemy. One might argue that despite on-going diplomatic efforts, the die was cast for war on the 22<sup>nd</sup> of May when President Nassar announced the closing of the Tiran Straits. This was a direct attempt to economically strangle Israel and was viewed by Israel as a de-facto declaration of war.

Prime Minister Eshkol dispatched Abba Eban, Israel's foreign minister to Washington, London and Paris, seeking help from her old allies. While sympathy was expressed by Johnson's administration, no formal help was forthcoming. Britain and France, former allies from the 1956 campaign, also gave no assurances. In a conversation with DeGaulle, Eban was warned by the French President not to "make war." Eban replied that Nassar had already fired the first shot by blockading the Straits.<sup>57</sup> These diplomatic setbacks, viewed sequentially with U-Thant's pulling of UN troops from the Sinai, meant that Israel would have to fight alone. Isolated and fearing that delay would only invite attack, the formal decision for war was made on 4 June; *MOKED* would commence the next morning. Prime Minister Eshkol made every effort at avoiding war, now he turned to Dayan and his generals to execute the war.

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<sup>57</sup> Oren, Michael, *Six Days of War: June 1967 and the Making of the Modern Middle East* (New York: Oxford University Press, 2002), 101.

While peace through diplomacy was preferred, survival was paramount, even if it meant initiating offensive operations against their numerically superior Arab neighbors. Israel's precarious geostrategic location with Arab forces arrayed along her borders, was too narrow for effective air defense. The Israeli air forces had minimal reaction time to scramble aircraft to defend Tel Aviv or their reactor at Dimona. IAF leaders decided to fight the war over the skies of the Sinai, the Nile Delta, Syria and Jordan. Air superiority would be vital for both sides to support the ground forces, the only question was which side would strike first. IDF leaders were urging their political leaders for war since they viewed defeating the Egyptian military as the only means of reopening the Straits of Tiran and securing the Israeli borders.

Israel's geographic position dictated that the best defense of Israel could only be achieved through offensive action. Taking the war to the Arabs served two purposes: First, successful military action would make the Arabs think twice before threatening Israel again; second, the territory seized would either provide a strategic buffer or could potentially be used as a bargaining chip in during peace negotiations. The IDF and Israeli diplomats recognized that the offensive must be executed quickly before the full weight of the Arab armies could be organized after the initial surprise, and international pressure to end the bloodshed forced Israel to end her offensive.

An area that deserves mention is the fact that the IAF was equipped with a more comprehensive political–military context clearly in mind. Israel viewed war against their Arab neighbors as true struggles for survival. They also realized that they would always be outnumbered and surrounded by the Arabs. Even if Israel was victorious on the battlefield, they would have to face the reality of living with their defeated Arab

neighbors. In light of this reality, Israel adopted a pragmatic and measured approach to offensive action, targeting military and not civilian objectives. Accordingly, the IAF adopted a philosophy that emphasized the fighter-bomber over all other types of aircraft. IAF leaders designed their air force around fighter-bombers capable of a defensive role, while at the same time being able to strike enemy tactical, operational, and strategic targets. “The IAF was to be a multi-purpose air force, capable of launching everything from reprisal air raids to strategic air offenses and delivering precision on-call close air support for the ground forces.”<sup>58</sup> Being fiscally restrained, the IAF ignored procurement of pure fighter aircraft and had no desire to employ with modern strategic bombers. Conducting strategic bombing missions against the numerically superior Arabs was never viewed as a viable or wise long-term strategy. To Israel’s credit, they never lost sight of the post-conflict ramifications of, and reactions to their military actions.

Israel’s long-term political strategy was always to live in peace with the Arabs. To do so, military operations needed to be short, decisive, and specifically directed against clear military targets. Operation *MOKED* was the IDF’s only means of inflicting minimal casualties, achieving immediate and decisive air superiority, and directed against only military targets.<sup>59</sup> The politicians very early on stressed that international pressure would constrain time requirements for any offensive action; military leaders then

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<sup>58</sup> Hammel Eric *Six Days in June: How Israel Won the 1967 Arab-Israeli War* (New York: Charles Scribner’s Sons, 1992), 45.

<sup>59</sup> Creveld, Martin van, *Air Power and Maneuver Warfare* (Maxwell AFB: Air University Press, 1994), 155-156.

succeeded in translating these limitations into a set of military principles -- in strategic planning, choice of weapons, tactics – in designing their military doctrine.<sup>60</sup>

*MOKED* was consistent with the military plans calling for swift and decisive victory. It was designed as a lightning offensive from the air to destroy enemy air forces on the ground, and then provide close air support to the IDF ground forces. Mobilization for a country as small as Israel would have serious economic effects if it was for any prolonged amount of time. The Israelis could not afford to stand-to indefinitely and if they demobilized too soon it would be interpreted by their Arab foes as a sign of weakness.<sup>61</sup> It was imperative for the IDF to quickly defeat the Egyptians, and if engaged by Jordan or Syria their turn would be next. President Nasser of Egypt was the undisputed leader of the Arab enemy that now threatened Israel. This campaign had to be executed quickly so the IDF could consolidate gains before international pressure forced an end to their offensive.

Operation *MOKED* was tailor-made for the problem set that Israel faced in 1967. The IAF was procured and trained exactly for the mission it was called upon to execute. In the 1967 defense budget, almost 50% went to the air force and underlined their priority in the eyes of IDF leadership.<sup>62</sup> The Egyptians forward deployed much of their air force to the Sinai and the Nile Delta, well within range of most of the IAF. Airpower was the IDF's most powerful weapon. This was the result of years of planning and procurement and a clear objective: gaining air superiority; then turning to close air support. General

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<sup>60</sup> Handel, Michael, *Israel's Political-Military Doctrine (Occasional Papers in International Affairs no.30, July 1973)*, (Massachusetts: Center for International Affairs, Harvard University, 1973), 71.

<sup>61</sup> Barker A.J., *Six Day War* (New York: Random House, 1974), 33.

<sup>62</sup> O'Ballance, 50.

Mordechai Hod, Commander of Air Forces prioritized destroying the enemy air forces on the ground and then supporting IDF ground forces.

Since statehood was established in 1948, the Israeli public had become accustomed to hearing Arab broadcasts promising a bloody end of the Jewish state. Their reality was one of living under the constant threat of guerilla attacks and repeated shelling from the border regions. It is also important to remember that many older Israeli's were Holocaust survivors who typically reacted with a "never again" attitude about national survival. Instead of bemoaning their plight, the Israelis mobilized and prepared for war.

Israel's previous two wars (1948 and 1956) taught the IAF the value of air superiority. In 1948, Egyptian planes owned the skies over Israel and bombed both Israeli troops and cities. The 1956 Sinai campaign taught the IAF that the first condition for winning modern wars was air superiority.<sup>63</sup> By 1967 the speed, range, and lethality of the air forces had increased. This complicated defensive operations, but not the basic requirement for air superiority and the need to closely support advancing IDF ground forces. *MOKED* employed surprise and unrelenting persistence to cripple the combined Arab air forces and then throw Israeli fighter-bombers in full support of the ground forces to drive the Egyptians from the Sinai, the Syrians from the Golan Heights, and the Jordanians from Jerusalem.

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<sup>63</sup> Handel, Michael, *Israeli Political Military Doctrine*, 43.

## Offensive Air Campaign Execution

Operation *MOKED* was nothing short of a clinical primer for airpower. While the IAF's procurement, training and planning were impressive, their execution left the world in awe. The Egyptian Air Force was identified as the first target to eliminate from the fight. Israeli intelligence had correctly identified which airfields were to be struck in priority order and had precise information which allowed the Israeli pilots to strike legitimate targets vice being decoyed by dummy targets. Vowing not to repeat past restrictions that hampered Israeli operations, the IAF was for the first time unshackled and free to take the initiative across the Suez.<sup>64</sup> This operation was planned and practiced over the Negev desert countless times prior to execution. *MOKED* was a total commitment by the IAF to take the fight to the enemy. Israel left only 12 aircraft behind for defense—8 flying defensive patrols and 4 aircraft on strip alert.<sup>65</sup>

At exactly 0745 Tel Aviv time/0845 Cairo time, the full weight of the IAF was hurled at the Egyptian air force. The exact timing of the attack was the result of thorough intelligence that correctly assessed the Egyptians would be most vulnerable at this hour. Strikes commencing at 0845 over Cairo were selected for four reasons:<sup>66</sup>

- 1) Egyptian alert was past its peak and jets were either back on the ground or returning to base—Egypt would have its guard down.

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<sup>64</sup> Byford-Jones, W, *The Lightning War: The Israeli-Arab Conflict, 1967*, (Indianapolis: The Bobbs-Merrill Company Inc., 1967), 55.

<sup>65</sup> Randolph S. Churchill and Winston S. Churchill, *The Six Day War*, (London: William Heinemann Ltd, 1967), 82.

<sup>66</sup> *Ibid*, 78-79.

- 2) Waiting until this time to attack meant that IAF pilots would be able to sleep until 0400 and be better rested.
- 3) At this time of year the mist would be lifting—critical for visual bombing.
- 4) Senior Egyptian leaders to include air commanders get to their offices at 0900. Pilots and Air Force personnel would be on their way to training courses.

The IAF avoided Egyptian radar by flying low altitude, precise routes and approached many of their targets from the west, confusing Egyptian air defense batteries. Time over target was synchronized to maximize strategic surprise. In short, it could not have been more effective, catching the Egyptians completely by surprise, just as the intelligence service had predicted.

Methodically, Israel aircraft attacked in pairs and groups of four striking runways first, with specially designed, runway penetrating bombs and conventional munitions, followed by strafing runs against the aircraft in their parking aprons. Years of realistic training and expert marksmanship now yielded huge dividends. In less than an hour, the first wave had re-struck their initial targets exhibiting persistence and mass against their primary objective, and this was continued until Nasser's air force had been practically wiped out.<sup>67</sup> Egyptian air force priority targets, the TU-16 and TU-28 bombers (greatest threat to bomb Israeli cities) were eliminated from the fight along with the bulk of the MiG 21s (modern fighter capable of challenging Israeli Mirage for air superiority) within three hours. Later that day the Israelis returned to these airfields, striking airbase facilities and infrastructure, and dropping delayed fuse munitions [over the runways] to prevent their repair. After only three hours, most of the Egyptian air force was removed from the

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<sup>67</sup> Barker, 65.

fight. The Israeli campaign plan was sequential, if the Arab alliance did not aid Egypt, they would not be attacked.

Ignoring Israeli warnings, the next phase opened with limited Syrian, Jordanian, and Iraqi air raids against Israel. IDF intelligence correctly assessed that the Arab alliance lacked coherent command and control and that it would take the Syrians and Jordanians several hours before they could coordinate attacks. The tactical effects of the Syrian, Jordanian, and Iraqi attacks on Israeli airfields near Megiddo and Kfar Sirkin, oil refineries near Haifa, and the town of Netanya were negligible; however, their strategic effect was staggering. Shortly after noon, having already decimated the Egyptian air force, the full weight of the IAF was turned on the Jordanians and Syrians, as well as a daring raid on western Iraq's H-3 airfield. By evening the entire Jordanian Air Force was destroyed, and over half of the Syrian Air Force and four air bases around Damascus were badly crippled. Most of H-3's aircraft had been destroyed and played no further part in the Six Day War.

The IAF attack was decisive to the point that by the end of the first day the IAF ruled the skies. The IAF had destroyed 450 total aircraft with 380 of those on the ground for the loss of 20 dead pilots.<sup>68</sup> The full weight of the IAF was then allocated to interdiction and close air support for IDF forces advancing against the Egyptians and Jordanians, and three days later against the Syrians in the Golan Heights. By 8 June the Egyptian army in the Sinai was been routed and Israeli forces had reached the Suez Canal. By 10 June, when offensive operations were halted, the IDF had decisively defeated the combined ground forces of Egypt, Jordan and Syria; air power had achieved

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<sup>68</sup> Yonay, Ehud, *No Margin for Error: The Making of the Israeli Air Force*, (New York: Pantheon Books, 1993), 254.

exactly what its leaders had promised. *MOKED* expertly supported the overall military campaign and ultimately the political objective of speedy victory with minimum loss of life. At a cost of 26 aircraft, Israel had all but won the war on Day 1! Appreciating the offensive nature of air power, the IAF had procured, trained and equipped their crews and support personnel perfectly for this mission.

Operation *MOKED* was designed to maximize every aircraft in the inventory and assign targets based upon range and payload factors. Precise intelligence was a key element in the design of this attack plan. Targeted airfields were selected by location and priority and assigned to specific IAF capabilities. The [shorter range] Ouragan ground attack aircraft, attacked targets in the Sinai while the Mirage and Super Mystere's were assigned high priority targets (Tu-16, IL-28 and MiG-21) around Cairo and the Nile Delta. IAF squadrons exemplified the "train like you fight" mentality. For months prior to the outbreak of hostilities the IAF practiced against mock airfields in the Negev Desert.

Historically, surprise has been a key enabler to military victory. The key is to not only achieve, but exploit the surprise one has created. Operation *MOKED* leveraged strategic surprise and the resulting confusion left Syrian and Jordanian air forces grounded for three critical hours. When they chose to attack Israeli targets, the IAF diverted aircraft when returning to finish off Egyptian airfields, directing them instead toward the Syrians, and Jordanian and Iraqi air forces with decisive effect.

The IAF was aided by accurate and timely intelligence. Israel had identified the location of almost every Egyptian aircraft and had accurately mapped out every airfield in Egypt and the Sinai. Extensive SIGINT and HUMINT intelligence, allowed Israel to

catalogue the location of each jet as well as the name and rank of the pilots.<sup>69</sup> This is in direct contrast to the abysmal *Luftwaffe* intelligence support that further disrupted and already flawed offensive air campaign.

## **Conclusions and Linkages to Strategy**

The combined opposing strengths and weaknesses of the IAF and the Arab forces correctly led to an Israeli offensive air power-centric military strategy. Israel was geographically surrounded, outmanned, and outgunned by the Nasser-led Arab Alliance. The Israelis believed that their operations must be short and decisive for multiple reasons: Their precarious geographic position of a small country lacking strategic depth for maneuver necessitated an offensive war plan. They also lacked sufficient men, material and economic staying power for protracted combat. Finally, they anticipated the UN would re-exert pressure and not allow much sufficient time for the Israelis to consolidate and occupy conquered territory. The proper execution of the combined air/ground campaign offered a quick and decisive victory before world opinion would force Israel to cease operations.

Another viable and salient reason that Israel selected the OCA campaign was the fear that they would be unable to detect and defeat enemy air attacks against their lightly defended cities and tightly clustered airfields. There was also a fear that their atomic reactor, in Dimona would be attacked. Israel's precarious geographic positioning, being surrounded by hostile Arab neighbors within minutes flight time from key targets

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<sup>69</sup> Oren, 171.

necessitated an offensive mindset. Offensive air operations against the Egyptian airfields offered Israel's best option for air superiority. Only air power offered the speed, flexibility, range, and most importantly, the lethality to achieve victory over the enemy air forces.

Israel's coherent political-military strategy is one that ought to be emulated. Their military strategy was directly linked and driven by political objectives. There was a clear synergy between weapons procurement, (i.e. capability vice platform-centric) training, maintenance, intelligence preparation, and finally mission execution. Outstanding intelligence on enemy air order of battle and facilities resulted in very few [wasted passes or rounds] on decoy targets. Operation *MOKED* was a well coordinated and flexible campaign plan that optimized command, control, communications, and intelligence and allowed the Israelis to operate well within the enemy's decision cycle. Israeli Defense Forces Chief of Staff, General Yitzhak Rabin (decades later became Prime Minister) told his officers and men "the political and military arenas are two arms of the same body."<sup>70</sup>

Survival of the Jewish state was the first and foremost priority. Tenets of modern warfare dictated that Israel must defend her airspace. As previously mentioned, a purely defensive posture was not possible due to Israel's small landmass where maneuver and depth were severely constrained. Flight time from the forward enemy airfields [to Tel-Aviv and Haifa] was measured in single-digit minutes. Offensive action had to be the main ingredient of the air and ground war plans. Since the Israelis were outmanned and outgunned, a surprise attack was the only way to choose the time, place, tempo, and intensity of operations. The political-military strategy was clear and consistent with their

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<sup>70</sup> Bashan, Raphael., *The Victory: Six Days in Nineteen Sixty Seven*, (Chicago: Quadrangle Books, 1967), 17.

strategic situation and military capabilities. Not unlike the Fighter Command and its defense of England in 1940, the Israeli Air Force was conceived, procured and trained for the exact mission it was called upon to execute.

The IAF objectives were clear: the faster it could destroy the Egyptian air forces, the sooner it could deal with the Syrian air forces and turn its full combat weight behind interdicting Egyptian supply lines and providing close air support to the advancing IDF ground forces.<sup>71</sup> Having cleared the skies within hours, the Israeli Air Force spent the next six days mauling Egyptian, Syrian, and Jordanian armor and infantry forces, demonstrating what air superiority provides the Joint Force Commander. Israeli ground forces spent the next six days destroying the Egyptian, Syrian, and Jordanian ground forces with maneuver and fires uninhibited by enemy aerial interference. These stunning successes would not have been so easily won without air superiority.

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<sup>71</sup> Weizman, Ezer, *On Eagle's Wings: The Personal Story of the Commander of the Israeli Air Force* (New York: MacMillan Publishing Co., Inc., 1976), 220-221.

## Chapter 3

### A Day Without Air Superiority

In modern warfare, based upon my historical review, between conventionally armed states air superiority is critical if not essential to victory. Airmen understand that control of the air is the key to unleashing the full potential of airpower. “Airspace control [air superiority] allows strategic or tactical bombing, close air support of troops and armor, airborne or surface reinforcement and supply, reconnaissance, and other missions vital to the success of any military operation.”<sup>72</sup> Often the question of airpower employment and what role air superiority plays, especially the level of effort to achieve it can be controversial. This is one major area where teamwork and leadership is required to ensure the ground forces understand what role air power plays and more specifically, what air superiority enables air power to provide the army. Beyond the tactical realm, it is important to remember that airpower is also a national resource. Commander, Air Combat Command, General John Corley reminds us “We can’t allow a veiled curtain to be put around targets and not be able to provide our nation and our President options.”<sup>73</sup>

Today’s military operations in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) are heavily reliant on airpower. The application of U.S. airpower in OIF/OEF is unlike the classic combat applications of WWII. The CFACC is very much the supporting commander in this very difficult and long-term war on terror. Despite not having an enemy air force to combat daily, the freedom of maneuver

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<sup>72</sup> Shaw, 316.

<sup>73</sup> General John Corley quoted in John A. Tirpak’s, “The Redefinition of Airpower,” *Air Force Magazine*, (April 2008) 32.

provided for ground forces and complete dominance of the air medium have enabled incredible combat power to bear. Freed from the responsibility to fight aircraft and surface to air missiles, the CFACC now brings the combat enabling Close Air Support (CAS), Air Mobility, Intelligence, Surveillance, and Reconnaissance (ISR), Electronic Warfare (EW), Aerial Refueling to the Joint Force Commander.

A key question that drives the point home is what cannot be brought to bear if the JFC loses air superiority or is strongly contested. CAS has become a key weapon in our OIF/OEF toolkit. This is not to say that even over contested airspace that CAS could not occur—in fact, CAS operations would occur, they would just do so at a higher risk. Currently, we set the time and place and intensity of the CAS operations in support of overall theater plans. The use of B-52 and B-1 bombers dropping Joint Direct Attack Munition with satellite derived accuracy has been devastating to insurgents. On 2 March 2008 alone, between Iraq and Afghanistan, 112 close air support sorties were flown with a myriad of aircraft.<sup>74</sup> Our complete dominance of the air has created an environment where the enemy cannot safely mass for attacks on U.S. or Coalition forces.

Air Force Joint Terminal Attack Controllers assigned to Army units have taken the concept of air/ground integration to a new level. They are final link between the army scheme of maneuver and the application of airpower. They have taken a devastating toll on Iraqi insurgent and Taliban opponents. To mass, or to assemble in any sort of significant number provides too lucrative a target for U.S. air power. This has provided a degree of security for U.S. bases across Iraq and Afghanistan. Air power cannot

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<sup>74</sup> Unattributed, “March 2 airpower summary: Airman keep mission rolling,” *Air Force Link* 3/3/08, <http://www.af.mil/news/story.asp?id=123088540> (online accessed 4 March 2008).

eliminate the odd mortar or rocket attack, but it does ensure that our bases are not overrun or attacked by a large conventional force.

ISR is driving the fight in the struggle to find, fix, and finish the insurgents. Currently we have unchallenged access with our airborne intelligence collection aircraft. The reason to single out the air breathing assets is because these fall under CFACC control. As such, they are subject to supporting the Joint Force Commander and his intelligence collection priorities. Overhead [satellite] assets do not fall under the CFACC's tasking authority. They are requested against competing collection requirements through the Defense Intelligence Agency.

We are breaking ground on a daily basis with new and innovative ways to modify collection methods and how to integrate multiple platforms to “stack” ISR for maximum effects. Additionally, we are streamlining dissemination channels to provide accurate and timely intelligence directly to end users. The collection assets to include the U-2 Dragonfly, MQ-4 Global Hawk, MQ-1 Predator, RC-135 Rivet Joint, E-8 Joint-Stars, EP-3 Orion provide the JFC, not just the JFACC with persistent full-motion video, imagery, signals intelligence, and measurement and signature intelligence, the ability to detect ground-based moving targets. These platforms have an unmolested freedom of movement in the current battlespace—all require a benign air defense environment to provide the required intelligence to find, fix, and finish an adaptive and determined enemy. During the week of 14-20 Feb 2008, the coalition flew 254 ISR sorties in direct support of operations in OIF/OEF.<sup>75</sup> Under the threat of enemy fighter aircraft or a

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<sup>75</sup>Unattributed, “The Air Force as of Feb. 20,” (source: Central Command Air Forces) *Air Force Times* 3 March 2008, 7.

robust array of surface to air missiles deployed by the enemy, the JFC would likely not risk these assets that are all high-demand/low-density collection platforms.

Airlift has become a great enabler during our current operations in the Middle East. From force deployments, to resupplying forward operating bases and providing humanitarian relief, air mobility has become a critical force enabling U.S. combat capability. Enemy fighter aircraft or advanced surface to air missile systems would severely limit our intra-theater airlift. Across the CENTCOM AOR during the week of 14-20 Feb 2008, airlift tallied 842 C-130 and C-17 sorties, carried 3, 621 tons of cargo, moved 17, 699 passengers.<sup>76</sup> There is no other military in the world that can be transported and deployed into combat like the U.S. armed forces. A recent example of the flexibility of our airlift fleet is exemplified by a flight that originated from a Gulf State (must remain unidentified), CHROME 31 was to fly from Bagdad to Balad, al Taqaddum, and al-Asad airbases, then back to Baghdad, then back to its originating base.<sup>77</sup> We are an expeditionary military—this could not be accomplished without the exploits of our airlifters.

Balancing procurement between fighters, airlifters, tankers, and bombers is a significant challenge for the U.S. Air Force. Recently, a C-130 parked on the apron in Kuwait is said to be the same one that took a mortar shell in an engine while hauling Marines in and out of Khe Sanh in 1968.<sup>78</sup> Often overlooked is the fact that these C-130s have been worn down by constant use over the last 17 years of constant flying in the

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<sup>76</sup> Air Force Times, 3 March 2008, 7.

<sup>77</sup> David Wood, "Desert Airlift," *Air Force Magazine*, October 2007, 49-50.

<sup>78</sup> *Ibid*, 49.

Middle East. They are plagued by the same issues that the rest of the air force faces with worn out equipment that have been constantly in heavy use since 1991.

Secretary Wynne recently told a House Panel in referencing the Hercules [C-130] that his concern is that the wings will “crack and fall off.”<sup>79</sup> The Air Force has already placed restrictions on older C-130s that cannot sustain the wear and tear of constant flying under temperatures that sometimes exceed 130 degrees. The value of airlift in the Counter Insurgency (COIN) fight is not lost on the Air Force leadership. In 2007, Air Force Special Operations Command announced it was moving to establish an “irregular warfare” wing built around 44 transports, 20 helicopters, and 20 attack aircraft dedicated to COIN operations.<sup>80</sup> From providing air evacuation, to delivering combat troops and ammunition, or delivering humanitarian relief supplies to earthquake victims in Pakistan airlift has proven to be a critical combat enabler for our joint force.

In addition to the impressive airlift numbers—similarly reliant on a benign air defense environment, during the same period, 273 tanker sorties, offloading 16.8 million pounds of fuel to 1283 aircraft.<sup>81</sup> As Airman, we often talk about airpower’s inherent range, speed and flexibility—all are dependent on aerial refueling to maintain this dominant maneuver advantage. Recently, a contract was awarded for the purchase of the new Tanker aircraft the nation desperately requires. As is becoming the norm, the process will be further drawn out as a protest has been lodged which will further delay the needed replacement for tankers that were originally designed during the Eisenhower administration.

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<sup>79</sup> Ibid, 49.

<sup>80</sup> John A. Tirpak, “Air Force Seeks a COIN Flip,” *Air Force Magazine*, September 2007, 14.

<sup>81</sup> Air Force Times, 3 March 2008, 7.

The purpose of air superiority is not just to set the stage for additional aerial operations, it also sets the conditions for the ground forces to maximize their combat potential without substantial interruption of their scheme of maneuver from enemy air attacks. The Russian inability to secure win air superiority for their forces in World War II, led them to develop significant surface to air defense against aircraft. The Russians fielded a sophisticated and layered air defense umbrella designed to move with their ground forces. While the U.S. has traditionally fielded the superior fighters, the Russians developed outstanding ground-based air defenses. This mindset continues today, Russia is the prime exporter of advanced air defense systems. Despite the Cold War ending in 1989, the Russian arms industry is still our greatest challenge for executing global strike missions. For example, Russian surface to air missile systems form the backbone for the Chinese and Iranian air defense networks.

It seems alien to us to imagine what enemy air attacks might do to our convoy system. The losses incurred on ground patrols and convoys to improvised explosive devices are tragic, one might only imagine what the human toll might be if enemy aircraft were added to the equation. Our race to Bagdad was accomplished under the protective air umbrella and through Patriot coverage that our enemy did not enjoy. This is an advantage for maneuver that would be unacceptable for us to cede. One day it may not be possible. If that day occurs, our investment elsewhere will be the cause. The decision to alter the capability of our air umbrella is a conscious one, the second-order effects on the joint force should be the decision driver, not budgets, or fighting the last war.

To illustrate what potential problems might lay ahead for tomorrow's air superiority fight, a short scenario against a peer competitor is a reminder that not all future

adversaries focus on IED, small arms, unguided rockets, or random mortar attacks to harass U.S. forces. This scenario will postulate China as a well armed, conventional opponent that has decided to invade Taiwan. The scenario will involve some of the background dynamics and response options for the United States. The air superiority we have enjoyed for the last 50+ yrs is not a right! In fact, the day is coming where our superiority is not assured--what strategic options might we lose?

## **Chapter 4**

## China and the Taiwan Straits Scenario

China is quickly not only becoming a regional hegemon, but a key player on the global scene. The Chinese economy is booming and is growing faster than even the leaders in Beijing might have imagined. “Over the last 25 years, economic reforms have transformed the Chinese system from a backward and isolated economy run by inefficient central planning mechanisms into a large and rapidly growing economy driven primarily by market forces and increasingly integrated into a globalized world.”<sup>82</sup> China’s economy is now inextricably linked through the acquisition of needed resources (primarily petroleum and raw materials) and the distribution of their finished goods. On the surface, given Beijing’s newfound global stature and with it, having to operate within the norms of the international economic system, the notion of an attack on Taiwan would be “bad for business” and seemingly out of the question. During the Cold War, the U.S. and the Soviet Union shared a “mutually assured destruction” through nuclear weapons, and future conflict between China and the U.S., given the balance of trade, might result in an “economic mutually assured destruction.”

Key for Chinese decision makers might also be the increased economic interdependence between China, the U.S., Korea, Japan and Taiwan. The Chinese will closely consider this economic variable when weighing military intervention options over Taiwan. China’s burgeoning economic growth and the associated dependence on resources from abroad has made her vulnerable to several worldwide, free-market economic forces. Forcibly incorporating Taiwan might present the untenable, significant loss in import and export revenue and the marked reduction in petroleum imports. While

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<sup>82</sup> Phillip C. Saunders, “China’s Global Activism,” *NSS/NDU Occasional Papers*, Oct 2006, 3.

there are compelling reasons that would lead one to believe that the economic cost of war will prohibit China from attacking, one lesson should be clear from our history over the last century or so--we don't always get it right.

U.S. policy makers and military planner must remember that China has not revoked its claim on Taiwan. Beijing continues to claim Taiwan as an integral part of China...and claims the right to use any means, including force to prevent Taiwan's independence.<sup>83</sup> China seems to be the most likely peer competitor in the near and long-term future. Today, we are faced with a China that is integrating into the world economy while at the same time building modern military capable of projecting power in the region. Director of National Intelligence Michael J. McConnell in the 5 February 2008 Annual Threat Assessment for the Senate Select Committee on Intelligence described Chinese power projection capabilities as a challenge to U.S. forces in the region. He further explained that China is continuing to develop and field conventional theater-range ballistic missiles and cruise missiles that place U.S. forces and their bases throughout the Western Pacific and Asia at great risk.<sup>84</sup> The only foreseeable flashpoint between Beijing and Washington would likely be over Taiwan. As long as Taiwan does not declare independence and seek international recognition as being separate from Beijing this is unlikely to transpire. China has also occasionally cited Beijing's 2005 "Anti-Secession Law," which authorizes force if Beijing deems it necessary.<sup>85</sup> If China decided to invade Taiwan, they would likely have to develop a strategy to combat U.S. intervention.

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<sup>83</sup> James H. Nolt, "The Pentagon Plays its China Card," *World Policy Journal*, Fall 2005, 26.

<sup>84</sup> J. Michael McConnell, "Annual Threat Assessment of the Director of National Intelligence for the Senate Select Committee on Intelligence" (5 Feb 2008), 33.

<sup>85</sup> *Ibid*, 32.

Most analysts believe that the Chinese will employ an asymmetric approach to deny the U.S. access to the region until their objectives had been secured. A recent Rand report describes “anti-access” as any action by an opponent that has the effect of slowing the deployment of friendly forces into a theater, preventing them from operating in theater thus forcing them to operate at long distances from the conflict.<sup>86</sup> Geography is already a significant challenge to our operations in the western Pacific. China has long studied our military operations since DESERT STORM and has likely concluded this is the appropriate strategy based upon China’s weaknesses and the conventional superiority enjoyed by the U.S. military.<sup>87</sup> It would appear that China will likely challenge our access to the region rather than have to fight us over Taiwan. China would employ all elements of national power to carry this policy out. Sun Tzu said ‘The best policy is to attack the enemy’s plans’; the next best to disrupt his alliances, for ‘to subdue the enemy’s army without fighting is the acme of skill’.<sup>88</sup> The tyranny of distance is especially acute in Asia.

Our closest U.S. airbase, Kadena AB, is on Okinawa—some 350 miles from Taipei. To use this base in case of conflict with China we would have to have the permission of the Japanese government. If China were to threaten Japan with economic warfare, or even direct attacks by hundred of short range missiles against Okinawa it is conceivable that we would be denied use of Kadena AB. The reason this question is so critical is that the next closest U.S. air base, Anderson AB, Guam, is some 1350 miles from Taipei. It

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<sup>86</sup> Roger Cliff, et al, “Entering the Dragon’s Lair: Chinese Antiaccess Strategies and Their Implications for the United States,” (Rand Report Prepared for the U.S. Air Force, 2007), xiv.

<sup>87</sup> Ibid, xiv.

<sup>88</sup> Sun Tzu, translated by Samuel B. Griffith, *The Art of War*, (London: Oxford University, 1963), 9.

would be almost impossible to achieve enough air superiority over Taiwan to dissuade Chinese forces to attempt an amphibious operation.

For the purpose of this paper, and to demonstrate the significant challenges that the United States military would face in a military response to a Chinese invasion, I will present a military scenario that could occur over the Taiwan straits. This is not a de facto picture of Chinese intent, rather, to demonstrate one future potential scenario that exposes some weaknesses in our strategy. The impact on U.S foreign policy options as a result of impeded power projection capabilities would be significant. While nobody wants to see a Chinese invasion, putting faith in the peaceful reunification is hardly a sound basis for the military planner. Regardless of the opinion you hold, what is not arguable is the significant Chinese military buildup, the acquisition and fielding of advanced fighter aircraft, advanced surface to air missile systems, a growing navy—to include a large submarine force, accurate theater range ballistic missile capabilities, and a now demonstrated ability to attack satellites dictates a closer look at this scenario.

Here are the assumptions:

- 1) Japan and Korea deny US combat power being used from their soil
- 2) US decides it will not allow the forceful reunification by Beijing
- 3) China does not back down at the presence of US combat force in the region
- 4) Taiwan asks for US protection of their sovereignty
- 5) Russia is a non-aligned, but interested onlooker
- 6) The participants will be limited to US/Taiwan/China.
- 7) The battle will remain non-nuclear

Given the set of likely constraints, this will be a fight between the ability of the U.S. to deploy and sustain enough combat airpower and sea power to dissuade China from crossing the straits. Beijing's challenge would be to delay U.S. combat deployments long enough to conduct a quick offensive to reabsorb Taiwan. This is not to totally dismiss Taiwan's defensive capabilities, rather to acknowledge that Taiwan alone is not likely to be able to unilaterally defend itself against a determined Chinese attack. Admiral Blair, former Commander, USPACOM declared "We must respect the authority of the People's Liberation Army in their mainland. Yet, we must make them understand that the ocean and the sky [are] ours."<sup>89</sup> This is clear indication that a viable U.S. presence, and early on, is the best means to preventing China from carrying out this operation. Having previously described the tyranny of distance, the U.S. is faced with multiple challenges. China is both a significant trading partner and historic enemy of both Korea and Japan. China has the ability with little or no warning to rain down hundreds of short-range tactical ballistic missiles on Korean or Japanese soil in the event of their participation or acquiescence to military action being staged from their soil. The mere threat might be part of China's asymmetric challenge to our deployments by attacking our alliances and thus our ability to quickly stage and sustain operations in the Far East.

It would be a dangerous assumption to base a strategy solely upon relying on basing from foreign soil. Alliances are only viable until national interests begin to diverge. The reasons for denial aside, Turkey's refusal to allow our operations through the north had a significant impact in our 2003 OIF plan execution. Chinese military strategy for waging

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<sup>89</sup> Erik Lin-Greenburg, "Offensive Airpower with Chinese Characteristics" *Air And Space Power Journal* (Fall 2007): 73.

a war with the United States over Taiwan call for defeating Taiwan rapidly, and presenting America with a fait accompli before American combat power could be brought to bear.<sup>90</sup>

U.S. air operations staged out of Guam would be very difficult to sustain. The sheer distance [1350 miles away] would require a Herculean commitment of aerial refueling. A 2002 report described the problem in terms of: basing 1500 miles away from the battle area, a wing of 72 F-22 A Raptors, could only sustain 6 aircraft over the combat area for sustained operations.<sup>91</sup> The presence of a U.S. aircraft carrier is no longer assured near Taiwan. The Peoples Liberation Navy is acquiring both nuclear and diesel powered attack submarines from Russia. They are also buying advanced surface to surface anti-ship cruise missiles to challenge our access. The sea denial strategy extends well beyond Taiwan. Chinese naval strategists call the string of islands that stretch from the Japanese archipelago to Guam and the Marshall Islands the “Second Island Chain.”<sup>92</sup> In my view, this is the first line of interdiction (other than cyber attack) that the PLA can reasonably expect to achieve. The Chinese missile threat is structured around short and medium range theater ballistic missiles. This might be a stretch for the Chinese Navy but, they are developing a large submarine force to interdict regional naval forces.

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<sup>90</sup> McCabe, Thomas R, “The Chinese Air and Space Power,” *Air and Space Power Journal* Fall 2003, 8 (accessed on line, 19 November 2007)  
<http://www.airpower.maxwell.af.mil/airchronicles/apj/apj03/fal03/mccabe.html>

<sup>91</sup> Christopher J. Bowie, *The Anti-Access Threat and Theater Air Bases*, (Washington DC: Center for Strategic and Budgetary Assessments, 2002), 59. Assumes 36 sorties per day, allows for transit and 4 hours per aircraft over the combat area.

<sup>92</sup> Timothy Hu, *China-Marching Forward*, *Janes Defence Weekly*, (25 April, 2007), 10 (Accessed 25 Jan 2008) <http://www8.janes.com/Search/documentView.do?docId=/content1/janesdata/mags/jdw/hi...>

The People's Liberation Air Force has acquired advanced fighter aircraft from Russia and teamed with advanced surface to air missile systems that are highly effective against our current fourth generation fighters presents our senior leaders with several challenges. Historically, the PLAAF followed a model that focused on defensive air superiority, not the offensive airpower projection. The recent acquisition of advanced strike aircraft teamed with tankers suggest the Chinese are moving towards a offensive focus. Regional concerns such as Taiwan and the Spratly Islands have demonstrated that the PLAAF needs to be able to project and sustain combat airpower. This is not to imply they will fields strategic bombers, rather multi-role fighters with tanker support.

The range of the advanced air defense missile systems places an umbrella nearing the coast of Taiwan. This leaves the U.S. with a difficult policy option of having to either take the war to Chinese soil by authorizing stealth assets and cruise missiles to attack selected targets on Chinese soil, or have to make the conscious decision that the objective of defending Taiwan is not ultimately a vital enough national interest to expend the finite blood, treasure, and will of the American people. Striking targets on the Chinese mainland carries significant risks of unintended escalation and miscalculation in attacking a nuclear nation. Stealth fighters can operate within the hostile air defense environment, but the current set of F-15, F-16, and F-18s would be placed in peril while operating inside the air defense envelope. The key question is what will China's air defenses look like in the future?

China is undergoing a significant air defense modernization. For China's air defenses to pose a significant risk to U.S. air power it would require effective command and

control, modern fighters, and advanced surface to air missile systems. The Secretary of Defense's 2007 Annual Report to Congress highlights China's advances as:<sup>93</sup>

- 1) China is now co-producing the advanced Su-27SMK/FLANKER. China is also employing increasing numbers of the multi-role SU-30 MKK/FLANKER fighter-bomber and its naval variant, the SU-30MK2.
- 2) Chinese aircraft are being armed with increasingly sophisticated air to air and air to surface weapons to include satellite and laser guided precision munitions, and cruise missiles.
- 3) In the next few years China will receive its first battalion of Russian made 300 PMU-2 surface to air missile systems. They have an advertised intercept range of 200 km with increased lethality against tactical ballistic missiles. China is also developing the indigenous HQ-9 air defense missile system, a phased array radar SAM with a 150 km range. Naval variant will also be deployed further enhancing a layered defense.

One missing element is how would China integrate, analyze and disseminate the vast amount of information for effective command and control. China has long held that it must dominate the information sphere. Over the long term, improvements in China's C4ISR, including space-based and over-the-horizon sensors, could enable Beijing to identify, track and target military activities deep into the western Pacific Ocean.<sup>94</sup> My analysis concludes that the Chinese are developing a layered air defense system that will place our current 4<sup>th</sup> generation aircraft at significant risk.

The F-22 and the F-35 can deliverer the decisive effects if we have the luxury of time to wait for their fielding. The F-22 Raptor's stealth, supercruise, agility, and integrated avionics will make it the most dominant air to air fighter for the next 50 years.<sup>95</sup> Even then, will they be in sufficient numbers to achieve our national objectives? This is not an

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<sup>93</sup> Secretary of Defense, "Military Power of the People's Republic of China 2007," (*Annual Report to Congress, 2007*), 4.

<sup>94</sup> *Ibid*, 23.

<sup>95</sup> Boyne, Walter J, *Beyond the Wild Blue: A History of the United States Air Force, 1947-2007*, (New York: Thomas Dunne Books, 2007), 380.

advocacy of these specific platforms, rather their capability is what is badly needed. If it is purely an air to air fight, outside the range of surface to air missile systems then today's fighters are more than a match for China's.

The question then gets back to access to the Joint Operating Area and how to sustain enough presence to deter Chinese aggression. "China has more than 700 combat aircraft based within un-refueled operational range of Taiwan and the airfield capacity to expand that number significantly."<sup>96</sup> Air superiority operations are time and space dependant, it would be next to impossible without sustained carrier presence. The Chinese are also developing a wide-range of Unmanned Aerial Vehicles and these would challenge our targeting options over the Straits of Taiwan. It is not a stretch to say we would run out of missiles and fuel before we ran out of targets.

Taiwan has a modern air force, but it has been under-resourced in recent years as has their defense establishment. Taiwan has still not purchased advanced versions of the highly successful Patriot surface-to-air missile systems. These missiles would create an air umbrella under which the Peoples Liberation Air Forces would not operate their current generations of conventional aircraft. Perhaps they are relying on the U.S. to guarantee their freedom? Taiwan's airfields and command nodes would be the obvious early targets of Chinese ballistic missile attacks. Once Taiwan's airfields are attacked, and if rendered unserviceable, Taiwan could offer very little resistance to a Chinese force either overhead or at sea.

The lack of air superiority would severely limit the employment of our ISR assets to ascertain enemy force dispositions or intent. National Overhead collection will provide

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<sup>96</sup> Secretary of Defense, "Military Power of the Peoples Republic of China 2007," 4.

some of the data, but the sheer orbital mechanics will limit what, where, and when collection will take place. Our significant ISR combat force multiplier would largely be unable to safely operate. Even the U-2 and Global Hawk would have to operate outside of the range of the SA-10 and SA-20 the Russians have sold to China. The non-permissive air defense environment would prohibit the effective use of U-2 Dragonfly, MQ-4 Global Hawk's, RC-135 Rivet Joint, E-8C Joint Stars, or EP3 Orion's that are providing incredibly valuable intelligence support to operations in Iraq and Afghanistan. Today's shortfalls in Chinese offensive counter air projection capability are being overcome with the acquisition of Russian air refueling aircraft which would allow the Chinese PLAAF to operate hundreds of miles off the coast.

The combination of potentially leveraging Japan and Korea to either deny or delay our basing options and the Chinese acquisition of advanced fighters and air defense systems creates a true access problem for U.S. forces. The access challenges, tyranny of distance (tanker and sustainment challenges) and scarcity of "stealth" aircraft limit viable and sustainable U.S. response options. The side that devises and executes the right strategy to defeat enemy aircraft and survive in a hostile air defense environment will prevail.

This fight would not unfold like our recent successes in the air. We must do more than just survive in a hostile air defense environment. We must sustain our presence in the skies potentially over a thousand miles from our closest base enough to be an effective deterrent to a Chinese invasion. The punch and counterpunch between U.S. and Chinese strategies can be summarized as America wants to achieve air superiority rapid power projection with advanced aircraft and U.S. naval presence and aviation assets, while the Chinese doctrine emphasizes pre-emption and deception in addition to

increasingly advanced air and air defense systems to used in tandem with highly accurate tactical ballistic missiles. The key for any credible American policy is to achieve air superiority at the right time and place.

## Chapter 5

### Concluding Thoughts

It has been 55 years since US soldiers have been bombed by enemy air forces. If familiarity breeds complacency, complacency has manifested itself in benign neglect. Combat operations against opponents who lack sophisticated air defense networks and the associated fighter aircraft have left planners and senior leaders with a false sense of security. Policy makers have been seduced by the allure of airpower, employed as an instrument of national power with minimal cost in terms of lives lost, or damage to the enemy, or even long-term US commitment. We may be living on borrowed time.

On 2 November 2007, an F-15C fell apart in midair during a mild maneuver—the next day all 668 F-15s—A, B, C, D, and E models were grounded.<sup>97</sup> After extensive inspections the bulk of the fleet was back flying within weeks. Air Force Chief of Staff, General Moseley relayed the following observations to Air Combat Command Commander, General Corley “we are in uncharted territory with this fleet,” and was unable to predict “what is going to break next.”<sup>98</sup> It should be remembered that air superiority is not an American birthright and our aging fleet is not posturing us to maintain our unmatched dominance.

This paper is a reminder to the planner and decision maker that air superiority cannot be neglected or assumed away. History is replete with examples of how and how not to execute the battle for air superiority. My analysis of the Battle of Britain and Operation

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<sup>97</sup> John A. Tirpak, “Fighter Worries; McCaffrey’s Conversion; Back to 381...” *Air Force Magazine*, January 2008, 8.

<sup>98</sup> *Ibid*, 8.

*MOKED* paints a clear picture advocating air superiority as a precursor to successful military operations. They also demonstrate the consequences in failing to anticipate, plan, and fight for air superiority.

*Joint Vision 2010* outlined four operational concepts for continued U.S. military dominance—*dominant maneuver, precision engagement, focused logistics, and full-dimensional protection*—each of which is dependent on air superiority.<sup>99</sup> So much of our national strategy and military power is based upon the ability to project US combat power across the globe. The force multiplying aerial operations, including air mobility and aerial refueling, speak directly to global projection. Additionally, our ability to safely project air power and determine enemy force dispositions and intentions through our burgeoning ISR capability require air superiority to safely operate. Air and space superiority offers national political leadership the freedom to engage globally at any time, and in any place—the freedom to exercise national prerogatives.<sup>100</sup>

The scenario over the Taiwan Straits illustrates an impending problem. U.S. airpower may eventually be called upon to combat an enemy who has an equal understanding and ability to fight for air superiority. The recent Chinese military upgrades include advanced 4<sup>th</sup> generation fighters and surface to air missile systems capable of successfully engaging our current fighter and bomber forces. These sobering improvements, combined with the tyranny of distance present a clear challenge for today's fighter forces to deploy, employ and sustain the fight in an anti-access environment.

The words of retired Army General Barry McCaffrey illustrate true jointness:

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<sup>99</sup> Daniel Goure and Christopher Szara, eds, "Air and Space Superiority" written by Richard Hallion and Michael Irish in *Air and Space Power in the New Millennium*, Volume XIX, Number 4, (Washington DC: Center for Strategic Studies, 1997), 89.

<sup>100</sup> Ibid, 88.

“The US Air Force is badly underfunded, its manpower is being drastically cut and diverted to support of counterinsurgency operations, its modernization program of paradigm-shifting fleets are being ground down by nonstop global operations with an inadequate air fleet and maintenance capabilities...the USAF has been marginalized in the current strategic debate...and has mortgaged its modernization program to allow the diversion of funds to prosecute a war--in Iraq—with inadequate support from Congress.”<sup>101</sup>

He realized that air superiority is America’s problem—not just the U.S. Air Force’s problem. McCaffrey said that the F-22 will guarantee American air dominance for at least 25 years—and it should not be shortchanged because it has “minimal value” in fighting insurgencies.<sup>102</sup> Congressional leaders are coming to the realization that future threats may not all take the form of insurgents. On 9 November 2007, Deputy Defense Secretary Gordon England received a letter from six Republican senators expressing concern over “reports that India and Russia have agreed to partner to build an F-22 counter,” and this might find its way to China.<sup>103</sup>

The focus has been on the cost, not the utility of the asset. With no visible fighter threat posed by a peer competitor, it is easy to succumb to the “cult of the now” and take one’s eyes off of the future. Russia does not pose a direct military threat, however, her arms industry produces and exports advanced weaponry capable of challenging our current 4<sup>th</sup> generation aircraft inventory. To stay ahead in the air superiority fight, 5<sup>th</sup> generation stealth aircraft that offer speed, range, stealth, lethality, advanced avionics, and survivability are required.

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<sup>101</sup> General Barry McCaffrey quoted in John A. Tirpak’s “Fighter Worries; McCaffrey’s conversion; Back to 381...” *Air Force Magazine*, January 2008, 10.

<sup>102</sup> *Ibid*, 10.

<sup>103</sup> *Ibid*, 10. Russia is currently working on F-22 “class” and a known propensity to sell advanced technology is concerning.

The ability to project U.S. airpower in a hostile air defense environment and to sustain that dominant air superiority required to achieve U.S. policy goals is not achievable through “technological catch up.” We have to maintain and exploit our technological advantage—that will cost. Weapons procurement has almost become a one-out inning. “The incomparable Corona program, the first intelligence-gathering satellites, suffered twelve straight failures before it had a successful flight.”<sup>104</sup> This cost would pale in comparison if air power was not postured to execute national policy.

The first step in solving any problem is first identifying the problem. One of the Air Force’s trademarks has been to always look to the future. Chief of Staff General “Buzz” Moseley reminds all of us “the fight we’re waging in Iraq and Afghanistan is not our only concern...we cannot—cannot—afford to become target fixated on counterterrorism or insurgency.”<sup>105</sup> The legitimate challenge that senior Air Force officials face is how to fund for tomorrow when the fight is here and now. Almost all analysts agree that in the coming years the budgets will be at best—zero growth.

Competition within the Department of Defense over future budgets will be intense. Critics of procuring advanced fighters, with no perceived threat to justify the cost, believe the money should be diverted to systems that affect today’s fight. The cost for the F-22 Raptor stands at \$159.9 million dollars each.<sup>106</sup> The value of fighter aircraft is not always visible or apparent to the Army, Navy, or Marine Corps, who rely on the CAS, airlift, air refueling, and ISR during today’s fight.

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<sup>104</sup> Boyne, 370.

<sup>105</sup> Grossman, 1.

<sup>106</sup> United States Air Force, U.S. Air Force Fact Sheet F-22 Raptor (Washington DC: United States Air Force, February 2008) (Accessed online 3 April 2008) <http://www.af.mil/factsheets/factsheet.asp?fsID=199>

The recent grounding of the F-15 fleet due to structural failings is the result of a stressed fleet of aging aircraft worn down by 17 years of continuous combat operations. Air Force Secretary Michael Wynne recently pointed out “The age [of aircraft and other assets] is going up to 26-and-a-half years.”<sup>107</sup> On top of this, our current tankers, B-52 bombers, and U-2 ISR collectors were all fielded in the 1950s. In 1973, the average age of aircraft and space assets was only eight years old.<sup>108</sup> In many ways we have become a victim of our own success. Our unchallenged control of the air for over 50 years may have bred a false sense of security.

Air superiority is not a natural phenomenon, but the product of a deliberate and focused strategy to dominate the air above the battlefield. Lieutenant General David Deptula—who leads Air Force intelligence, surveillance and reconnaissance efforts reminds us regarding the F-22 fighter debate, “It is not enough to fight today’s war against today’s enemy. We must be prepared for tomorrow.”<sup>109</sup> Once again, the importance and value is the capability, not the platform. The ability to prosecute targets, in any environment, arms the Joint Force Commander for success.

If America does not have air superiority in a future conflict, it will be through a function of choice; the freedom of maneuver that an “air umbrella” provides for the JFC cannot be overstated. It is quite clear that the focus of today’s operations in Iraq and Afghanistan have done nothing to demonstrate the need for advanced air superiority fighters. However, power projection will still depend on controlling the air. Controlling

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<sup>107</sup> Marcus Weisgerber, “Iran, Venezuela Pose Threat to Most U.S. Fighter Jets,” *Inside the Air Force*, 21 September 2007, 1 (Accessed on line 3 December 2007)  
[http://insidedefense.com/secure/defense\\_docnum.asp?f=defense\\_2002.ask?docnum=AIR](http://insidedefense.com/secure/defense_docnum.asp?f=defense_2002.ask?docnum=AIR)

<sup>108</sup> *Ibid*, 1.

<sup>109</sup> Lt General David Deptula, quoted in Grossman, 1.

the air will still remain a core requirement to more effectively deploy and employ our military forces. One of the key reasons for our success is that we refuse to win 21-19 in overtime. Just being “good enough” is not acceptable.

The ascendancy of American airpower has widened the choice of the how we can enforce our national will on our adversaries.<sup>110</sup> To gain air superiority sets the conditions to unleash the full force of U.S. combat power. Eventually, we will disengage from our current operation in Iraq and Afghanistan, we must emerge with an eye towards the future, not with a force ready to fight 2001 again in 2010. Operation DESERT SHIELD/STORM’s Combined Forces Air Component Commander, Air Force General Charles Horner summed up the issue quite simply by saying “everything is possible if you have air superiority—little is possible if you lose it.”<sup>111</sup>

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<sup>110</sup> De Seversky, Alexander, *Victory Through Air Power*, (New York: Garden City Publishing CO., Inc., 1943), 100.

<sup>111</sup> General Charles Horner as quoted in John D.W. Corley’s “Air Superiority: Blunting Nearsighted Criticism,” *Study Project* (U.S. Army War College Paper 1993) (Carlisle Barracks: USAWC, 1993), 3.

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