

Applying Operational Art to the Joint Operational Access Concept (JOAC)

**A Monograph
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Abstract

Applying Operational Art to the Joint Operational Access Concept (JOAC)
by Maj Daniel Arkema, USAF, 62 pages.

The development and proliferation of anti-access and area denial strategies threaten the capability of the United States to maintain its global influence with its expeditionary joint force. In response to this emerging threat, the U.S. Department of Defense published the Joint Operational Access Concept (JOAC) in January 2012, stressing that the U.S. must maintain operational access in order to maintain global influence. The purpose of this study was to analyze the JOAC through the lens of operational art, proposing the thesis that the proper use of operational art, focusing on the principles of distributed operations, simultaneity, and operational tempo, is critical to maintaining operational access in areas contested by anti-access and area denial strategies.

This study concluded that operational planners must now translate the concepts outlined in the JOAC into operational plans that meet these emerging threats. Planners must prioritize scenarios by likelihood and importance before presentation to policymakers. The primary deficiency that currently limits the expeditionary capability of U.S. forces is the lack of a secure distributed basing network. In an environment of finite fiscal resources, planners must present basing options to policymakers who will allocate funds, focusing on the highest priority bases that are valuable in multiple scenarios. This study found that a survivable distributed basing network facilitates attacks at multiple decisive points with simultaneity and an operational tempo capable of defeating anti-access systems. Joint Forces can then reestablish operational access, supporting the strategic goal of maintaining U.S. global influence.

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Introduction

Since the end of the Cold War, the United States remains the only standing superpower in the world. The fall of the Soviet Union gave the United States free reign to influence politics and economics on a global scale.¹ Militarily speaking, this dynamic allowed the United States to employ its joint forces essentially unopposed.² During this time, the United States' policy regarding its global interests has not changed; military forces must be capable of rapid deployment to protect U.S. interests anywhere in the world. However, the global environment has changed over the past few decades, and the resulting power vacuum means that competition for resources and influence is on the rise. Therefore, these competitors have begun development and employment of anti-access and area denial strategies capable of limiting the United States' operational access in strategic areas.

As an answer to these anti-access and area denial strategies, the Department of Defense issued the Joint Operational Access Concept (JOAC) in January 2012 that outlined how joint forces will respond to these challenges.³ The JOAC is a strategic concept that stresses the importance of cross-domain synergy, broadly defined as the complementary employment of joint capabilities in different domains. The goal is increased effectiveness and reduction in vulnerability that allows joint forces to establish superiority in several domains simultaneously, thereby providing freedom of action to accomplish the mission.⁴ The publication of the JOAC shows that the United States is focusing at the strategic level on the challenges associated with

¹ James Holmes, "U.S. Confronts an Anti-Access World," *The Diplomat*, entry posted January 9, 2012, <http://thediplomat.com/2012/03/09/u-s-confronts-an-anti-access-world/> (accessed November 1, 2012).

² Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, (Washington, DC: Government Printing Office, January 2012), ii.

³ *Ibid.*, Foreword.

⁴ *Ibid.*

anti-access and area denial strategies. As expected from a strategic concept, the JOAC is mostly comprised of generalities, lacking any significant detail about its implementation.⁵ The next logical step in the process is to apply the JOAC in several specific contexts in an attempt to identify its relevance. Not surprisingly, contexts vary widely, so the application of the JOAC must come second after policymakers and commanders identify a desired end state.

Every situation in which an enemy attempts to deny the United States access to a certain area will be different. Therefore, how an enemy implements its anti-access strategies will determine how the United States responds. For example, the geographic location of the anti-access system along with its intended target, e.g. closing a strategic waterway or violation of a sovereign border, are just a few of the variables policymakers and commanders must consider when identifying the strategic end state. Once policymakers and commanders identify the strategic end state, theater commanders and planners can then determine how to implement the concepts discussed in the JOAC. Subsequently, operational planners working within the construct of the JOAC must identify how operational art, and the implementation of its principles, can restore and maintain the United States' operational access in support of strategic objectives. The thesis of this study is that the proper use of operational art, focusing on the principles of distributed operations, simultaneity, and operational tempo, is critical to maintaining operational access in areas contested by anti-access and area denial strategies.

Given the problem posed by anti-access and area denial strategies in contested areas, how can the application of operational art facilitate operational access in support of strategic objectives and desired end states? Tara Murphy wrote that the United States relies on the ability

⁵ Holmes, "U.S. Confronts an Anti-Access World," 1.

to navigate safely through the global commons, defined as sea, air, space, and cyberspace.⁶ As competitive state and non-state actors attempt to deny access to the commons or threaten U.S. interests abroad, the U.S. military must be capable of an effective response and use force, or the threat of force, to restore access and protect interests. If however, the United States loses its credible capability to project force in support of global interests, this could embolden adversaries and their willingness to threaten U.S. interests. Therefore, the JOAC comes at the right time, but as of yet, there are no studies that analyze its implementation in specific context. The JOAC outlines several precepts that serve as general principles describing how joint forces could potentially restore operational access when faced with armed opposition. A few of these principles include a joint force capable of functioning simultaneously along multiple, independent lines of operation from a variety of basing options.⁷ The joint force would be capable of seizing the initiative by overwhelming the enemy, or overloading its ability to cope.⁸ Therefore, this study applied operational art to determine how well these concepts apply in specific contexts.

The purpose of this study was to use the lens of operational art to provide potential implementation strategies of the three major precepts outlined in the JOAC. Specifically, the study used operational art to analyze joint force deployment in a distributed manner using an effective combination of simultaneity and operational tempo to restore operational access in a contested environment. This analysis of the JOAC's precepts serves as valuable background that theater commanders and operational planners can use in future planning against anti-access and

⁶ Tara Murphy, "Security Challenges in the 21st Century Global Commons," *Yale Journal of International Affairs* (Spring-Summer 2010): 1, <http://yalejournal.org/wp-content/uploads/2010/09/105205murphy.pdf> (accessed November 1, 2012).

⁷Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, ii.

⁸ *Ibid.*, 20.

area denial strategies. Additionally, this study provides planners with a broad approach toward overcoming the challenges associated with anti-access strategies.

The significance of this study is that it is one of the first analyses of how to implement the principles outlined in JOAC using specific contexts. The results of this study may be useful in developing theater strategy documents that clarify how theater commanders intend to implement the JOAC's principles once conflict arises. During World War II, the anti-access strategy implemented by the Japanese in the Pacific initially limited the allied effort in that theater to affect mainland Japan.⁹ The robust air defense system used by the North Vietnamese was another example of an anti-access capability that hindered the United States' ability to influence the political leadership in Hanoi.¹⁰ As a response to these threats, the United States employed concepts that are similar to those outlined in the JOAC and subsequently achieved its strategic objectives. Therefore, it is critical that planners use operational art to analyze the challenges associated with anti-access strategies, especially as the proliferation of these capabilities continues. The United States must be prepared to deal with these types of threats in the future in order to protect its national interests abroad.

To avoid confusion, this study provided definitions of several key concepts discussed throughout the paper. The JOAC is the primary reference for the definitions of operational access, anti-access, and area denial. Joint publications serve as reference material for the terms simultaneity and operational tempo.

Operational access is the ability to project military force into an operational area with sufficient freedom of action to accomplish the mission. Operational access does not exist for its

⁹ *World War II: A Concise Military History of America's Great All-Out, Two-Front War: Adapted from American Military History* (New York: D. McKay, 1980), 502.

¹⁰ Walter Boyne, "Linebacker II," *Air Force Magazine*, November 1997, 1, <http://www.airforce-magazine.com/MagazineArchive/Pages/1997/November%201997/1197linebacker.aspx> (accessed November 1, 2012)

own sake, but rather serves our broader strategic goals, whether to ensure access to commerce, demonstrate U.S. resolve by positioning forces overseas to manage crisis and prevent war, or defeat an enemy in war. Operational access is the joint force contribution to *assured access*, the unhindered national use of the global commons and select sovereign territory, waters, airspace and cyberspace.¹¹

Anti-access refers to those actions and capabilities, usually long-range, designed to prevent an opposing force from entering an operational area. Area denial refers to those actions and capabilities, usually of shorter range, designed not to keep an opposing force out, but to limit its freedom of action within the operational area.¹²

Simultaneity refers to the simultaneous application of capability against the full array of enemy capabilities and sources of strength. It refers specifically to the concept of attacking appropriate enemy forces and functions in such a manner as to cause confusion and demoralization. Simultaneity in joint force operations contributes directly to an enemy's collapse by placing more demands on enemy forces and functions than can be handled.¹³

The tempo of warfare refers to the Joint Force Commander's election to maintain an operational tempo that stretches the capabilities of both friendly and enemy forces, or to conduct operations at a reduced pace.¹⁴ Understanding the definitions of these key concepts is important to understanding the problem at hand. The next part of this section defines the theoretical framework, which highlights the importance of assessing the validity of these concepts through the lens of operational art.

¹¹ Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, i.

¹² *Ibid.*

¹³ Joint U.S. Department of Defense, *Joint Publication 5-0: Joint Operation Planning*, (Washington, DC: August 2011), III-35.

¹⁴ *Ibid.*, III-36.

Throughout history, opposing military powers focused on denying the enemy freedom of movement on the battlefield. The Great Wall of China and the Maginot Line are two examples of low-tech anti-access systems. As technology developed during the 20th century, these systems became larger and more advanced. The British developed radar during World War II to detect and track approaching German bombers so they could accurately time the launch of their fighters. The arms race continued during the latter half of the century, with countries developing advanced missile systems, including both surface to air and air to surface capabilities as a counter to the increasingly expeditionary nature of air, naval, and ground forces. The United States is the prime example of the expeditionary force that relies on this capability to project global power and influence in support of its interests. The United States needed to address the proliferation of anti-access strategies and issued the JOAC, which contains strategic guidance on the issue. Now that the JOAC exists, theater commanders and Joint Force Commanders are responsible for translating this strategic concept into future operational plans. The development of operational plans that support strategic objectives is the essence of operational art, which was the focus area of this study.¹⁵ This study used the framework of operational art to define actions and capabilities that theater commanders can use to implement the JOAC effectively. As of yet, no other known study ties together the concepts of operational art and the JOAC. This study identified the concepts of force distribution, simultaneity, and operational tempo as key to the successful implementation of the JOAC.

The study tested four hypotheses to determine the validity of operational art concepts used against anti-access and area denial strategies and capabilities. Additionally, the study tested the contextual validity of a few of the operational precepts outlined in the JOAC. First, if the

¹⁵ Joint U.S. Department of Defense, *Joint Publication 3-0, Joint Operations* (Washington, DC: Government Printing Office), August 2011, II-3.

United States wants to maintain political influence across the globe, then it must maintain operational access. Second, if commanders use military action against an anti-access and area denial capability, then an end state exists that will restore the United States' influence in the region. Third, if anti-access and area denial systems are deployable or large enough, then they can threaten a wide range of targets, including sovereign countries and strategic waterways. Fourth, if joint forces use an appropriate combination of firepower distribution, operational tempo, and simultaneity, then an anti-access or area denial system can be defeated.

Four research questions guided this study. First, how will strategic goals potentially influence the implementation of the JOAC? Second, what is the best way to distribute joint firepower against an anti-access capability? Third, how do commanders and planners effectively use simultaneity against the anti-access system? Finally, how do commanders and planners determine the correct operational tempo for use against the anti-access system?

The study has one significant limitation; it remained at the unclassified level. Access to classified results of war games and other studies related to specific anti-access capabilities were not available. Classified results of war games may shed light on the feasibility of the concepts discussed in this study.

The delimitations utilized by the researcher in this study relate to the scope of the study itself. Many other studies, especially at the classified level, focus on specific threats and capabilities, such as missile systems or threat countries. This study focused on the JOAC and its applicability in multiple contexts and attempted to remain at the operational level so that theater commanders and planners can take general concepts discussed in the study and apply them broadly in future conflicts.

This study relies on two assumptions. First, proliferation of anti-access and area denial strategies and capabilities will continue in the future that threaten the United States' access to the global commons in an attempt to limit regional influence. Second, the United States will face

some variance of these challenges in the future and must use the force or threat of force to protect its interests.

Six sections divide this research study. Section one includes the background of the study, statement of the problem, purpose of the study, definition of terms, theoretical framework, research questions, limitations, delimitations, and the assumptions of the study. Section two presents a review of the relevant literature, focusing on operational art and the use of distributed forces, simultaneity, and operational tempo in support of strategic objectives. Section three describes the methodology used for this research study. It includes the selection of case studies, application scenarios, and procedures for analysis. Section four presents the final analysis of the study, addresses the hypotheses, and answers the research questions. Finally, section five provides a summary of the research and discusses the implications for U.S. policymakers and operational planners trying to develop counter-strategies and plans in anticipation of anti-access and area denial challenges.

Review of the Literature

This section presents the rationale for conducting research on the concept of operational art and the use of its principles to counter anti-access strategies. From an American perspective, military thinkers did not spend much time prior to the 1970's thinking about operational art. The concept of operational art gained prominence in the United States military after its incorporation into U.S. Army doctrine during the late 1970's and early 1980's.¹⁶ However, the concept had a long history prior to its discovery in the United States. Arguably, some military leaders were already practicing operational art prior to World War I, but the concept was undefined until several Soviet officers developed it during the late 1920's.¹⁷ Since that time, military theorists have expanded upon the concept of operational art, focusing on its importance in specific context. This study compared the original Russian definition of operational art to definitions used by modern military theorists. From this comparison, this study identified the key terms of operational art and concepts that shape a theoretical framework describing why the use of operational art is crucial to countering anti-access strategies and capabilities. Specifically, as anti-access strategies developed and proliferated, researchers and authors of current doctrine stressed the importance of concepts such as distributed basing, simultaneity, and operational tempo as potential counters to the threat. This study focused on the definition of these terms and how their combined use increases the likelihood of success against anti-access strategies. Additionally, it is important to note how the publishing of the JOAC and other relevant studies reinforce the point that operational art, and the use of specific key concepts, are a critical piece of maintaining U.S. global operational access.

¹⁶ Shimon Naveh, *In Pursuit of Military Excellence: the Evolution of Operational Theory* (Santa Monica, CA: Routledge, 1997), 11.

¹⁷ Michael D. Krause and R. Cody Phillips, eds., *Historical Perspectives of the Operational Art* (*Center of Military History Publication*), (Santa Monica, CA: Dept. of the Army, 2006), 8.

The following review of the literature represents the literature pertinent to this research study, namely, operational art, its key concepts as they relate to anti-access strategies, and how they are described in today's environment. Five parts comprise this section, the introduction, theoretical framework, conceptual definitions, empirical evidence, and summary.

Understanding the use of operational art to counter anti-access strategies begins with a study of the origins of operational art. During the 1920's, Mikhail Tukhachevsky and George Isserson noted that technological advancements like the airplane and the tank greatly increased the complexity of conducting modern battle.¹⁸ They saw modern battles stretched across entire fronts as well as in depth. This significant increase in the size of the battle space meant that the strategic commander could no longer personally organize combat because of its increased size and complexity.¹⁹ It also meant that one short engagement could not destroy the enemy. Therefore, the Russians began to visualize the enemy as comprised of various systems and created the idea of operational shock, or the ability to identify weaknesses and disrupt the systems. The Russians noted that this was not necessarily an easy process and that this new way of fighting war still came down to the conduct and control of tactics. Isserson stated that the conduct of tactics in modern battle came down to the essence of its control. Further, in order to control the battle, commanders must organize and coordinate various branches of troops in such a way that reduces its complexity.²⁰ Used correctly, the coordination, linkage, and control of battles allow an aggressor to attack the enemy through the entire depth of his tactical position, defeat an enemy counterattack, and bring the battle to a successful conclusion.²¹

¹⁸ Richard W. Harrison, *Architect of Soviet Victory in World War II: The Life and Theories of G.S. Isserson* (Santa Monica, CA: McFarland, 2010), 72.

¹⁹ Naveh, *In Pursuit of Military Excellence: the Evolution of Operational Theory*, 10-11.

²⁰ Harrison, *Architect of Soviet Victory in World War II*, 72.

²¹ *Ibid.*

Viewing the enemy as a system of systems, also known as the systems approach, is now popular with several other military theorists attempting to reduce the complexity associated with control of modern battles. Shimon Naveh broke down the aim of general systems into three parts, the brain, heart, and self-regulating agency. Naveh used this description to discuss that every system must have a cognitive compass, develop concrete objectives, and the ability to restore equilibrium after a disturbance.²² Naveh wrote that in order to defeat the system, commanders must identify the primary weakness of the system, which he defined as its center of gravity, and exploit it through contemplated maneuvering strikes until the system fails.²³ He concluded that the identification, exploitation, and destruction of the primary vulnerability of the system results in its inability to perform its original mission.²⁴ Naveh expanded upon the idea of operational shock and stated that the aim is delivering the highest degree of shock to the enemy center of gravity. He also made the important point that the commander's ability to exploit vulnerabilities requires a great deal of creative vision, an efficient military intelligence apparatus, and cunning, which he described as the essence of operational art at its best.²⁵

John Boyd arrived at some of the same conclusions that the Russians and Naveh discussed in their work. Boyd did not use the term operational art exclusively, but instead described grand tactics as the realm in which the commander's sound judgment plays an important role. Proper judgment allows the commander to put the enemy's survival at risk by getting inside the enemy's mind-time-space with threatening and non-threatening events to which he must react. Commanders do this by unfolding a series of related decisive strokes to

²² Naveh, *In Pursuit of Military Excellence: the Evolution of Operational Theory*, 14-15.

²³ *Ibid.*, 18-19.

²⁴ *Ibid.*, 19.

²⁵ *Ibid.*

outmaneuver the enemy beyond its moral-mental-physical capability to adapt, thereby isolating, enveloping, or overwhelming him.²⁶

There are several recurring themes in recent literature describing operational art. The most important theme is the description of a cognitive aspect, using critical thinking skills to control and link tactical action that creates success. As modern forces and capabilities extend beyond the commander's line of sight, the commander must be able to visualize operations across the front as well as through its depth and understand how to link and sequence those operations to defeat the enemy system. The second theme is describing the enemy as a system of systems. The two themes complement one another; the commander's cognitive capability to recognize inherent weaknesses in the system is critical to linking tactical actions against the system. Additionally, viewing the enemy as comprised of many different systems breaks the enemy down into different parts, which facilitates the analysis of these subsystems and their inherent weaknesses. The commander may recognize one of the subsystems as the center of gravity, which once exploited, may cause the entire system to fail. Using this framework of operational art as a cognitive approach, analyzing the enemy as a system of systems, the literature review will now focus on definitions of key terms of operational art that could be useful in countering anti-access strategies.

The JOAC outlines eleven operational precepts that describe how joint forces could achieve operational access in the face of an armed enemy. Each precept addresses the challenge of anti-access strategies in a useful way; however, this study focused on three of the precepts that stand out from the rest because they relate closely to the concept of operational art. This part of the literature review highlights writings on distributed basing, simultaneity, and operational tempo.

²⁶ Frans P.B. Osinga, *Science, Strategy and War: the Strategic Theory of John Boyd* (New York: Routledge, 2007), 175.

Congress published a report in 1997 highlighting that the lack of infrastructure outside the United States constrains forward basing options and that advanced anti-access technologies threaten to impede operational access in key regions.²⁷ Depending on the aggressiveness of anti-access strategy and capability implementation, these assets can have devastating effects on any force that chooses to deploy its forces from a small number of forward operating bases.²⁸ Therefore, a study published by the RAND Corporation stressed the importance of operating from multiple bases in a region of conflict to distribute anti-access capabilities over a wider area, reducing their effectiveness and mitigating the risk associated with concentrating U.S. forces in only a few locations.²⁹ Mark Gunzinger wrote a similar argument in a Center for Strategic and Budgetary Assessments report, stating that in an environment where forward bases are vulnerable to ballistic missile attacks, diversification of basing options complicates the enemy's targeting strategy, thereby mitigating risk to U.S. forces.³⁰ The JOAC states that joint planners should consider a variety of basing options, which does not mean that a specific number of bases are required, but instead that an effective basing plan needs to include the orientation and type of bases to be used against the enemy.³¹ This study used the JOAC definition of distributed basing; using multiple air, sea, and land bases from which joint forces can operate, thereby creating a multi-axis approach that mitigates the effectiveness of anti-access capabilities.

Using the distributed basing concept, commanders and planners must then coordinate multi-axis, simultaneous attacks against the anti-access capability to reduce its effectiveness.

²⁷ Christopher Bowie, *The Anti-Access Threat and Theater Air Bases* (Washington DC: Center for Strategic and Budgetary Assessments, 2002), 2.

²⁸ Roger Cliff et al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States* (Santa Monica, CA: Rand Publishing, 2007), 99.

²⁹ *Ibid.*, 99.

³⁰ Mark Gunzinger and Chris Dougherty, *Outside-In: Operating from Range to Defeat Iran's Anti-Access and Area-Denial Threats* (Washington DC: Center for Strategic and Budgetary Assessments), xiii.

³¹ Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, 20.

Isserson wrote that simultaneous attacks allow an attacker to conduct attacks in each zone at the same time throughout the entire depth of the enemy's defensive position. Further, he warned that without a simultaneous attack, strong points in depth would quickly become the backbone of a new defensive position.³² Robert Leonhard concisely defines simultaneity as several decisive events all happening at once.³³ Leonhard's inclusion of decisive events in his definition relates well to the JOAC precept of deploying on multiple, independent lines of operations. The JOAC focuses on operations using multiple lines and domains simultaneously to seize the initiative and overwhelm the enemy's ability to cope. This study focused on the JOAC's definition of simultaneous operations; however, Leonhard wrote that simultaneity is only effective when combined with sequencing and frequency.³⁴

According to Leonhard, frequency as it pertains to war is the most important factor in writing doctrine, organizing, training, and leader development. Leonhard used the word frequency instead of tempo, but the terms have a common military meaning, which refers to how fast things happen.³⁵ He also mentioned that although the military tends to focus on the dynamics of increased frequency, lowering the frequency less than the norm poses unique challenges as well.³⁶ Similarly, Joint doctrine states that commanders must maintain an operational tempo, at an increased or reduced pace, that stretches the capabilities of both friendly and enemy forces.³⁷ The JOAC precept that stands out is maintaining pockets and corridors of local domain superiority as

³² Harrison, *Architect of Soviet Victory in World War II*, 74.

³³ Robert R. Leonhard, *Fighting by Minutes: Time and the Art of War* (Westport, Conn.: Praeger, 1994), 91.

³⁴ *Ibid.*, 91.

³⁵ *Ibid.*, 68.

³⁶ *Ibid.*, 73.

³⁷ U.S. Department of Defense, *Joint Publication 3-0: Joint Operations*, III-36.

well as penetrations in enemy defenses.³⁸ This study used a combination of the Joint Publication and JOAC definition, where the pace of operations influences the ability to maintain local domain superiority. The next part of this section presents literature related to the proposed hypotheses.

This study proposed four hypotheses that combine to describe how the use of operational art concepts is useful in countering anti-access strategies and capabilities. The first hypothesis states that if the United States wants to maintain political influence across the globe, then it must maintain operational access. This was precisely the point that Murphy argued when she wrote that nations can no longer defend themselves by only maintaining the sanctity of their own borders. Navigation through the global commons enables militaries to protect national territory and interests; and yet emerging trends are threatening to deny freedom of action in these areas.³⁹ A 1997 Congressional report concluded that the cornerstone of U.S. military preeminence is the ability to project combat power to widespread areas of the world and this capability depends on sustained access to regions of concern.⁴⁰

The second hypothesis is that if commanders use military action against an anti-access and area denial capability, then an end state exists that will restore the United States' influence in the region. The nature of the anti-access strategy will determine the approach U.S. forces use to counter the threat. Nathan Freier noted that the threat becomes more challenging when it combines military capabilities with political, economic, and informational tools to deny access. Further complicating the problem, U.S. forces operating from forward bases will be insufficient to overcome lethal or fundamentally disruptive anti-access challenges and resolve them without aid. Therefore, these challenges make deep thought about anti-access capabilities an urgent

³⁸ Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, 17.

³⁹ Tara Murphy, "Security Challenges in the 21st Century Global Commons," 28.

⁴⁰ Christopher Bowie, *The Anti-Access Threat and Theater Air Bases*, 1.

strategic priority.⁴¹ When anti-access strategies deny U.S. operational access in critical areas, strategic leadership must analyze the specific threat and provide a clear end state that operational leaders can then use to apply joint force power.

The third hypothesis states that if anti-access/area denial systems are deployable or large enough, then they can threaten a wide range of targets, including sovereign countries and strategic waterways. The RAND report on Chinese anti-access capabilities noted that potential Chinese actions could slow the deployment of U.S. forces into the Pacific theater, or force them to operate from distances farther than preferred.⁴² Bowie pointed out that the anti-access strategy does not have to involve the military alone. U.S. forces trying to maintain access to vital bases of operations in forward deployed areas are always under scrutiny from foreign governments. Changes in political alliance could threaten U.S. access to critical infrastructure in a time of need.⁴³ Gunzinger concluded that hostile nations could use ballistic missiles and terrorist attacks to target U.S. forward bases while conducting a maritime campaign using sea mines, anti-ship cruise missiles and swarms of attack craft in an effort to control the Straits of Hormuz.⁴⁴

The final hypothesis is that if joint forces use an appropriate combination of firepower distribution, operational tempo, and simultaneity, then an anti-access/area denial system can be defeated. Based on the threat to existing U.S. bases in the Pacific, a RAND Corporation report stressed the importance of diversifying its airfield operations in an attempt to mitigate the effectiveness of anti-access capabilities. Gunzinger came to a similar conclusion in a Persian Gulf

⁴¹ Nathan Freier, "The Emerging Anti-Access/Area-Denial Challenge," Center for Strategic and International Studies, <http://csis.org/publication/emerging-anti-accessarea-denial-challenge> (accessed November 1, 2012).

⁴² Roger Cliff et al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, xiv.

⁴³ Christopher Bowie, *The Anti-Access Threat and Theater Air Bases*, 2.

⁴⁴ Mark Gunzinger and Chris Dougherty, *Outside-In: Operating from Range to Defeat Iran's Anti-Access and Area-Denial Threats*, x.

scenario, stating that U.S. forces may need to operate from longer ranges to reduce the effectiveness of anti-access strategies.⁴⁵ David Spinetta compared the effectiveness of land-based and sea-based airpower against anti-access strategies and identified benefits and drawbacks to both options. Notably, his analysis of asset response times, basing requirements, and en route access relates to the concepts of operational tempo and simultaneity.⁴⁶ The location of U.S. forces in relation to the target area directly correlate to the capability to maintain a multi-axis attack coupled with a high operational tempo that reduces the effectiveness of the anti-access system.

This review of the literature covered definitions of operational art, distributed basing, simultaneity, and operational tempo. Literature from Tikhachevsky, Isserson, Naveh, and Boyd focused the definition of operational art to cognitive approach analyzing the enemy as a system of systems. The conceptual definition of distributed basing relied on the JOAC interpretation, including multiple air, sea, and land bases from which joint forces can operate thereby creating a multi-axis approach that mitigates the effectiveness of anti-access capabilities. The definition of simultaneity also relied on the JOAC, which defines it as operations using multiple lines and domains simultaneously to seize the initiative and overwhelm the enemy's ability to cope. The study combined the JOAC and Joint Publication definition of operational tempo into the pace of operations that influences the ability to maintain local domain superiority. Finally, this section presented the four research hypotheses and related them to current literature. The empirical literature review demonstrated that there are other authors and agencies concerned with the issues identified in the hypotheses. The next section presents the instrumentation and research questions.

⁴⁵ Ibid., xi.

⁴⁶ David Spinetta, "The Malacca Dilemma - Countering China's "String of Pearls" With Land Based Airpower" (master's thesis, School of Advanced Air and Space Studies, 2006), 42-43.

Methodology

The primary goal of this study was to analyze three of the primary precepts defined in the JOAC through the lens of operational art. To conduct this analysis, this study used four research questions to examine potential counters to anti-access strategies and capabilities including end states, distributed basing, operational tempo, and simultaneity. The researcher developed two case studies that demonstrate various anti-access and area denial deployment and employment strategies. The study compared these case studies using the structured, focused comparison methodology. In addition to a description of the case studies and instrumentation, this section provides the data collection sources and expands upon the research questions outlined in the introduction. Six parts divide this section, the introduction, case selection, instrumentation, data collection, data analysis, and summary.

This part of the section describes the development of two case studies and their relevance to the study as a whole. It was necessary to develop two scenarios employing modern anti-access strategies and capabilities as opposed to using solely historical examples. Therefore, each case study presented a different scenario, one in the Pacific theater, the other in the Middle East. The next part of this section provides more detail on each case study.

The first case study involves disputed island territory in the Western Pacific Ocean. The territory is a chain of islands in the South China Sea that is inside the Exclusive Economic Zone (EEZ) of several sovereign nations in the region, according to the United Nations Conventions on Law of the Sea (UNCLOS).⁴⁷ However, other countries surrounding the South China Sea claim rights to the territory, prompting one country in southeast Asia to deploy anti-access capabilities in the island's vicinity, thereby blocking entry to the island as well as restricting air and sea traffic

⁴⁷ "Economic Exclusive Zone," United Nations Convention on Law of the Sea, https://www.un.org/depts/los/convention_agreements/texts/unclos/UNCLOS-TOC.htm (accessed November 1, 2012).

in the South China Sea. This scenario poses several challenges to U.S. forces, including how to restore the island's sovereignty and access to the global commons while operating from limited forward operating bases in the region.

The second case study involves the employment of an anti-access and area denial strategy restricting and blocking movement through the Strait of Hormuz. In this case, although a significant U.S. presence already exists in the Middle East, the size and aggressiveness of the anti-access capability may limit operations of U.S. forces from existing bases within the region. This scenario is different from the first because the country employing the anti-access strategy is located adjacent to the denied access area. This presents a different challenge to U.S. forces attempting to restore use of the straits given the threat country's short logistical lines compared to those of the U.S. Both scenarios presented different challenges to U.S. forces establishing and maintaining operational access. The next part of this section describes the instrumentation used to compare the studies for analysis.

In order to guide and standardize data collection, this study used the structured, focused comparison methodology as outlined by Alexander George and Andrew Bennett. They originally developed the method to deal with foreign policy problems and to prevent decisions based on a single historical analogy. They described the method as structured because it allows for a systematic comparison and culmination of the findings by asking the same research questions of each case study. This allows for the generation of comparable data between the two case studies that is valuable to support or reject the proposed hypotheses. The method remains focused because it only deals with certain aspects of each case study.⁴⁸ This study focused on the variables described in the research questions even though there is an abundance of information

⁴⁸ Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, Mass.: The MIT Press, 2005), 67.

relevant to the study. Next is a discussion on the data collection of the study, the research questions, and the expected findings.

The collection of data for this study relied on both doctrinal and secondary writing sources. Collection focused on analysis of the precepts outlined in the JOAC as well as doctrinal guidance and definitions related to joint force operations in a contested environment. Secondary writing sources provided data on the past successes and failures of conflicts demonstrating distributed basing, operational tempo, and simultaneity in environments limiting operational access.

This study used four questions to guide the research, asked each of these questions of each case study, providing a qualitative comparison of the results. By using two case studies with unique characteristics, the answers to the research questions allowed for an analysis to determine the validity of the proposed hypotheses.

The first research question was how would strategic goals potentially influence the implementation of the JOAC? This is the starting point for the analysis of each case study because it determines the level of effort U.S. forces must commit to restore operational access. Specifically, the proximity of the anti-access capability to the country employing it may determine what basing structure and tempo the U.S. can use to defeat the anti-access system. Therefore, commanders determine the desired end state and then plan how to implement the precepts outlined in the JOAC to set the conditions for success. The researcher expected to find that the end state must provide clarity throughout the operation. Without clarity, an ambiguous end state prevents the effective use of joint firepower and may limit the capability to restore operational access.

The second question queries the best way to distribute joint firepower against an anti-access capability. Each of the case studies presents unique challenges to U.S. forward basing strategies. U.S. forces in the Pacific theater have limited existing infrastructure that, if attacked, would significantly limit a U.S. presence for an unknown period. In the Middle East,

infrastructure exists from which the U.S. currently operates, but partnership problems and the potential for attacks on U.S. bases may limit response times. The researcher expected to find that a multi-axis approach through the establishment of new partnerships and building of secure infrastructure is necessary to counter an anti-access strategy.

The third research question asked how commanders and planners effectively use simultaneity against the anti-access system. This question is important because it ties together the issues of distributed basing and operational tempo. The researcher expected to find that simultaneity, combined with a high operational tempo, allows for repeated multi-axis attacks against the system, thereby limiting its effectiveness. Distributed basing and tempo are only part of the solution against anti-access strategies. Simultaneity provides the opportunity for decisive action against the anti-access system in multiple places at the same time.

The final question asked how commanders and planners determine the correct operational tempo for use against the anti-access system. Joint doctrine points out that a commander must determine what tempo stretches both friendly and enemy forces to their limits, ideally resulting in the collapse of the enemy before friendly forces.⁴⁹ Deployment delays and intra-theater basing limitations for U.S. forces in either the Pacific or Middle East may limit the commander's choice of tempo. Additionally, this research question relates closely to the second question addressing basing issues. Any denial of operational bases in the region may delay the arrival of U.S. forces and limit the tempo until the full force arrives in theater. The researcher expected to find that a high operational tempo is necessary to defeat the anti-access capability. Depending on the resources available to the threat country, U.S. forces operating at a slow operational tempo may

⁴⁹ Joint U.S. Department of Defense, *Joint Publication 5-0: Joint Operation Planning*, (Washington, DC: August 2011), III-36.

allow for enemy resupply or deployment of operational reserves to fill gaps in the anti-access system.

This section restated the purpose of this research and presented the research questions in detail. The research relied upon two case studies that highlight unique challenges to U.S. forces attempting to restore operational access in a contested area. The study used a structured, focused comparison methodology to compare the answers of the research questions asked of each case study. Data collection methods included doctrinal as well as secondary writing related to anti-access strategies and their potential counters. The study developed focused research questions relating to end states, distributed basing options, operational tempo, and simultaneity. This section presented the expected answers to the research questions with an expectation that the hypotheses are valid. The next section discusses the development and analysis of the case studies.

Case Studies

This section of the study focused on the background and analysis of two case studies to determine the validity of the proposed hypotheses. The researcher developed two scenarios that deny or restrict U.S. operational access in different ways. The Pacific theater scenario presents challenges related to reestablishing operational access with limited forward basing, therefore creating difficulty maintaining simultaneity and a high operational tempo. The Middle East scenario presents an anti-access strategy in a highly volatile and congested area that challenges the U.S. capability to restore operational access while limiting the scale of conflict. Three parts comprise each case study, an overview of the case, focused questions, and analysis. The overview presents the details of the case that are relevant for analysis. The focused questions portion answers each of the research questions and provides details and evidence to support the answer. The analysis subsection restates the proposed hypotheses and uses the answers and evidence from the research questions to support, reject, or demonstrate mixed results for each hypothesis.

Case 1: South China Sea

Since its formation in 1949, Country C claimed territorial rights in the South China Sea that were inside the Exclusive Economic Zone (EEZ) of several other nations, including Scarborough Shoal and the Spratly and Paracel Islands, as seen in Figure 1.

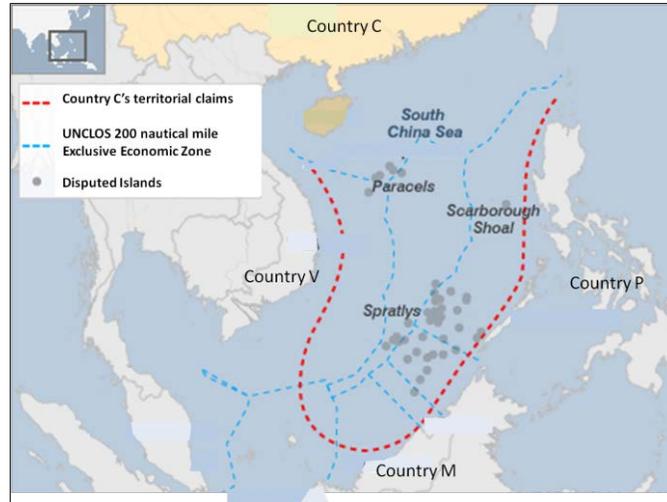


Figure 1. South China Sea Territorial Claims.⁵⁰

Over the past few decades, the rhetoric concerning disputed territory was benign, but during that same time, Country C took the opportunity to increase its military capabilities more quickly than other nations in the region. Over the past few years, in an effort to assert its regional influence, Country C conducted several large military exercises in the South China Sea, demonstrating its military strength. Claiming the need for island outposts that can support these exercises, Country C deployed small troop garrisons to these island chains. The nations with legitimate EEZ claims according to the UNCLOS saw this deployment as a direct provocation. As a result, several countries approached the UN Security Council (UNSC), noting their right as sovereign coastal nations to explore, exploit, conserve, and manage natural resources within the EEZ that shall not exceed 200 nautical miles from their coastline.⁵¹ Responding to the dispute, the UNSC drafted Resolution 1801, admonishing Country C for its actions, urging removal of the garrisons, and proposing economic sanctions until resolving the situation. Country C openly

⁵⁰ Eloise Lee and Robert Johnson, “The US is Placing More Troops in the Pacific Than at Any Time Since World War II,” Business Insider, http://articles.businessinsider.com/2012-03-22/news/31223172_1_balikatan-philippines-just-south-china-sea (accessed November 1, 2012).

⁵¹ “Economic Exclusive Zone,” United Nations Convention on Law of the Sea, Part V.

declared the resolution as an escalation of hostilities and immediately mobilized its armed forces to reinforce and protect its troops and interests in the South China Sea.

Country C's anti-access capabilities are the most technologically advanced in the Western Pacific Theater. They include long-range ballistic missiles, counter-maritime, and counter-air systems. Additionally, Country C's cyber warfare capabilities are among the most robust in the world. Country C's anti-access strategy combines the use of these systems to put U.S. interests and facilities in the region at risk. As part of its anti-access strategy, Country C deployed its surface and sub-surface assets to the South China Sea to counter any aggression toward its new outposts. Shortly thereafter, Country P deployed three naval vessels in defense of communities of its citizens on the Spratly Islands. Unaware of Country P's agenda, Country C used their submarine force to sink two out of the three vessels, killing several hundred of Country P's sailors. The international community and the UN severely criticized Country C's actions, and recommended a harsh punishment. Subsequently, the United States pledged its support to lead a coalition of nations against Country C using all of its instruments of national power. The next part of this section asks focused questions of this case study to gather evidence in support of or against the proposed hypotheses.

The first question is how will strategic goals potentially influence the implementation of the JOAC? The answer to this question is that if political leaders authorize military force, they must also clearly define strategic goals that dictate the limits within which military commanders must operate. Without these limitations in place, the misapplication of military force may fail to restore operational access or even worse, escalate the conflict beyond its intended limit. Therefore, with a limited strategic goal that only aims to restore operational access in the South China Sea, the U.S. may be able to use JOAC principles and attack only those anti-access capabilities deployed to the South China Sea. In contrast, a war authorizing attacks against Country C's mainland infrastructure may lead toward a total war, where JOAC principles still apply to defeat the anti-access strategy, but are more difficult to implement because of Country

C's likely retaliation against U.S. bases of operation in the Pacific. To answer this question in more detail, this study identified and discussed several key issues that determine how to implement the JOAC. These include current Asia-Pacific strategic guidance, means and will in limited warfare, and historical examples of defining strategic goals for the military.

One of the most likely challenges for U.S. policymakers in today's environment is choosing when, where, and how to protect national interests. In January 2012, the Department of Defense (DOD) issued strategic guidance and priorities for 21st Century defense which shifted the DOD's focus toward the Asia-Pacific region, highlighting that developments and disruptions affect the inherent linkages between security and economic interests in that part of the world. It also stressed the importance of building and maintaining relationships with regional partners and deterring open aggression that affects economic interests and threatens regional stability.⁵² The 2010 National Security Strategy (NSS) discussed the importance of maintaining a positive bilateral relationship with Country C and building broader cooperation in areas of mutual interest.⁵³ These documents explain the willingness of the U.S. to get involved in this scenario; however, the U.S. must be cautious in how it approaches the situation so as not to escalate the conflict beyond a desired point. Therefore, the U.S. must carefully determine how to use its instruments of national power to resolve the situation. In this scenario, diplomatic, economic, and informational efforts through the UN failed to resolve the situation, and only served to aggravate Country C even further. Left with nothing but the option to use military force to restore operational access, the U.S. must apply that force in a way that achieves the desired end state and remains within the desired scale of conflict. Based on the most recent DOD and NSS guidance,

⁵² U.S. Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* (Washington, DC: Government Printing Office, 2012), 2.

⁵³ The White House, *National Security Strategy*, by The President of the United States, (Washington, DC: Government Printing Office, 2010), 43.

the most likely U.S. course of action is to restore operational access to the South China Sea and deter Country C's aggression, not to destroy Country C or replace its government. This essentially means returning the South China Sea region to the status quo, and reestablishing the balance of power in the Asia-Pacific. Historical examples of this approach seem to confirm the U.S. policy in Asia-Pacific Theater. The U.S. strategic goal in both the Korean War and Vietnam War was to contain communism and avoid a larger scale conflict with China and the USSR.⁵⁴ Therefore, the U.S. successfully tailored and restrained its attacks against hostile Korean and Vietnamese forces in an effort to reestablish the status quo.

However, in any conflict, returning the region to the status quo may be challenging depending on how Country C reacts to U.S. military efforts. According to Carl von Clausewitz, overcoming an enemy depends on matching and exceeding his effort, defined by the product of two inseparable factors, the total means at his disposal and the strength of his will.⁵⁵ With its limited aims in mind, the U.S. must assess how strongly Country C intends to defend its claims in the South China Sea and use that information to decide how to attack the anti-access system. Country C's southern coast is 700 nautical miles from the Spratly Islands, so several options exist when considering the implementation of JOAC principles. First, it may be possible to destroy only those assets forward deployed to the South China Sea and still achieve the strategic goal of restoring operational access, thus returning to the status quo. However, there is risk associated with this course of action. If the U.S. does not opt to attack Country C's mainland command and control nodes, Country C may demonstrate its willingness to protect its interests by continuing to resupply and reinforce its assets in the South China Sea. This could lead to a war of attrition,

⁵⁴ Mel Gurtov, "From Korea to Vietnam: The Origins and Mindset of Postwar U.S. Interventionism," *The Asia-Pacific Journal: Japan Focus*, <http://japanfocus.org/-Mel-Gurtov/3428> (accessed November 1, 2012).

⁵⁵ Carl von Clausewitz, *On War*, Indexed Edition, Reprint ed. (Princeton: Princeton University Press, 1989), 77.

consuming a massive amount of resources, as the U.S. and its allies try to sever the lines of communication used to reinforce Country C's anti-access capabilities in the region. The second option is a war with aims that permit attacks against critical infrastructure on Country C's mainland. Policymakers and military commanders may push for this option if intelligence about the anti-access strategy estimates that attacks solely against the deployed assets will generate an attritional conflict that takes an unreasonable amount of time and effort. Attacks against the mainland may hold the potential to decrease Country C's expeditionary capability, but much more difficult to conduct given Country C's robust mainland defenses. Additionally, if Country C suspects its mainland infrastructure is at risk, it may lash out and strike U.S. bases in the region to restrict U.S. operational reach and effectiveness. Given these two options, it appears that the first option is the most likely to reestablish the status quo while limiting the scale of conflict, assuming that Country C is also fighting with limited aims. In either case, this highlights the importance of the U.S. preparing the operational environment through a buildup of supplies and basing options in the Western Pacific capable of sustaining such an operation, which is the focus of question two.

The second research question is what is the best way to distribute joint firepower against an anti-access capability? The answer to this question is that the U.S. must establish, support, and defend a myriad of air and sea bases in the Western Pacific that are capable of supporting a multi-axis attack against the anti-access system from, ideally, at least three lines of advance. The detailed answer to this question follows, including the theory behind distributed operations, current basing options, and the presentation of a tiered basing concept that includes general support and defense requirements for a conflict in the South China Sea.

The concept of distributed operations is in direct violation of one of Baron Antoine de Jomini's fundamental principles, massing of forces at the decisive point.⁵⁶ In Jomini's time, this principle worked well because of Napoleon's ability to use his vast *Grand Armée* to envelop and overwhelm his enemy. However, in the current environment where intelligence assets can see an attacking force organizing and moving at great distances, massing one's forces and attacking at a single decisive point is predictable and permits the enemy to mass his defenses along that same axis of advance. However, by distributing attacks at a time and place of the aggressor's choosing, the defender must also distribute his assets to defend in multiple directions, thereby limiting the strength of his capabilities. Figure 2 is a simple illustration of this distributed operations concept.

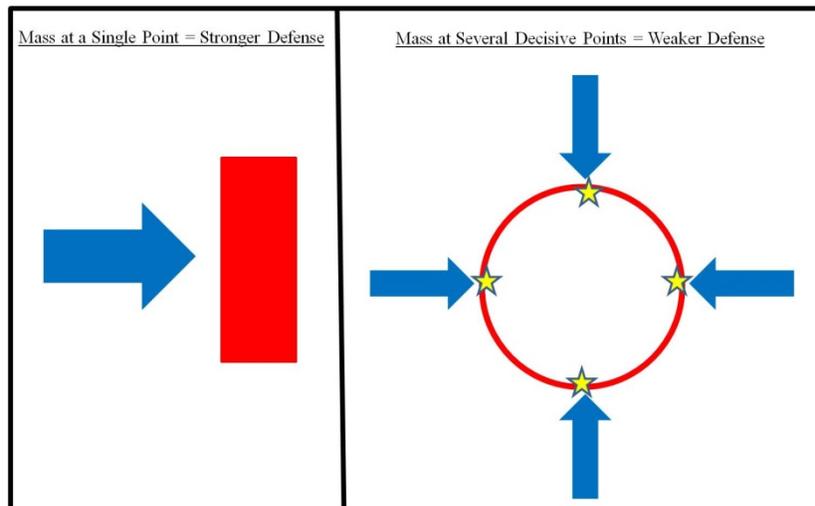


Figure 2. Distributed Operations Concept.

Sir Julian Corbett was one of the first military theorists to argue in favor of dispersing naval forces to secure the maritime domain. He implied that concentration of fleet forces hindered their ability to achieve primary goals because of the difficulty in protecting far-flung lines of communication. Corbett also stressed that distributed operations increased the likelihood of

⁵⁶ Baron Henri de Jomini, *The Art of War*, trans. G.H. Mendell and W.P. Craighill (Project Gutenberg, 2004), 24, <http://www.gutenberg.org/files/13549/13549-h/13549-h.htm> (accessed October 23, 2012).

deceiving the enemy and denying him the ability to predict the main axis of advance.⁵⁷ According to a study conducted by Christopher Bowie for the Center for Strategic and Budgetary Assessments, dispersing air forces across a greater number of airfields is a potential counter to a lack of airfield survivability. As the distribution of assets increased to more airfields, attacks on individual airfields would probably destroy fewer key assets, thereby increasing the total number of required weapons deliveries to destroy large numbers of aircraft.⁵⁸ However, there is a limit to this particular concept. Dispersing assets to a large number of airfields increases the complexity of logistics in the region. Additionally, an air force operation must not create too many attack axes or it may risk diluting the effectiveness of its attacks. An aggressor must find a way to attack in such a manner that he can still achieve sufficient mass to successfully strike at several decisive points and prevent the enemy from knowing his true intentions until it is too late.

Returning to the South China Sea scenario, it is worth understanding what basing options currently exist and how well the current structure would support sustained operations for this type of operation. Concerning air bases in the Pacific, the U.S. Air Force (USAF) and U.S. Navy (USN) rely on several key bases as shown in Table 1. Similarly, Table 2 shows the distances from Pacific ports that would support a U.S. Naval presence for the South China Sea. As a caveat, these tables represent only the major bases U.S. forces currently rely upon in the Pacific. There are other facilities in the region capable of supporting U.S. air and naval forces, such as those in Country P and Country V, but not currently used as military bases of operations. This is a critical limitation discussed later in this section.

⁵⁷ Sir Julian Corbett, *Some Principles of Maritime Strategy* (Annapolis, MD: Naval Institute Press, 1988), 136-138.

⁵⁸ Christopher Bowie, *The Anti-Access Threat and Theater Air Bases*, 56.

Table 1. U.S. Air Bases in the Pacific.⁵⁹

Base	Location	Distance from Spratly Islands (nm)	Primary Use
Paya Lebar AB	Singapore	895	Staging & Transit
Kadena AB	Okinawa	1154	Fighter, Tanker, ISR, SOF
Kunsan AB	Korea	1628	Fighter
Osan AB	Korea	1701	Fighter
Andersen AFB	Guam	1728	Bomber
NAF Atsugi	Japan	1985	Fighter, ISR
Yokota AB	Japan	1989	Cargo
Misawa AB	Japan	2251	Fighter, ISR
Hickam AFB	Hawaii	4965	Fighter, Tanker, Cargo

Table 2. U.S. Naval Ports in the Pacific.⁶⁰

Base	Location	Distance from Spratly Islands (nm)	Capabilities
Singapore Naval Base	Singapore	895	Carrier
CFA Okinawa	Okinawa	1154	Amphibious Craft
CFA Sasebo	Japan	1550	Amphibious Craft
USNF Korea	Korea	1634	Carrier
Joint Region Marianas	Guam	1728	Carrier
USFA Yokosuka	Japan	1967	Carrier
Pearl Harbor	Hawaii	4965	Carrier

There are three major concerns with the current Pacific basing structure. These include the long distances from ports and airfields to potential conflict areas, the axis of advance predictability associated with attacking from these bases, and their lack of survivability in a conflict with Country C. The first difficulty with operations in the Pacific is overcoming the long distances that ships and aircraft must travel from their bases to support the conflict. For the USAF, these overwater flights require massive amounts of transit time and fuel to get to and from

⁵⁹ “Pacific Air Forces,” U.S. Air Force, <http://www.af.mil/information/factsheets/factsheet.asp?fsID=164> (accessed November 1, 2012)

⁶⁰ “CNIC Regions and Installations,” Commander Navy Installation Command (CNIC), http://www.cnic.navy.mil/CNIC_HQ_Site/RegionsAndInstallations/index.htm (accessed November 1, 2012).

the area of operations. Not surprisingly, the USAF would rely heavily on flight operations from Kadena Air Base on Okinawa, but Kadena cannot support the entire operation alone because there is not enough ramp space to house the large numbers of required aircraft. Table 1 shows that there are additional airfields available in Singapore, Korea, and Japan, but the base in Singapore does not have a permanent U.S. fighter presence, and aircraft flying from Japan and Korea would have to fly over 1,600 nautical miles to reach the South China Sea. Bowie's CSBA study also stated that land based fighters must operate from airfields no more than 1,000 to 1,500 nautical miles from an adversary's borders to be effective. Bowie identified several factors that limit these ranges, including physical stresses on the aircrew, operational considerations, aerial refueling requirements, and sortie generation capability.⁶¹ Using these numbers, the U.S. can immediately discount the effectiveness of fighter operations from bases beyond Kadena. In contrast, bomber and cargo aircraft have longer operational ranges, and can operate from distant airfields in Guam, Korea, and Japan, but lack adequate self-protection capabilities and would likely require fighter escort as they entered higher risk areas.

The next concern with the current Pacific basing structure is that any type of conflict that occurs in the South China Sea means that the U.S. axis of advance is generally limited to one from east to west. Although naval vessels should be able to maneuver in such a manner to minimize their predictability, air attack axes originating from larger bases on Okinawa, Guam, and Korea are very predictable unless the U.S. secures alternate airfields. The final issue concerns the survivability of current airfields and ports in the Pacific. Country C's ballistic missile capability, shown in Figure 3, permits attacks against all of the facilities in Table 1 and 2 other than those in Hawaii. Therefore, Country C's willingness to defend its interests in the South China Sea may dictate its willingness to attack U.S. bases in the Pacific. As mentioned

⁶¹ Bowie, *The Anti-Access Threat and Theater Air Bases*, 11.

previously, the U.S. must assess the strength of Country C's will to fight and then use that information to prioritize protection and sustainment of Pacific bases necessary for operations in the South China Sea. This risk to U.S. forces makes dispersion and protection of assets within the theater that much more important to facilitate a realistic operation in the Pacific.



Figure 3. Country C's Ballistic Missile Capability.⁶²

Several studies discuss potential basing solutions to counter anti-access challenges in the Pacific. Of these studies, William Pinter's thesis paper provides an excellent operational concept involving a three-tiered basing structure that the U.S. must develop to increase the effectiveness of Pacific operations. His concept calls for the establishment of six Tier 1 bases similar to Andersen AFB, run year-round by U.S. personnel, including sufficient logistics to supply and maintain operations for extended periods. These bases are ideally around 2,000 miles from potential threats and could include such locations as Darwin, Australia; Palau; and Wake Island.

⁶² Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2011* (Washington, DC: Government Printing Office, 2011), 31.

Because Tier 1 bases are still within the outer range of Country C's missile threat, their facilities must be hardened, enhanced with theater missile-defense systems, and use dispersion and deception techniques to increase survivability. Tier 2 bases are widely dispersed around the region in various host nations, about 1,000 to 1,500 miles from the area of conflict, and must be able to support effective air operations from inside enemy missile threat rings. Each Tier 2 base will support a number of nearby Tier 3 bases that provide further dispersion, enhancing overall survivability. These small bases are in austere locations, only capable of supporting a few aircraft for no more than a few days. Just like the Tier 2 bases, the host nation owns these locations and authorizes them for U.S. use upon approval. Additionally, detailed logistical planning at Tier 2 and Tier 3 bases is critical to maintaining effective operations. Without thorough planning, these airfields may be unusable, thereby decreasing dispersion and survivability. This discussion of Pinter's concept is limited in scope, but overall, he provided a survivable basing framework, mitigating the threat through the dispersion and support of inter- and intra-theater assets.⁶³ Once the U.S. establishes and secures an effective basing structure, the next task is coordinating simultaneous operations at an ideal operational tempo, which is the focus of the final two research questions.

The third research question is how do commanders and planners effectively use simultaneity against the anti-access system? The answer to this question is that commanders use dispersed forces and a unified aim to attack simultaneously at the key decisive points that influence the enemy center of gravity. Ideally, these simultaneous attacks occur within the enemy's decision cycle, thereby causing paralysis and increased vulnerability to future operations. The detailed answer to this question includes discussion of unified aims, attacking

⁶³ William Pinter, *Concentrating on Dispersed Operations Answering the Emerging Antiaccess Challenge in the Pacific Rim*, 51-59.

decisive points that affect the center of gravity, and how simultaneous attacks within the decision cycle affect the enemy.

The JOAC points out that the goal of simultaneous operations is to overwhelm the enemy's ability to cope by conducting operations in multiple domains, using independent lines at the same time. This concept seems very straightforward; however, the coordination of dispersed assets in time and space is complicated, yet critical in the effort to achieve strategic goals. Marvin Hedstrom conducted a study on the concept of simultaneity and identified several key issues that operational planners must use to guide simultaneous operations. Planners must identify physical, moral, or cybernetic vulnerabilities against which to concentrate combat power.⁶⁴ The commander then uses this list of system vulnerabilities to develop a unified aim that guides forces toward the strategic goal of defeating the anti-access system. During this process, commanders and planners may also identify the center of gravity for the system, which Carl von Clausewitz defines as the “hub of all power and movement, on which everything depends.”⁶⁵ Hedstrom pointed out that although targeting the center of gravity is ideal, it may not be a feasible course of action depending on limitations imposed by policymakers.⁶⁶ In the South China Sea example, restrictions on mainland attacks against Country C could limit options for U.S. planners trying to defeat the system. Therefore, an indirect approach might be the only option, instead attacking decisive points that affect the center of gravity.⁶⁷ Joint Publication 5-0 defines decisive points as “geographic places, key events, critical factors or functions

⁶⁴ Marvin Hedstrom, “Simultaneity: A Question of Time, Space, Resources and Purpose” (master's thesis, School of Advanced Military Studies, 2001), 24.

⁶⁵ Carl Von Clausewitz, *On War*, Edited and Translated by Michael Howard and Peter Paret, (Princeton, NJ: Princeton University Press, 1986): pp. 595-596.

⁶⁶ Hedstrom, “Simultaneity,” 20-21.

⁶⁷ Hedstrom, “Simultaneity,” 21.

that, when acted upon, allow commanders to gain a marked advantage over an adversary or contribute materially to achieving success.”⁶⁸ Therefore, by launching coordinated, simultaneous operations against an anti-access system’s decisive points, an increased likelihood exists of affecting the center of gravity, resulting in collapse of the system itself. Hedstrom pointed out that it is also important that these attacks occur within the enemy’s decision cycle, minimizing the enemy’s opportunity to react effectively to the changing situation. The enemy may be at risk if concentrated effects against decisive points occur within a short time span relative to the enemy’s decision cycle, which is the amount of time it takes to respond to an environmental change, and allow an attacker to gain and maintain the initiative.⁶⁹ Hedstrom stresses that the most important consideration for planners using simultaneity is that they minimize wasted effort by directing friendly forces with a unifying aim.⁷⁰ This is especially true in the Pacific theater, where planners must coordinate the simultaneous employment of widely dispersed, scarce resources toward the common goal of acting upon decisive points to defeat the system.

The final research question is how commanders and planners determine the correct operational tempo for use against the anti-access system? Commanders take advantage of tempo by using dispersed assets simultaneously with high repetition to operate inside of the enemy’s decision cycle, thereby defeating the system by causing it to collapse. A brief discussion follows highlighting the importance and use of tempo as a complement to dispersion and simultaneity in a challenging anti-access environment.

⁶⁸ U.S. Department of Defense, *Joint Publication 5-0, Joint Operation Planning*, xxii.

⁶⁹ Hedstrom, “Simultaneity,” 8.

⁷⁰ Hedstrom, “Simultaneity,” 24.

In military terms, tempo refers to the number of significant events per unit of time.⁷¹ Hedstrom wrote that the effective use of simultaneity allows tempo to build, translating effects in the physical domain into those of the moral domain, causing a rapid, decisive loss of cohesion. Hedstrom argued that organizations that make decisions more rapidly than their opponents do gain a marked advantage because the enemy falls further and further behind, making decisions that are no longer relevant to the current situation. Rapid tempo eventually causes the system to fail because it cannot react, or because its actions are no longer valid.⁷² The JOAC also highlights the importance of tempo, stating that the U.S. must decentralize command to lower echelons and subordinate commanders to act independently and use high tempo to take advantage of fleeting opportunities.⁷³ In the South China Sea scenario, the combined use of dispersion, simultaneity, and high tempo is necessary to adapt rapidly to the changing environment. An effective basing structure creates shorter response times, thereby increasing the effectiveness of repeated and simultaneous attacks against decisive points. This approach may provide an advantage to the U.S. in this scenario where Country C's distance from the area of conflict could affect its decision cycle, exposing an exploitable vulnerability. Based upon the answers to these research questions, the next part of this section will provide a brief analysis to support or reject the proposed hypotheses.

The first hypothesis states that if the United States wants to maintain political influence across the globe, then it must maintain operational access. The evidence suggests support for this hypothesis. The JOAC states that the Joint Force must maintain the ability to conduct any

⁷¹ Leonhard, *Fighting by Minutes*, 68.

⁷² Hedstrom, "Simultaneity," 22.

⁷³ Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, 28.

assigned mission, anywhere across the globe.⁷⁴ In the South China Sea scenario, the U.S. is at risk of losing regional political influence if it cannot defeat Country C's anti-access strategy and restore operational access.

The second hypothesis states that if commanders use military action against an anti-access and area denial capability, then an end state exists that will restore the influence of the United States in the region. The evidence suggests support for this hypothesis. The limitations and strategic goals defined for the operation will dictate the use of force against the system, whether it is against Country C's mainland centers of gravity, or against only the deployed system components. In either case, policymakers must clearly define the strategic goal so that military commanders can effectively use force to restore access to the area.

The third hypothesis states that if anti-access/area denial systems are deployable or large enough, then they can threaten a wide range of targets, including sovereign countries and strategic waterways. The evidence supports this hypothesis. Country C's ballistic missile capability alone extends well beyond the South China Sea and threatens the entire Western Pacific Theater. In combination with deployable anti-access systems and capabilities, Country C poses a credible threat to a large area including sovereign countries and strategic waterways.

The final hypothesis states that if joint forces use an appropriate combination of firepower distribution, operational tempo, and simultaneity, then an anti-access/area denial system can be defeated. The evidence supports this hypothesis. These three concepts, which are fundamental to the success of the JOAC, are reliant upon one another. Force dispersion around the South China Sea mitigates the threat while facilitating simultaneity and high tempo operations against the anti-access system. Commanders must identify how to use each of these concepts

⁷⁴ Ibid., Foreword.

effectively to operate inside the enemy’s decision-making cycle, increasing the likelihood of collapsing the system.

Case 2: The Middle East

U.S. involvement in the Middle East over the past few decades created the opportunity for sustained influence and the establishment of a secure basing structure from which to conduct regional operations. During that time, the U.S. developed sound relationships with several Middle Eastern countries, such as Countries A, S, Q, and U shown in Figure 4, in an effort to destabilize and isolate any nation that threatened the region’s balance of power.



Figure 4. Middle East Area of Operations.⁷⁵

The U.S. placed the majority of this effort on Country I, which the U.S. and other Western nations argue is secretly developing nuclear weapons capabilities. The U.S. successfully used its influence in the UN to implement several rounds of harsh economic and military trade sanctions against Country I in an effort to coerce the nation to open its nuclear program to

⁷⁵ “Middle East,” National Geographic, http://worldmusic.nationalgeographic.com/view/page.basic/region/content.region/middle_east_810/en_US (accessed November 5, 2012).

International Atomic Energy Association (IAEA) inspections. In response to the latest round of sanctions, Country I mobilized and moved its armed forces toward its southern border.

Simultaneously, Country I conducted a clandestine mining operation of the Strait of Hormuz.

Recently, within a period of several hours, two large oil tankers moving through the strait sunk after contact with mines. Subsequently, all shipping traffic through the strait ceased over safety concerns. Country I claimed responsibility for the attacks and stated that until the UN lifted all sanctions it would continue to destroy any traffic attempting to pass through the strait.

Country I's anti-access capabilities, although not the most advanced, still pose a significant challenge to potential U.S. efforts to reestablish operational access to the Persian Gulf. The Strait of Hormuz, which is directly adjacent to Country I's southern shore, is only thirty four miles wide at its narrowest point, thereby increasing the effectiveness of an anti-access strategy. In addition to mining capability, Country I is likely to implement a hybrid anti-access strategy, focusing on the use of irregular forces, such as swarms of small naval craft to harass shipping and military vessels, combined with advanced technologies like anti-ship cruise missiles, ballistic missiles, and large concentrations of surface to air missiles.⁷⁶ Figure 5 depicts Country I's ballistic missile capability, which threatens U.S. interests and basing in the region. The remainder of this section answers the research questions and provides analysis that supports or rejects the proposed hypotheses. The detailed answers for each of the research questions in case study two do not repeat the theory discussed in the answers from case study one, much of which is applicable in the Middle East scenario.

⁷⁶ Mark Gunzinger and Chris Dougherty, *Outside-In: Operating from Range to Defeat Iran's Anti-Access and Area-Denial Threats*, x.



Figure 5. Country I’s Ballistic Missile Capability.⁷⁷

The first question is how will strategic goals potentially influence the implementation of the JOAC? Once U.S. policymakers authorize the use of force to reestablish access to the Strait of Hormuz, they must issue clear guidance that identifies the objectives and imposes limitations necessary to achieve strategic goals. If Country I attempts to block the Strait of Hormuz, the U.S. must reestablish operational access to protect its interests in the region. The U.S. may also take the opportunity to implement the JOAC as the first step in a larger operation that attempts to destroy Country I’s nuclear capability or affect regime change. The detailed answer for this question discusses U.S. strategic goals in the Middle East and non-proliferation policy.

U.S. policymakers identifying courses of action in a Middle East scenario must understand the same considerations discussed in the South China Sea scenario. The scale of conflict can escalate quickly, especially considering the somewhat radical nature of Country I’s government. The proximity of Country I to the strait necessitates direct attacks against Country

⁷⁷ David Eshel, “Iran Claims Successful Test of a New Solid Fuel Missile,” Defense Update, http://defense-update.com/analysis/151108_iranian_missiles.html (accessed November 5, 2012).

I's mainland infrastructure and lines of communication that support the anti-access strategy. This means that military commanders can implement JOAC principles with more freedom of action to strike the system's critical nodes, thereby collapsing the system. However, these attacks come at the risk of escalating the conflict because of Country I's habitual hostility toward the U.S. and its regional allies. The risk is even higher given the clandestine nature of Country I's nuclear weapons program. The 2010 U.S. National Security Strategy identified the non-proliferation of weapons of mass destruction as a top priority. Therefore, Country I's unwillingness to cooperate with IAEA inspections is a great concern to the international community because the threat of nuclear weapons proliferation destabilizes the Middle East and threatens U.S. regional interests.⁷⁸ This means that the restoration of operational access using JOAC principles is an absolute must because it creates the opportunity for subsequent operations, such as regime change, in an effort to stabilize the region, ensure future access, and protect U.S. interests in the Middle East. Without operational access that can affect Country I's mainland, the strategic goal of regional stabilization is much more challenging.

The second research question is what is the best way to distribute joint firepower against an anti-access capability? Given the current U.S. basing structure in the Middle East, shown in Figure 6, and the proximity of these bases to Country I, the U.S. must secure its existing infrastructure using the tiered basing concept discussed previously to mitigate risk and increase survivability of U.S. assets conducting operations in the region. Because of current commitments in the region, the U.S. operates from many locations that surround Country I, thereby facilitating the distributed basing concept. However, Gunzinger highlighted the importance of hardening

⁷⁸ The White House, *National Security Strategy*, 4.

forward operating bases and being prepared to operate from outside threat ranges if necessary.⁷⁹ Additionally, the U.S. must consider how diplomatic relationships might change if a new war begins with Country I. Fearing reprisal from terror networks or direct attacks from Country I, countries in the region may withdraw their support from the U.S., subsequently denying access to facilities from which joint forces currently operate. Therefore, the U.S. must harden and secure critical infrastructure while maintaining positive diplomatic relationships with host nations to ensure access to key infrastructure necessary for conducting operations against Country I.

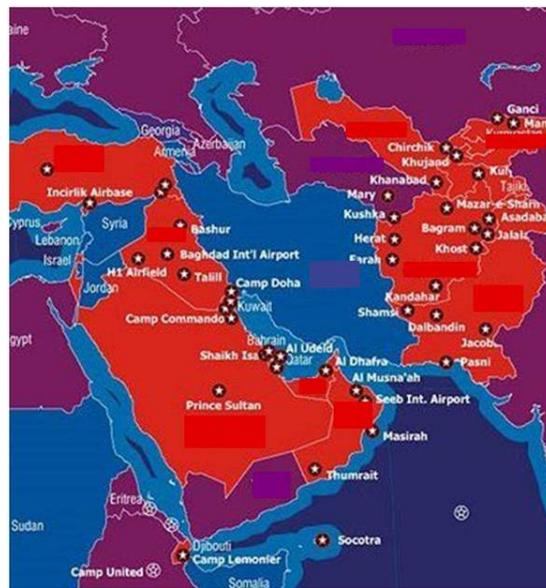


Figure 6. Middle East Basing Options.⁸⁰

The third research question is how do commanders and planners effectively use simultaneity against the anti-access system? The answer to this question is the same as in case study one; commanders use dispersed forces and a unified aim to attack simultaneously at key decisive points that influence the enemy center of gravity. Ideally, these simultaneous attacks

⁷⁹ Mark Gunzinger and Chris Dougherty, *Outside-In: Operating from Range to Defeat Iran's Anti-Access and Area-Denial Threats*, xi.

⁸⁰ "War with Iran," MGTOW Forums, <http://www.mgtowforums.com/forums/politics-economics/7152-war-iran.html> (accessed November 14, 2012).

occur within the enemy's decision cycle, thereby causing paralysis and increased vulnerability to future operations. While the answer is the same in both case studies, case study two presents different challenges to commanders attempting to use simultaneity to counter anti-access strategies. Specifically, the geography within the Middle East could make it more challenging for U.S. Naval forces to maintain a close proximity to the fight. Not surprisingly, the U.S. will want to protect its strategic carrier forces and ensure that they operate from a distance at which they can detect and defeat incoming threats. Gunzinger wrote that Country I is likely to use anti-ship cruise missiles not only in the Persian Gulf, but also against U.S. forces operating in the Gulf of Oman, further increasing the minimum safe operating distance.⁸¹ U.S. carrier forces operating at increased ranges could increase the stress and workload on the other services that are attacking the system. This means that the coordination and conduct of simultaneous operations against several decisive points is increasingly challenging as the carriers move away from the area. This challenge also affects the ability to maintain a high operational tempo, which is the focus of the final research question.

The final research question is how do commanders and planners determine the correct operational tempo for use against the anti-access system? The answer to this question is unchanged from case study one; commanders take advantage of tempo by using dispersed assets simultaneously with high repetition to operate inside of the enemy's decision cycle, thereby defeating the system by causing it to collapse. In the Middle East scenario, operational access to regional basing and the minimum safe operating distance of U.S. Naval forces directly influence the joint force capability to operate at a high tempo. Assuming that diplomatic relations allow access to critical bases, and that these facilities are hardened to withstand attack from Country I's

⁸¹ Mark Gunzinger and Chris Dougherty, *Outside-In: Operating from Range to Defeat Iran's Anti-Access and Area-Denial Threats*, x.

ballistic missile threat, land-based air and ground forces should be able to operate at an advantageous tempo against the anti-access system. Additionally, if U.S. carrier forces are prepared for enemy cruise missiles and small attack craft and can therefore decrease their minimum safe operating distance, they provide a synergistic effect in a different domain that enables the joint force to maintain an operational tempo capable of causing the anti-access system to collapse. The next part of this section will provide a brief analysis to support or reject the proposed hypotheses.

The first hypothesis states that if the United States wants to maintain political influence across the globe, then it must maintain operational access. The evidence suggests support for this hypothesis. The 2010 U.S. National Security Strategy highlighted that nuclear non-proliferation is a top priority, especially in the Middle East.⁸² Therefore, the U.S. must maintain operational access to this region in order to maintain the balance of power and protect its interests.

The second hypothesis states that if commanders use military action against an anti-access and area denial capability, then an end state exists that will restore the influence of the United States in the region. The evidence supports this hypothesis. U.S. policymakers must clearly define the strategic goals in order to maximize the effectiveness of the Joint Force. Policymakers could implement the JOAC in two ways, as a first step in a process of regime change, or with the more limited aim of restoring operational access. In either case, the strategic goals must be clear enough so that military commanders shape their operations in accordance with strategic guidance and therefore restore U.S. influence in the region.

The third hypothesis states that if anti-access/area denial systems are deployable or large enough, then they can threaten a wide range of targets, including sovereign countries and strategic waterways. The evidence supports this hypothesis. Although not as robust as Country C's

⁸² The White House, *National Security Strategy*, 4.

ballistic missile capability, Country I's advanced missile technologies do pose a threat to the Strait of Hormuz as well as sovereign nations. Additionally, as Gunzinger pointed out, Country I has the potential to implement a hybrid anti-access strategy, relying on swarms of small attack boats as well as terrorist activities to deny access to the strait.⁸³

The final hypothesis states that if joint forces use an appropriate combination of firepower distribution, operational tempo, and simultaneity, then an anti-access/area denial system can be defeated. The evidence supports this hypothesis. These three concepts, which are fundamental to the success of the JOAC, are reliant upon one another. U.S. forces already rely on a multitude of forward operating bases in the Middle East. Once these facilities are hardened to increase survivability, this dispersion combined with simultaneity and high tempo operations increases the likelihood of collapsing the anti-access system and restoring operational access.

This section examined two case studies to determine the validity of the proposed hypotheses, each posing different challenges to U.S. operational access. In the South China Sea scenario, limited forward basing options make U.S. efforts predictable, making it more difficult to achieve simultaneity and a high operational tempo. This study found that the use of a tiered basing structure could mitigate the risk of attacks while increasing the likelihood of simultaneous operations and a high tempo that could cause the anti-access system to collapse. The researcher found similar findings in the Strait of Hormuz scenario, although there are different challenges to U.S. operations in the region. Congested waterways and Country I's anti-naval strategy could force U.S. Naval forces to operate at a distance that increases the strain on the other services and challenges the ability to collapse the system with simultaneous and high tempo attacks. By preparing for this threat, U.S. Naval forces can decrease their minimum safe operating distance

⁸³ Mark Gunzinger and Chris Dougherty, *Outside-In: Operating from Range to Defeat Iran's Anti-Access and Area-Denial Threats*, x

and increase the likelihood of Joint Force success. The researcher found that both case studies supported all four proposed hypotheses. The next section will compare these results as the conclusion to the structured, focused comparison methodology.

Cross Case Findings and Analysis

The purpose of this section is to conduct a cross case analysis of the two cases examined in the previous section. Three parts comprise the section, a review of the findings from each case study, a determination of whether or not the findings support the proposed hypotheses, and a conclusion discussing the validity of the hypotheses.

Findings

How will the strategic end state potentially influence the implementation of the JOAC? In a South China Sea scenario, policymakers must determine if reestablishing operational access necessitates attacks against mainland Country C. If permitted, mainland attacks could escalate the scale of conflict significantly. Another option available is attacking only those system components deployed to the South China Sea. This option still relies on JOAC principles to defeat the system, but may prevent unintentional escalation of the conflict while reestablishing operational access. In the Middle East, the proximity of the denied area to the threat country increases the complexity of the situation. Shorter logistical lines capable of reinforcing the anti-access system mean that the U.S. may have no other choice but to attack the mainland lines of communication in order to collapse the system. This course of action is beneficial because it could set the condition for regime change that stabilizes the region as longer-term solution. In either scenario, policymakers must issue clear guidance that military commanders can use in shaping operations that incorporate JOAC principles and achieve strategic goals.

What is the best way to distribute joint firepower against an anti-access capability? In the Pacific scenario, the lack of survivable facilities within range of the South China Sea severely limits the U.S. capability to maintain operational access and regional influence if conflict arises. Therefore, the U.S. must work with host nations in the region to build and update infrastructure capable of supporting U.S. operations. In the Middle East, the U.S. must work toward the same goal of establishing a tiered basing structure and remain mindful of how host nation support for

U.S. operations could change in a war with Country I. The establishment of this tiered basing structure provides a survivable and sustainable network of operating bases from which U.S. forces could launch multi-axis attacks against anti-access system decisive points, thereby reducing system effectiveness and causing its collapse.

How do commanders and planners effectively use simultaneity against the anti-access system? In the Pacific scenario, if policymakers only authorize attacks against the deployed system components, commanders must coordinate the use of U.S. resources operating from dispersed bases to attack simultaneously against multiple decisive points. These attacks affect the center of gravity and eventually collapse the system. In the Middle East, where the geography creates congested waterways, achieving simultaneous attacks is more difficult if U.S. Naval forces must operate from greater distances. In either case, commanders using simultaneity and unified aims attempt to operate inside the enemy's decision cycle, thereby leading to system paralysis and collapse.

How do commanders and planners determine the correct operational tempo for use against the anti-access system? The JOAC highlighted that decentralizing command to lower echelons allows subordinate commanders to control tempo and take advantage of fleeting opportunities. Both scenarios demonstrated that commanders use dispersed forces and simultaneity combined with a high tempo to cause an anti-access system to collapse. In the Pacific scenario, Country C's distance away from the South China Sea may slow its decision cycle, increasing the potential effectiveness of high tempo operations. The reverse is true in the Middle East scenario, where the U.S. Navy must defend itself in a congested area so that U.S. forces can maintain a high tempo against Country I's anti-access systems.

Table 3. Summary of Findings from the Case Studies.

	South China Sea	Strait of Hormuz
Effect of strategy on JOAC implementation	Attacks only on deployed system components may control scale of conflict	Mainland attacks likely necessary to defeat anti-access system adjacent to threat country
Best joint firepower distribution method	Establish a tiered basing structure to increase survivability	Harden existing facilities to increase survivability
How to use simultaneity	Coordinate forces to attack at multiple decisive points to collapse the system	Protect U.S. Naval forces operating in congested waterways to facilitate simultaneity
How to use operational tempo	Take advantage of Country C's longer lines of communication and operate inside its decision loop by decentralizing command to take advantage of fleeting opportunities and increasing tempo	Protect and incorporate U.S. Naval forces operating in congested waterways to increase tempo against the system

Analysis

The first hypothesis states that if the United States wants to maintain political influence across the globe, then it must maintain operational access. The 2010 U.S. National Security Strategy addressed the importance of maintaining alliances in the Asia-Pacific region as well as increasing security to provide a solid foundation for the U.S. military presence there.⁸⁴

Additionally, the recent Department of Defense strategic guidance highlighted the shifting military focus toward the Asia-Pacific region.⁸⁵ Although the military's primary focus is now in the Pacific Theater, the National Security Strategy still lists nuclear non-proliferation as a top priority. The clandestine nature of Country I's nuclear weapons program means that the U.S. must maintain operational access in the region in order to protect its interests against such a threat. In both cases, the National Security Strategy published guidance suggesting that the U.S.

⁸⁴ The White House, *National Security Strategy*, 42.

⁸⁵ U.S. Department of Defense, *Sustaining U.S. Global Leadership*, 2.

intends to maintain its political influence in both regions in the future. Therefore, the evidence from both cases supports the proposed hypothesis.

The second hypothesis states that if commanders use military action against an anti-access and area denial capability, then an end state exists that will restore the United States' influence in the region. Regardless of the scenario, strategic goals should convey the limitations on the use of force against the system, whether it is against mainland centers of gravity, or only against the deployed system components. In either case, the strategic goals must be clear enough so that military commanders shape their operations in accordance with strategic guidance and restore U.S. influence in the region. Therefore, the evidence from both cases supports the proposed hypothesis.

The third hypothesis states that if anti-access/area denial systems are deployable or large enough, then they can threaten a wide range of targets, including sovereign countries and strategic waterways. In both scenarios, threat nations possess a significant ballistic missile capability that threatens U.S. interests and regional basing. Even without this missile threat, each country could use its anti-ship missiles, mining capabilities, and anti-air assets to deny access to a wide range of targets for a significant period. Therefore, the evidence from both cases supports the proposed hypothesis.

The fourth hypothesis states that if joint forces use an appropriate combination of firepower distribution, operational tempo, and simultaneity, then an anti-access/area denial system can be defeated. The advancement of anti-access strategies and capabilities indicates that the use of overwhelming force at a single decisive point may result in failure or catastrophic loss. Therefore, both case studies demonstrate that distribution of forces using a tiered basing structure increases the potential success of commanders using simultaneity and a high operational tempo. The evidence from both cases supports the proposed hypothesis.

Table 4. Summary of Hypothesis Findings.

	South China Sea	Strait of Hormuz	Hypotheses Outcome
U.S. must maintain operational access to maintain global influence	Supported	Supported	Supported
If military force used against anti-access threat, end state will restore influence	Supported	Supported	Supported
Anti-access systems capable of threatening large areas, including sovereign countries and strategic waterways	Supported	Supported	Supported
Correct mix of distributed basing, simultaneity, and operational tempo can defeat anti-access systems	Supported	Supported	Supported

This section conducted a cross case analysis of the two cases examined in the previous section. After a review and comparison of the findings from each case, the researcher examined how well they supported the proposed hypotheses. Based on these results, the evidence supported all four hypotheses. The next section provides a summary of the research and discusses the implications of these results for U.S. policymakers and operational planners trying to develop counter-strategies and plans in anticipation of anti-access and area denial challenges.

Conclusion

Over the past few decades, the U.S. achieved decisive results across the globe by projecting combat power in support of its interests, virtually unimpeded. However, countries are now adopting anti-access strategies and capabilities to challenge U.S. expeditionary forces. Anti-access and area denial strategies threaten the U.S. ability to maintain operational access and protect its global interests. The JOAC offers guidance on how the U.S. can provide a credible capability to counter anti-access strategies and provide assured access, defined as the unhindered national use of the global commons and select sovereign territory, waters, airspace and cyberspace.⁸⁶ This study tied together the concepts of operational art and the JOAC to define actions and capabilities that commanders and planners can use to implement the JOAC effectively. The study used the lens of operational art to examine the implementation of three main precepts from the JOAC in two different case studies. The researcher examined the concepts of force distribution, simultaneity, and operational tempo and their use in Pacific and Middle East scenarios. The intent of using these two scenarios was to demonstrate the validity of JOAC concepts in two very different contexts, thereby confirming the applicability of these concepts to other scenarios. The researcher conducted a structured, focused comparison of the results, presenting evidence in support of the four proposed hypotheses relating to the importance of operational access, clear strategic goals, anti-access capabilities, and JOAC precepts. The conclusion of this analysis is that the proper use of operational art, focusing on the principles of distributed operations, simultaneity, and operational tempo, is critical to maintaining operational access in areas contested by anti-access and area denial strategies. While this study demonstrated the applicability of some of the JOAC's precepts in a variety of contexts, the U.S. must still work to identify potential threats and establish preconditions that facilitate U.S. operations before

⁸⁶ Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, i.

combat begins. The remainder of this section makes recommendations to operational planners and policymakers about how they can better prepare the U.S. to meet the challenges posed by anti-access strategies.

The JOAC stresses the importance of shaping favorable access conditions in advance to increase the chance of success in combat. Therefore, the U.S. must shape operational areas through various security and engagement activities, such as multinational exercises, access and support agreements, establishing and improving basing options, prepositioning supplies, and forward deploying combat forces.⁸⁷ In order to establish these preconditions, operational planners must identify and war game potential scenarios involving anti-access strategies. The scenarios discussed in this study are by no means all-inclusive of potential threats or capabilities. The number of potential scenarios is increasing rapidly based on the proliferation of anti-access capabilities, so planners must identify and prioritize them by likelihood and importance before presentation to policymakers. Not surprisingly, there are staggering financial costs associated with establishing and securing a suitable basing structure in some of these scenarios. Therefore, planners must present plans to policymakers that prioritize critical bases, capabilities, and their resource requirements, which, ideally, are valuable in multiple scenarios. The tiered basing structure that Pinter discussed is an excellent starting point that operational planners can use to identify potential basing options. However, planners must be mindful of the fact that in a fiscally finite environment, building or securing six Tier 1 bases to support Pacific operations is financially unfeasible. Planners must therefore consider a variety of scenarios in which different mixes of basing options are available. For example, in some scenarios, six Tier 1 bases may be necessary, whereas in other scenarios, working with host nations to establish a larger number of Tier 2 bases could suffice to counter the threat. By examining the benefits and drawbacks of

⁸⁷ Office of the Chairman, Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, i.

mixed basing options, the U.S. can minimize the costs associated with establishing and securing new infrastructure, primarily by relying on access to more Tier 2 bases owned and operated by host nations. Operational commanders can then present these basing structure plans to policymakers who will allocate resources, focusing on the highest priority bases that are valuable in multiple scenarios. Policymakers must understand that although resources are finite, the U.S. must establish the preconditions now that assure future operational access and maintain influence in regions challenged by anti-access strategies. Once policymakers approve funding for these basing structures and their support requirements, operational planners can then use concepts of operational art to implement the JOAC's principles. Specifically, planners must rely on a distributed basing network that facilitates attacks at multiple decisive points with simultaneity and an operational tempo in an effort to collapse the anti-access system. The Joint Force can then reestablish operational access, supporting the strategic goal of maintaining U.S. global influence.

The research included in this study examined the feasibility of three of the eleven JOAC precepts. Future research should investigate the relevance of the other precepts, especially the importance of operations in the cyber domain. Efforts in the cyber domain are critical to the JOAC's fundamental concept, cross-domain synergy, and future research should show how these efforts combine to increase the effectiveness of joint forces operating against an anti-access strategy. By investigating these other precepts using the lens of operational art, operational planners can more easily prepare for future anti-access challenges and develop plans that reestablish operational access.

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