

Defeating Adversary A2AD: Merging Domains at the Water's Edge

by

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Abstract

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The proliferation of advanced anti-access and area denial weapons systems (A2AD) creates a significant threat to U.S. Joint Forces operating in the global commons. Current joint doctrine is insufficient for preparing the Joint Force to operate in an A2AD environment. The military's Joint Concept for Access and Maneuver in the Global Commons (JAM-GC) and The Air-Sea Battle Concept, developed to counter A2AD threats, establishes assumptions about the operating environment but does little to manage the risk inherent with the assumptions. Changes in joint force command and control, training and operations, and interoperability and equipment procurement must be made to fully develop an effective doctrine for countering A2AD threats. Without the recommended changes, the U.S. joint force will not be able to ensure the accomplishment of national objectives.

Defeating Adversary A2AD: Merging Domains at the Water's Edge

Amphibious flexibility is the greatest strategic asset that a sea-based power possesses.

—B.H. Liddell-Hart¹

The last significantly contested amphibious assault conducted by U.S. forces was near Inchon, Korea in 1951. Since that time, the U.S. military has maintained the capability to conduct a wide range of amphibious operations. In nearly every theater around the globe, U.S. forces have successfully conducted amphibious assaults, raids, demonstrations, feints, and landings. Further, amphibious forces have conducted other significant operations from the sea including non-combatant evacuation operations (NEO), humanitarian assistance and disaster relief (HADR), and In-extremis Hostage Rescue (IHR). The two constants of every amphibious operation conducted since 1951 are that U.S. forces have enjoyed relatively unfettered access to mostly undefended littorals.

With the advent and proliferation of relatively low-cost Anti-access and Area Denial capabilities (A2AD), adversary defenses no longer begin at the water's edge. Instead, new A2AD capabilities extend adversary defenses well into the area of operations and across all domains. The proliferation and complexity of adversary A2AD capabilities means that the United States may no longer enjoy uncontested access to amphibious operating areas.²

U.S. national interests and policy dictate that the Joint Force must maintain the capability to conduct forcible, amphibious entry operations in an era of increasing A2AD proliferation. Joint amphibious doctrine and capabilities remain essential components for combined and unified operations.³ However, current doctrine and force structure is

insufficient for countering the threats and prevailing in potential operating environments. While the emerging Joint Concept for Access and Maneuver in the Global Commons (JAM-GC)⁴ provides some framework for addressing the challenges of the A2AD environment, it neglects critical adversary capabilities and potential operating conditions. Additionally, the JAM-GC offers largely inadequate joint force solutions for countering the increasing A2AD threat. Specifically, reliance on high-technology solutions to counter adversaries who may employ a mix of high and low-technology capabilities may not secure access or decrease vulnerabilities. Operational risks are further exacerbated by the concept essentially ignoring the risks inherent to operating within the A2AD threat areas when hostilities commence. The challenges of operating within the A2AD environment are most pronounced in the difficult juncture between sea and land, at the water's edge, where forcible entry of capable ground operating forces must be accomplished. This seam is where the greatest challenge lies and where the success of the joint force is most threatened.

Joint forcible entry and amphibious operations remain an effective means to hold antagonists at risk and must remain a capability retained by the United States.⁵ To effectively respond to the emerging A2AD operating environment, joint doctrine, joint training and force integration must be improved. Additionally, task force organizational structure changes must be made before hostilities begin. These changes are critical for ensuring the United States maintains the ability to adequately protect deployed forces and project power ashore even against advanced anti-access and area denial threat capabilities.

Strategic Environment

To maintain its preeminent position as a global leader,⁶ the United States must overcome an array of threats. Transnational terrorism, violent extremist ideology and the instability fueled by poorly governed spaces, as well as rogue and ascendant states such as Iran, North Korea and China threaten the international order.⁷ States aiming to challenge U.S. conventional power, extend their coercive influence beyond their borders, or disrupt the current international order, are rapidly acquiring a mix of advanced A2AD capabilities.⁸ U.S. forces will face a broad array of A2AD threats such as anti-ship cruise missiles and integrated air defense networks, low-technology solutions such as maritime mines, and cross-domain capabilities such as cyber and space offensive and defensive capabilities.⁹ These threats create a significant challenge for the U.S. military and are changing the way the U.S. military must think about force projection and forcible entry.

Nearly two decades ago, GEN Ronald Fogleman, Air Force Chief of Staff, said:

Saturation ballistic missile attacks against littoral forces, ports, airfields, storage facilities, and staging areas could make it extremely costly to project US forces into a disputed theater, much less carry out operations to defeat a well-armed aggressor. Simply, the threat of such enemy missile attacks might deter US and coalition partners from responding to aggression in the first instance.¹⁰

Succinctly, an area saturated with A2AD capabilities may deter U.S. action or make operations in the area too costly. The situation has become more difficult with the proliferation of anti-access and area denial systems, and their decreasing cost. Now more adversaries, including non-state actors, can employ weapons and tactics once available only to the great powers.¹¹

The U.S. continues to play a pivotal role in global stability. As the *2008 National Security Strategy* points out, “the U.S. remains the only nation able to project and sustain large-scale military operations over extended distances” and this capability is “fundamental to regional and global security.”¹² The ability to defeat A2AD threats enables credible U.S. means to deter provocative actions by adversaries that threaten U.S. interests. Overcoming the challenges of the A2AD environment is vital to maintaining global security and achieving U.S. and its allies’ interests.

Addressing the Problem

The U.S. recognizes the critical need for deterring and defeating aggression and understands the crucial role that projecting power and overcoming A2AD challenges plays in supporting national objectives. *Joint Vision 2020, Sustaining U.S. Global Leadership*, highlights the need to leverage power in all domains to succeed in a full range of operational scenarios. As stated in *Joint Vision 2020*:

The ultimate goal of our military force is to accomplish the objectives directed by the National Command Authorities. For the joint force of the future, this goal will be achieved through full spectrum dominance – the ability of US forces, operating unilaterally or in combination with multinational and interagency partners, to defeat any adversary and control any situation across the full range of military operations.¹³

Further, *Joint Vision 2020* provides a suitable framework for building U.S. capability by underscoring the need for fully integrated, joint operations to counter the threats inherent to the operational environment. Additionally, the concept projects that the joint force must be able to “quickly combine capabilities with (other U.S. forces)... across domains, echelons, geographic boundaries and organizational affiliations.”¹⁴ In short, *Joint Vision 2020* emphasizes the requirement to overcome adversary A2AD

capabilities, the challenges in doing so, and the need to employ the Joint Force across all domains to achieve U.S. strategic objectives.

To support the requirements identified in *Joint Vision 2020*, the Defense Department developed a family of doctrinal and conceptual publications including the Joint Operational Access Concept, the Joint Concept for Entry Operations, Joint Publication 3-18 Joint Forcible Entry Operations, Joint Publication 3-02 Amphibious Operations, and recently, the Joint Concept for Access and Maneuver in the Global Commons (originally, 'The Air-Sea Battle Concept'). This family of doctrine and concepts attempts to frame the required capabilities and enabling force structure and describe the conditions necessary for successful operations in an A2AD environment. Each document contributes to a description of the ways and means necessary for gaining operational access and maintaining freedom of action even when facing advanced A2AD capabilities.¹⁵

Current Doctrine and the JAM-GC

The Joint Operational Access Concept describes the importance of force projection despite armed opposition. The Concept specifically states,

As a global power with global interests, the United States must maintain the credible capability to project military force into any region of the world in support of those interests. While the requirement for operational access applies to any mission, the most difficult access challenge is operational access contested by armed opposition.¹⁶

As current doctrine examines the problem of operational access in an A2AD environment, it proposes to defeat adversary capabilities in a deliberate manner. Joint Publication 3-18, Joint Forcible Entry Operations, defines forcible entry as the seizing and holding of a lodgment in the face of armed opposition.¹⁷ The doctrine is heavily dependent on establishing pre-conditions for the conduct of forcible entry operations

and relies on deliberate preliminary forcible entry operations conducted by the Joint Force. Significantly, to establish favorable conditions for a successful operation, the Joint Force aims to surprise, achieve local air superiority, control space and the electromagnetic spectrum, attain command of the sea and neutralize enemy forces within the lodgment area.¹⁸ The methodical and deliberate nature of the planning and conduct of forcible entry operations described by joint doctrine capitalizes on cross-domain synergies and joint force integration to bring relevant and capable combat power to bear against adversary defenses. Most importantly, joint doctrine stresses the need for intelligence, cyberspace and logistics preparation of the environment;¹⁹ habitual and interoperable command and control relationships empowered by mission command;²⁰ and integrated force capabilities across multiple domains.²¹ In deliberate planning and operations, when provided the operational time and space to establish these capabilities, the Joint Force becomes a robust force capable of defeating most A2AD complexes.

Conceptually, joint doctrine for forcible entry operations provides a macro-view of entry operations, but it lacks the fidelity needed to determine and develop equipment requirements, frame command relationships, and provide the context for joint training. The JAM-GC is an emerging concept designed to address these needs and overcome anti-access and area denial challenges.²² Representing a collaborative effort by all the services, the JAM-GC recognizes similar threats to those assessed in current joint doctrine, but makes some significant and critical assumptions regarding the operating environment likely to be faced by a Joint Force operating against an A2AD threat. Specifically, the JAM-GC assumes “forward friendly forces will be in the A2AD

environment at the commencement of hostilities,” that the “adversary will initiate military activities with little or no indications or warning,” and that “all domains will be contested by an adversary.”²³ Further, JAM-GC assumes adversaries will attack U.S. and allied territory used to support operations against adversary forces.²⁴

The sum of JAM-GC’s assumptions essentially describes an operational-level “ambush” of U.S. forces within the A2AD threat ranges and reflects conditions that pose the greatest risk to U.S. forces and U.S. freedom of action. These assumptions also put U.S. forces in an extremely challenging scenario in which they are isolated physically in an operating area, subjected to cyber and electromagnetic attacks, and possibly separated from logistics and operational support of fixed air and sea bases in their immediate vicinity. Collectively, JAM-GC assumes an environment in which the Joint Force will need to conduct counter-A2AD operations as a crisis response, rather than deliberately as current doctrine envisions. To succeed under these conditions, the Joint Force must be prepared to either fight out of the threatened area, defeat attacking adversary A2AD systems with defensive capabilities on hand, or concurrently deny key terrain or destroy critical adversary enablers such as A2AD weapon systems or command and control networks. Yet, while JAM-GC provides recommendations for establishing some needed Joint Force capabilities, it remains largely aimed toward a deliberate response to A2AD operating threats and does not address the full range of immediate crisis response requirements described by its own assumptions.

JAM-GC Shortcomings

To examine the JAM-GC and determine improvements, it is useful to imagine a scenario in which U.S. Joint Forces are inside the threat range of an advanced A2AD adversary possessing the ability to physically and electronically isolate the force and to

deny regional forces from reinforcing or supporting it. Such a scenario can be imagined in the Persian Gulf. The Islamic Republic of Iran already possesses sufficient A2AD capability to disrupt U.S. military actions and significantly impact global security through the denial of safe passage for shipping (both military and commercial) through the Strait of Hormuz.²⁵

Using low-technology sea mines and swarming fast attack boats, Iran can make the Strait of Hormuz impassible for shipping and can disrupt any efforts to de-mine the Strait with the use of coastal defense cruise missiles. If the timing is done correctly, Iran can isolate significant U.S. and coalition naval and amphibious capability in the Gulf. In fact, it has not been uncommon during recent U.S. and coalition operations in the region for a full U.S. carrier strike group (CSG), an amphibious ready group (ARG), and various other U.S. and allied warships to operate simultaneously within the narrow confines of the Persian Gulf.

With its ballistic missile capability, Iran can also interdict many regional bases within response distances. Ports and airfields in the Persian Gulf region are within reasonable ballistic missile range and could also threaten key coalition headquarters in Bahrain and Qatar. Additionally, with a modest level of cyber or electromagnetic attack capability, Iran could disrupt the command and control of U.S. forces. Finally, even a moderately advanced air defense system within Iran could forestall U.S. counter-action to remove the threats. Collectively, these Iranian actions could isolate U.S. forces relatively quickly, inflict significant damages and greatly attrite and impair U.S. force projection capabilities. Such an achievement could allow Iran, or another similarly equipped adversary, to achieve narrow political objectives in a limited conflict. A

successful attack against U.S. and coalition forces would likely not permanently remove U.S. military presence from the region. But, it may change the predilection of regional allies, cause the U.S. to reconsider the value of its national interests in the region, change Iran's relationship with neighboring states and upset regional order. When deliberately employed with the correct strategy, A2AD capabilities could significantly impact regional hegemony and international order.²⁶

The scenario described above meets all the assumptions of the JAM-GC, but does not allow U.S. forces time or maneuver space to respond to the immediate crisis. The deliberate preparation and response methodology postulated by the JAM-GC ignores its own conclusion: that the Joint Force will be initially isolated and severely restricted in its force generation and maneuver responsiveness. To counter the threats described above, and for other similar threat scenarios worldwide, the U.S. Joint Force must organize, plan, train, and equip itself to mitigate the threat posed by an ambush scenario whenever operating within a robust A2AD environment.

Recommendations

To meet the challenges envisioned by the JAM-GC, the Joint Force must make changes in three key areas: (1) Command and Control relationships; (2) Training and Operations; and (3) Interoperability and Equipment Procurement. Each of these changes must occur well before hostilities start and become standard operating procedure for forces moving into robust A2AD threat areas. Based upon the JAM-GC's central assumption- the Joint Force being immediately susceptible to the A2AD environment, if forcible entry operations in an A2AD environment are to be considered at all, the Joint Force must be fully prepared and capable at all times.

Command and Control

The Joint Force will need to be fully established and resourced before entering the A2AD threat area to effectively respond to A2AD threats. The Joint Force must possess the full panoply of forcible entry joint capabilities. This will require significant changes to command and control relationships amongst the operational forces in A2AD areas. In particular, cross-coordination by service and function will be critical to the initial success of the joint force. Importantly, a Joint Force Commander will also need to be pre-designated before forces enter the area of operations.

Each of the concepts contained within the Joint Operational Access Concept - Joint Concept for Entry Operations, Joint Forcible Entry Operation, Joint Concept for Access and Maneuver in the Global Commons, and the Marine Corps' Expeditionary Force 21,²⁷ rely on the establishment of integrated operating forces prior to entering the theater. While command relationships can be established rapidly through pre-existing and habitual relationships, this method is insufficient for immediate response to a coordinated and advanced A2AD threat attack. The joint force cannot rely upon ad hoc in-stride C2 provisioning while concurrently overcoming significant A2AD threat attacks.

The pre-establishment of command relationships for A2AD preparedness is a significant challenge for the Joint Force. Ideally, the Geographic Combatant Commander (GCC) who exercises combatant command (COCOM) or operational command (OPCON) authority over the forces in theater will establish initial command relationships. Through focused intelligence analysis of the battle-space, the Combatant Commander could designate a particular A2AD threat operating area (ATOA) in which all forces will be under the command of a single Joint Task Force commander who is also present in the ATOA. The ATOA should be defined as an area most at risk of a

potential enemy's A2AD weapons systems. Determination of the appropriate commander for the ATOA is at the discretion of the Combatant Commander, but should depend on unit capability, communications, location, and staff capacity. Designation of the ATOA commander will allow forces to establish rudimentary command relationships in the event of cyber or electromagnetic attacks occurring in the operating area. Further, continuously monitoring Joint Force ATOA capabilities, as commands rotate and transit through the theater, will help with the formulation of possible courses of action in response to a first-strike use of enemy A2AD systems.

While ad hoc designation of an ATOA commander is an available measure to organize transitory forces in the ATOA, there is a better approach. It is more prudent to carefully consider the type and size of forces entering an ATOA and to deliberately resource and assemble a robust force capable of counter-A2AD operations before hostilities start. Again, the Combatant Commander is best positioned to build such a force. Using available assets, the Combatant Commander should consider all requirements defined in the JOAC family of publications to establish a Joint Task Force (JTF) best able to conduct counter-A2AD operations. At a minimum, the Combatant Commander should strive to create a JTF with capabilities in each domain. The most potent JTF will combine strike, amphibious, land-based, cyber, and other measures to counter and defeat a potential adversary's existing A2AD capabilities. In the Iran scenario described earlier, a U.S. carrier strike group and amphibious ready group with appropriate cyber enablers presents a credible force in the face of an A2AD environment. When the risk in the ATOA is high, the Combatant Commander will need to evaluate the command relationships established amongst the forces in the region.

Building a credible JTF prior to entry in the ATOA danger area makes the Joint Force more responsive and agile.

Training and Operations

Hasty establishment of ad hoc command relationships between transitory forces in theater is not an optimal way for creating a cohesive fighting force. To improve the capabilities of the ATOA JTF, regular and specific cross-domain coordination and training must occur. All forces preparing to deploy to a particular geographic region should undergo specialized training in the capabilities, application, and employment of counter-A2AD systems. Familiarity with the capabilities of other U.S. forces in the region is also vital. This level of understanding can only be achieved through prior coordination and interaction. The pre-deployment training programs for forces deploying to the vicinity of an ATOA will have to include joint training and qualification in counter-A2AD concepts and procedures. Beyond service-specific training and certification exercises prior to deployment, the GCC should demand joint qualification training programs to certify interoperability and coordination between the disparate units deploying to a Combatant Commander's area of responsibility.

To counteract the A2AD threat, the JAM-GC describes a "networked, integrated force capable of attack-in-depth" and able to conduct "cross-domain operations across all the interdependent warfighting domains (air, maritime, land, space, and cyberspace)."²⁸ This requires a Joint Force comprised of specially trained elements from each of the armed services, a headquarters prepared to coordinate and control the actions of this Joint Force, and a rehearsed and understood joint doctrine. To ensure such a force is developed, the Chairman of the Joint Chiefs needs to direct focused training within the Chairman's Joint Training and Exercise Program.²⁹ Specifically, the

Chairman should designate A2AD training as a High Interest Training Issue (HITI) to ensure its prioritization in the development of training scenarios and programs.

Secondly, a coordinated training plan to develop a JTF headed to an ATOA will need to be developed and executed. A pre-designated, habitual relationship among joint service units could allow a designated JTF commander the ability to exercise the force and practice operations in a simulated A2AD environment. The early formation of the JTF and the achievement of A2AD training objectives will prepare the force for operations in the A2AD environment described by the JAM-GC. Each JTF will need to be equipped with sufficient capabilities to meet the requirements of the networked, integrated, cross-domain force necessary to defeat the A2AD threats.

The Composite Training Unit Exercises (COMPTUEX) and Joint Task Force Exercises (JTFEX) conducted between Carrier Strike Groups and Amphibious Ready Groups prior to their respective deployments provide a good model for ATOA JTF pre-deployment exercises.³⁰ During COMPTUEXs and JTFEXs, major subordinate units are tested, observed and evaluated during training scenarios that simulate possible operations in an upcoming deployment. Once the subordinate units are certified, they are observed during the JTFEX to assess interoperability and provide additional pre-deployment evaluation and training. These exercises typically serve as the integrating exercise to combine the capabilities resident in the various units.

Conducting a similar series of exercises to support the development of an ATOA JTF will require the participation and synchronization of units deploying to a region with an ATOA. Significantly, the exercise should accomplish a few key tasks. At a minimum, the likely JTF headquarters should be designated and exercised.

Additionally, as many deploying organizations as possible should participate (remotely, virtually, or otherwise). Finally, the exercise should rehearse cyber and electromagnetically degraded operations. When the concepts of COMPTUEX and JTFEX are applied to the ATOA JTF, similar interoperability and capability refinements in the A2AD mission sets should be effected. An exercise of this sort would build an understanding of the various units available for counter-A2AD operations, provide a framework for the creation of an ATOA JTF, and rehearse possible response scenarios to likely threats.

Interoperability and Equipment Procurement

Current force capabilities and existing interoperability measures are not sufficiently effective to respond to the range of A2AD threats. As required by the JAM-GC, the Joint Force must be able to operate across all domains and in a degraded cyber and electromagnetic environment. The networked and cyber-enabled Joint Force of today would face significant issues if an adversary executed a successful denial-of-services attack against U.S. Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems.³¹ Enhancements in deployable offensive and defensive cyber capabilities must be developed for employment within a JTF operating in an ATOA. To capitalize on national level cyber capabilities, the Department of Defense should pursue development and fielding of a cyber-hardened, reach-back capability that enables a forward-deployed cyber liaison the ability to synchronize and employ national capabilities in response to ATOA JTF requirements. Further, the cyber liaison should receive specialized training on joint and national cyber capabilities and be integrated into JTF training and operations.

A model already exists for development and implementation of this capability. U.S. Cyber Command and Service-level cyber commands have developed and deployed a variety of cyber teams to support operations. While these teams provide a good start to the integration of cyber capabilities in operations, they remain rudimentary and often operate at too high a command level. The concept behind these teams must be expanded to support immediate crisis operations of forward deployed forces. Similar to the Joint Tactical Air Controllers (JTACs), who receive specialized training and equipment for the planning and control of air-delivered fires in support of surface maneuver units, these cyber teams should develop personnel with similar capabilities in the cyber domain. For instance, a designated Joint Terminal Cyber Controller (JTCC) could receive specialized training in the capabilities and employment of service, joint, and national level cyber offensive and defensive capabilities. The JTCC would then be integrated into the JTF headquarters to facilitate coordination of JTF cyber capabilities and employ cyber- and electromagnetically-hardened communications assets to control cyber 'effects' in support of operations. Failure to develop and provide a JTCC-like capability to the JTF makes coordination of cyber responses more difficult and threatens the JTF's C4ISR assets in an A2AD attack scenario as described by the assumptions of the JAM-GC. Additionally, the JTF will be less capable in disrupting an adversary's C4ISR capabilities prior to or during an attack on friendly forces.³²

Effectively employing the JTCC and other assets to strike an adversary's networked defense will greatly assist in reducing A2AD systems, but it might be insufficient to completely defeat the threat. The JTF must possess the capability to physically destroy adversary weapons and platforms. Active self-defense mechanisms

such as flares and chaff on aircraft, Close-in Weapons Systems (CWIS) on ships, and passive measures such as stealth technologies can deny, degrade or defeat a portion of adversary weapons. However, these measures may prove insufficient against either overwhelming numbers of weapons, such as small boat swarm tactics and missile barrages, or 'dumb' munitions such as sea mines. In these cases, the most effective way to defeat the adversary A2AD weapons capability may be destruction or denial of the systems before they are employed. To do this, the JTF must have sufficient capacity to deliver effective surface or air delivered fires or to conduct limited objective air or amphibious raids to destroy the A2AD launch points or storage sites.

To achieve this capability, the JTF must be equipped with sufficient air and surface fires platforms as well as air assault or amphibious forces capable of conducting raids ashore. Due to threat weapons ranges, the amphibious forces would need to be capably equipped to conduct a landing at a location greatly offset from the objective area, conduct a high-speed surface approach, and then rapidly withdraw following successful destruction of the adversary capabilities. Such a landing force would require light-weight, highly mobile vehicles to allow easier transportation to the shore, rapid closure to the objective area over significant distances, and sufficient protection and armament to conduct the raid at the objective. Versions of the Army's Stryker vehicle or Marine Corps' Light Armored Reconnaissance Vehicle can serve as models for future development to fill this requirement.

Strategic and Operational Implications and Recommendations

The recommended measures necessary to prepare the Joint Force for continuous operations under the threat of A2AD engagement requires the development, training, and equipping of a fairly sizable force. With the exception of the fielding of a

new vehicle, most of the capabilities required already exist within the force but need further development and refinement. Significantly, the fiscal cost of deploying an ATOA JTF will be greater than current operational costs for similar forces. Scarce training and preparatory time will be reallocated to certification exercises and individual training requirements. The joint force will also need to expand training venues, schoolhouses, and interoperability opportunities to develop the cadre of JTCCs needed to support the ATOA JTF. These additional requirements increase fiscal costs, place additional burdens on training systems, and tax available manpower. These costs are significant in the current era of declining budgets, military downsizing, and high operational tempo. Arguably, the largest cost of such a force packaging construct is in its impact on operational and strategic flexibility.

Implementation of the ATOA JTF concept would require the synchronized deployments of many different service assets ranging from carrier strike groups and amphibious ready groups, to Air Force squadrons, Army Ballistic Missile Defense units for dispersed bases in theater, and other required A2AD counter capabilities. Establishment and training of the JTF would encompass a larger amount of available training time for all concerned units and possibly require consolidated training at a location remote from home stations. Additionally, once the JTF is established and deployed, the combatant commander will be greatly reduced in the ability to task individual elements for separate and disparate missions without risking the JTF's counter-A2AD capability.

Moreover, the JTF will likely need to remain a composite organization through the entirety of its deployment to the ATOA to effectively counter an A2AD attack. Thus,

by accepting less risk against the A2AD threat, the combatant commander will be more restricted in the conduct of other missions outside the ATOA. The sourcing of the ATOA JTF will represent an opportunity cost to operational flexibility and responsiveness. It may preclude execution of some missions such as Theater Security Cooperation Exercises, Humanitarian Assistance and other requirements low in the range of military operations. Failing to conduct missions of this sort could have far-reaching impact on the achievement of strategic and operational goals.

Conclusion

The days of unfettered U.S. military access to an amphibious operating area are rapidly coming to a close. The rising capability of anti-access and area denial weapons and their proliferation around the globe are challenging the U.S. ability to defend and support its interests in critically important, strategic locations. This threat presents significant strategic and operational challenges to the attainment of our national policies and interests. These increasing capabilities allow nations such as Iran, North Korea, China and others, to coercively influence their regional neighbors, increase military operational risk to U.S. forces, and threaten regional and global stability. It is imperative that the United States develops and implements a joint force capable of successfully operating within the increasing threat ranges of high-risk A2AD areas.

Existing joint doctrine and the emerging Joint Concept for Access and Maneuver in the Global Commons provide some solutions for defeating this increasing threat, but remain insufficient. While the JAM-GC highlights U.S. vulnerabilities within the A2AD strategic operating environment, it offers inadequate measures to mitigate the threat within its context. To properly prepare for an A2AD fight, the Joint Force must recognize the importance of being organized, trained and equipped for the fight before

entering an A2AD high-risk threat area. The Joint Force will need to modify its habitual command relationships, implement new training requirements, and provide specific capabilities to ensure success in the A2AD fight. While the costs of preparing a force to succeed in the A2AD fight are significant, they are vastly outweighed by the costs of operational defeat. Failure to make the recommended adjustments will leave the U.S. military ill-prepared to fight in certain strategic locations, deny U.S. policy makers a full range of military options, and threaten U.S. relationships with regional allies and partners.

Clearly, the U.S. military will increasingly operate in areas threatened by capable A2AD weapons and systems. The Joint Force must adapt to these new conditions or face potential catastrophic losses and a failure to achieve critical U.S. policy objectives.

Endnotes

¹ B.H. Liddell Hart, "Marines and Strategy," *Marine Corps Gazette* 64, no. 1 (January 1980): 22.

² Kathleen Hunter and Viola Gienger, "Iran Able to Block Strait of Hormuz, General Dempsey Says on CBS," *Bloomberg Online*, January 9, 2012, <http://www.bloomberg.com/news/articles/2012-01-08/iran-able-to-block-strait-of-hormuz-general-dempsey-tells-cbs> (accessed February 2, 2015).

³ Chuck Hagel, *Quadrennial Defense Review 2014* (Washington, DC: U.S. Department of Defense, March 2014), 30.

⁴ The Joint Staff recently subsumed the Air Sea Battle Office into the Joint Staff J-7. The organizational change and renaming of the Concept is due in part to the controversial nature of the original Air Sea Battle Concept and its lack of significant discussion of land-power in an A2AD environment. The main components of the Air Sea Battle Concept still exist in the JAM-GC construct, however. See: Sam LaGrone, "Pentagon Drops Air Sea Battle Name, Concept Lives On," *USNI News Online*, January 20, 2015, <http://news.usni.org/2015/01/20/pentagon-drops-air-sea-battle-name-concept-lives> (accessed January 20, 2015).

⁵ U.S. Joint Chiefs of Staff, *Amphibious Operations*, Joint Publication 3-02 (Washington, DC: U.S. Joint Chiefs of Staff, July 18, 2014), I-2.

⁶ Barack Obama, *National Security Strategy* (Washington, DC: The White House, May 2010), 1-2.

⁷ *Ibid.*, 3.

⁸ Air-Sea Battle Office, *Air-Sea Battle: Service Collaboration to Address Anti-Access & Area-Denial Challenges*, Air-Sea Battle Concept (Washington, DC: Air-Sea Battle Office, May 2013), 2.

⁹ Kenneth Katzman, *Iran's Threat to the Strait of Hormuz* (Washington, DC: U.S. Library of Congress, Congressional Research Service, January 23, 2012), 5-6; Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities – Background and Issues for Congress* (Washington, DC: U.S. Library of Congress, Congressional Research Service, December 23, 2014), 1.

¹⁰ Andrew Krepinevich, Barry Watts, and Robert Work, *Meeting the Anti-Access and Area-Denial Challenge*, 2003 (Washington, DC: Center for Strategic and Budgetary Assessments), 2, <http://www.csbaonline.org/wp-content/uploads/2011/03/2003.05.20-Anti-Access-Area-Denial-A2-AD.pdf> (accessed November 9, 2014).

¹¹ U.S. Joint Chiefs of Staff, *Joint Vision 2020* (Washington, DC: U.S. Joint Chiefs of Staff, June, 2000), 2.

¹² Obama, *National Security Strategy*, 17-18.

¹³ U.S. Joint Chiefs of Staff, *Joint Vision 2020*, 6.

¹⁴ *Ibid.*, 4.

¹⁵ *Ibid.*, 11.

¹⁶ U.S. Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)* (Washington, DC: U.S. Joint Chiefs of Staff, June 17, 2012), i.

¹⁷ U.S. Joint Chiefs of Staff, *Joint Forcible Entry Operations*, Joint Publication 3-18 (Washington, DC: U.S. Joint Chiefs of Staff, November 27, 2012), I-1.

¹⁸ *Ibid.*, I-2-I-5.

¹⁹ U.S. Joint Chiefs of Staff, *Joint Concept for Entry Operations (JCEO)* (Washington, DC: U.S. Joint Chiefs of Staff, April 7, 2014), 11.

²⁰ *Ibid.*, 14-15.

²¹ *Ibid.*, 19.

²² Air Sea Battle Office, *Air-Sea Battle*, 3.

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ James R. Holmes, "The Real Iran Threat," *The Diplomat Online*, October 29, 2012, <http://thediplomat.com/2012/10/the-real-iran-threat/> (accessed February 4, 2015).

²⁶ Ian Easton, "China's Military Strategy in the Asia-Pacific: Implications for Regional Stability," September 26, 2013, 12, http://www.project2049.net/documents/China_Military_Strategy_Easton.pdf (accessed February, 2015).

²⁷ U.S. Department of the Navy, *Expeditionary Force 21* (Washington, DC: Department of the Navy, March 4, 2014), http://www.mccdc.marines.mil/Portals/172/Docs/MCCDC/EF21/EF21_Capstone_Concept.pdf (accessed February 4, 2015).

²⁸ Air Sea Battle Office, *Air-Sea Battle*, 4.

²⁹ U.S. Joint Chiefs of Staff, *Joint Training Policy and Guidance for the Armed Forces of the United States*, CJCSI 3500.01G (Washington, DC: U.S. Joint Chiefs of Staff, March 15, 2012).

³⁰ Joshua D. Sheppard, "GHWB Strike Group Underway for COMPTUEX/JTFEX," *Fleet Observer Online*, January 28, 2011, http://www.norfolknavyflagship.com/oceana/news/fleet_news/ghwb-strike-group-underway-for-comptuex-jtfex/article_29bc0f8a-2af6-11e0-9a0a-001cc4c03286.html?mode=story (accessed December 7, 2014).

³¹ Roy Kamphausen and Andrew Scobell, *Right Sizing the People's Liberation Army: Exploring the Contours of China's Military* (Carlisle Barracks, PA: U.S. Army War College, 2007), 130, <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB784.pdf> (accessed February 4, 2015). In this study, the authors explore Chinese Army modernization and acquisitions programs. The Chinese army is engaging in a deliberate program to develop and build cyber capability to disrupt U.S. C4ISR capabilities.

³² Air Sea Battle Office, *Air-Sea Battle*, 7. The ASB concept envisions three lines of effort to defeat adversary A2AD capabilities. The first LOE is to disrupt adversary C4ISR. The second LOE is to destroy adversary A2AD platforms and weapons systems. The third LOE is to defeat adversary employed weapons and formations, post-launch. The disrupt LOE is intended to preclude an adversary attack, the destroy LOE is intended to allow friendly freedom of movement and action, and the defeat LOE is a post-launch, defensive measure against adversary capabilities in the terminal phase.